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1997 UPDATE

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JAFFREY SHOULD ...

A compilation of community objectives
prepared by the Jaffrey Sounding Board
for the guidance of town officials and planners.

April 18, 1989

JAFFREY COMMUNITY OBJECTIVES

Preamble

The community of Jaffrey intends that those resources generally considered good, necessary, and locally characteristic should be preserved, nurtured, and improved for the benefit of the most important resource of all - the people who live and work in the town or who visit Jaffrey.

To this end, Jaffrey's citizens and their government should:

- Protect the health, safety, and welfare of the people;
- Preserve the environment (*i.e.*, the land, water, air, vegetation, wildlife, and scenery);
- Preserve and enhance the rural character and the historic appearance of the town, controlling the forces of rapid growth and change;
- Ensure that government is conducted efficiently for the future;
- Plan broadly, intensively, and effectively for the future;
- Encourage the widest possible public awareness and citizen participation in town affairs;
- Amicably resolve any conflicts resulting from the pursuit of these various intentions.

A. Land Use

Jaffrey needs to encourage, through planning and controls, a variety of compatible land uses in proper proportion, capable of functioning together with efficiency and economy and able to accommodate appropriate development with minimal disruption.

Therefore, Jaffrey should:

(1) Design a pattern of development and growth that enhances the quiet, rural atmosphere of the town, avoiding haphazard or premature development;

(2) Establish a rate of development and growth that permits adequate job and housing opportunities and the steady expansion of the tax base, but is not so rapid as to result in unforeseen capital expenditure nor so irregular as to hamper sensitive and effective town planning;

(3) Protect public health and safety, property values, and community character by preventing incompatible land uses (*e.g.*, industry should not intrude upon existing or future residential areas);

(4) Maintain and strengthen downtown Jaffrey as the center of the commercial and civic life of the town:

(5) Control development near sensitive areas so as to protect and enhance the scenic and cultural resources of the town (*i.e.*, lakes, streams, fields, forests, and historical structures);

(6) Accommodate changing needs by continual public planning designed to analyze development proposals and ensure managed growth;

(7) Employ land use regulations consistently to guide development and revise them periodically in accord with the comprehensive plan.

B. Economy

We should consistently seek to improve the employment and services to residents and visitors while protecting the beneficial aspects of life in a smaller community.

Therefore, Jaffrey should:

(1) Permit business and industrial expansion that enhances the existing economy and protects the town's finances;

(2) Maintain diverse employment opportunities in business and industry;

(3) Encourage retail activity that primarily serves the needs of the nearby population;

(4) Concentrate business, professional, and civic activities in downtown locations

(5) Attract new business and industry be developing excellent support facilities (*e.g.*, library, schools, recreational resources, police and fire protection, utilities, *etc.*)

(6) Use vacant commercial and industrial buildings, expanding such uses in presently designated areas;

(7) Cooperate with appropriate agencies to encourage tourism.

C. Housing

It is the duty of a responsible community to provide adequate, safe housing for all inhabitants, while protecting the town's traditional appearance and the value of its property.

Therefore, Jaffrey should:

(1) Plan and zone to provide for harmonious diversity of housing types and price ranges, offering a choice of environment and lifestyle;

(2) Support residential development that enhances the existing image of Jaffrey as a diverse community in a rural surrounding;

(3) Develop clear policies specifically to permit multifamily housing and apartment conversions in keeping with neighborhood scale and character;

(4) Encourage maintenance of the town's existing dwellings and rehabilitation or replacement of substandard housing;

(5) Limit or discourage expansion of incompatible uses (*e.g.*, heavy traffic, industry) into residential areas;

(6) Ensure, through inspection, that all new/renovated housing meets adequate safety and health requirements.

D. Services

Within the bounds of fiscal responsibility, it is the duty of a town to provide needed facilities, services, and utilities for residents and visitors.

Therefore, Jaffrey should:

(1) Continually maintain and improve the public water, sewer, and waste disposal systems, with special attention given to recycling solid wastes;

(2) Permit extension of the water and sewer systems, subject to clear regulations minimizing the impact upon the general taxpayer;

(3) Offer police and fire protection in keeping with the growth and location of the town;

(4) Provide parks and recreational areas offering a wide range of accessible year-round enjoyments;

(5) Encourage support of the library and other centers for cultural activities, with special attention given to the requirements of youth and the elderly;

(6) Coordinate planning with the School Board to determine the location of future buildings and athletic fields;

(7) Ensure adequate space, equipment, and personnel to administer the town;

(8) Prepare for the future by annually updating a capital improvements program and developing a capital budget to meet anticipated needs.

E. Environment

A healthy environment and an attractive natural setting is essential to preserve the town's traditional image.

Therefore, Jaffrey should:

(1) Pursue a public policy aimed at preserving the town's natural scenery and improving the visual harmony of buildings and properties;

(2) Encourage and assist private efforts at environmental preservation aimed at enhancing that harmony;

(3) Establish ecological zones to protect unusual geology, woodlands, and the habitats of rare plants and animals; to provide necessary green space; and to serve as outdoor classrooms for future generations;

(4) Advance every means for purchasing or receiving open land through easements, gifts, and bequests to add to the natural preserve of the town;

(5) Require that all new development relate harmoniously to the scenic surround, preserving the vistas of mountain ridges, woodlands, meadows, lakes, streams, and ponds;

(6) Promote innovative site plan concepts that encourage variety in architecture and design, discouraging strip development and similar negative practices;

(7) Prevent development in areas subject to flooding and discourage or strictly control it in locations where the aquifer is close to the surface;

(8) Require that utilities be placed under ground where possible, and, it not, encourage attractive design to blend with the natural surroundings;

(9) Control outdoor advertising signs strictly to protect the visual environment;

(10) Inventory Jaffrey's open space and scenery and prepare an environmental plan to guide and inspire land conservation - both public and private.

F. Transportation

A safe, convenient transportation network providing ease of movement of pedestrians and vehicles is essential to the smooth operation of any community.

Therefore, Jaffrey should:

(1) Continue to conserve, repair, and improve existing roads where these are effective in moving traffic or providing access to residential areas;

(2) Review, periodically, all roads and byways to determine that their continued public maintenance is justified by use;

(3) Mandate that roads constructed to serve all future residential, commercial, and industrial developments shall be completed to standards at the expense of the developer before being accepted for town maintenance;

(4) Require adequate off-street parking for all future industrial, commercial, and residential enterprises;

(5) Discourage strip development along highways by employing land use controls, buffering, setback requirements, cluster provisions, *etc.*;

(6) Recognize that the verges of certain roadways are essential to the rural, residential, or historical image of the community. Use the designation of selected roads as scenic roads so that destructive widening and upgrading are precluded;

(7) Provide pedestrian walkways and bicycle paths where appropriate to ease traffic and avoid danger from vehicles;

(8) Work with the New Hampshire Department of Transportation and nearby communities to ensure that the Route 202 relocation and all future highway projects are in accord with the town's master plan;

(9) Minimize congestion in the downtown area by seeking to provide off-street parking lots convenient to the central business district whenever such properties may be acquired economically;

(10) Encourage public transportation, especially for children and the elderly, when deemed advisable by the vote of the town;

(11) Encourage the continued development of airport facilities in Jaffrey.

G. Participation

An informed and active citizenry is essential to the success of traditional New Hampshire town government.

Therefore, Jaffrey should:

(1) Encourage residents to take a more active role through openness in government and frequent reports to the citizens about matters under consideration;

(2) Ensure each elected and appointed official understand and promote the spirit, as well as the letter, of the "right to know" law;

(3) Foster cooperation and the constant exchange of ideas among all the various boards, commissions, and committees concerned with the betterment of Jaffrey;

(4) Place greater reliance upon *ad hoc* study committees to help develop public policy on specific issues while remaining alert for conflicts of interest;

(5) Take part in joint planning and financing efforts, when advisable, with the Southwest Regional Planning Commission and other governmental entities.

H. Historical Preservation

Our town's rich architectural heritage sets it apart from all other communities, providing a living link between past generations and the future.

Therefore, Jaffrey should:

(1) Ensure that heritage by protecting those sites and structures identified in the Cultural Resources survey as particularly representative of the town's diverse history;

(2) Discourage the encroachment of any development, land use, or other activity upon a historic site;

(3) Consider possible expansion of the Jaffrey Center Historic District;

(4) Preserve the integrity of Jaffrey's various village centers and neighborhoods and, where advisable, establish additional historic districts;

(5) Encourage downtown improvements compatible with their architectural and historical surroundings;

(6) Protect the traditional appearance of the town by promoting the architectural harmony of new structures and those rehabilitated or converted to new uses;

(7) Promote innovative concepts that encourage variety in architecture and site plan design and discourage negative practices (*e.g.*, strip development).

JAFFREY MASTER PLAN
1997 UPDATE

POPULATION ANALYSIS AND HOUSING PLAN

POPULATION ANALYSIS

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 (*Revised Statutes Annotated* [RSA] 674:2) calls for a:

> *... housing section which analyzes existing housing resources and addresses current and future housing needs of residents of all levels of income of the municipality and of the region in which it is located, as identified in the regional housing needs assessment performed by the regional planning commission pursuant to RSA 36:47, II.*

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 Jaffrey's past population trends and projecting the future population, it is possible to determine the level of Town services necessary to serve the expected growth and to plan for that growth to occur in an orderly manner. This section is intended to provide a basis for determining the necessary level of services and the manner in which growth should occur.

An analysis of the population and housing statistics also enables the Planning Board to determine if amendments to the Zoning Ordinance might be required in order to address any inequities made apparent through the analysis. Following two important New Hampshire Supreme Court cases,[1] 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 needs of all its residents — and in doing so must consider the housing situation in its neighboring towns as well.

Method of Analysis

The population analysis is divided into three sections: (1) the first deals with the aggregate or total population and, in particular, past and projected growth trends, distribution, and density; (2) the second deals with the composition of the population such as age and income characteristics and educational attainment; and (3) the third and last section compares Jaffrey's population with that of its surrounding subregion.

The data sources used in this analysis include the US Census Bureau and the New Hampshire Office of State Planning (OSP). The OSP provides annual estimates of town populations and estimates of future population. As a point of reference, the term *region*, when used in the succeeding population and housing discussions, refers to the total service area of the Southwest Region Planning Commission, which includes Cheshire County and the western third of neighboring Hillsborough County. Likewise, the term *subregion* includes Jaffrey and its contiguous neighbors and similar towns.

[1] *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.

Past and Current Growth Trends

Table I provides a picture of Jaffrey's population growth over the past 67 years. Beginning with a population of 2,485 in 1930, the Town grew to 5,438 people in 1995, an overall growth of 119%, or an average of 1.8% per year. Decade by decade saw very slight increases; only two decades experienced any noticeably different increases, those being the 1970s and the 1980s, during which time Jaffrey grew by 29% and 23% respectively. This, in fact, represented the largest population increase since the 1930s, when there was a 16% change. With these three exceptions, every other decade has experienced a less than 10% population increase.

TABLE 1
DECENNIAL POPULATION TRENDS

Year	Population	Avg. Annual Percent Change
1930	2,485	--
1940	2,879	1.6
1950	2,911	0.1
1960	3,154	0.8
1970	3,353	0.6
1980	4,349	2.9
1990	5,361	2.3

SOURCE: U.S. BUREAU OF THE CENSUS

As the table illustrates, Jaffrey's population grew at a declining rate each decade from 1940 to 1980, after which it began to decline again. In fact, between 1990 and 1991 there was a population decrease, but the numbers are so small that this more than likely represents a blip in the OSP methodology. As can be seen, after 1991 the population begins again to gain in numbers.

GRAPH 1
POPULATION TRENDS

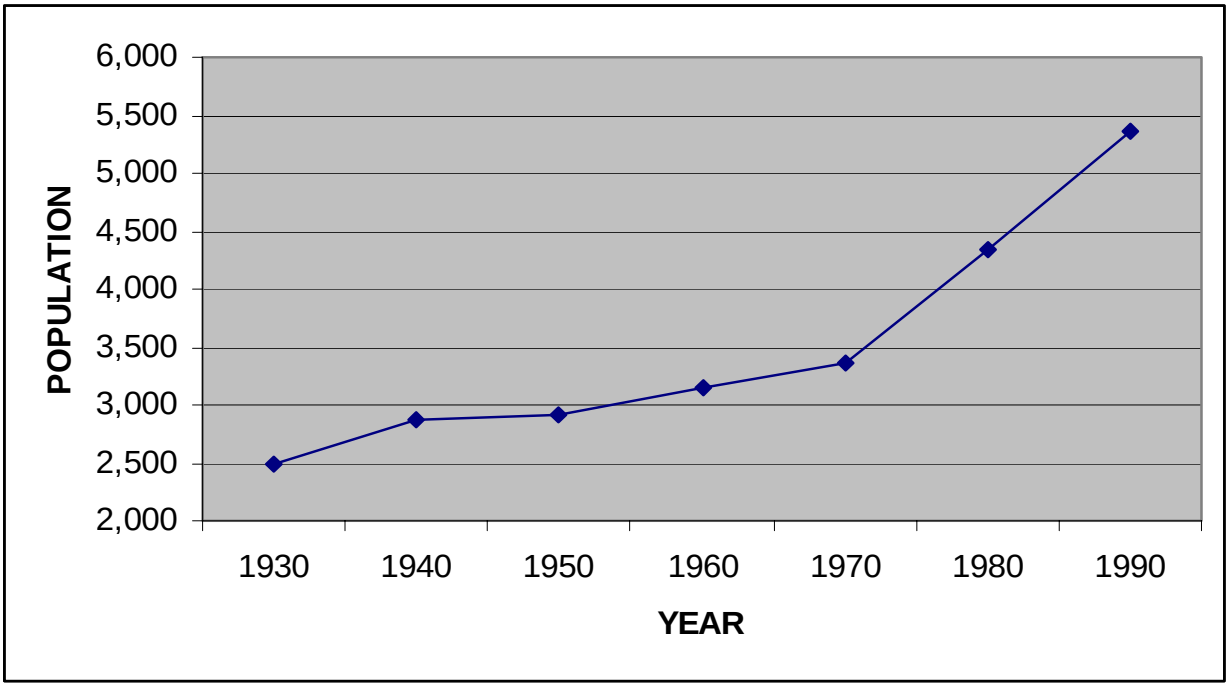
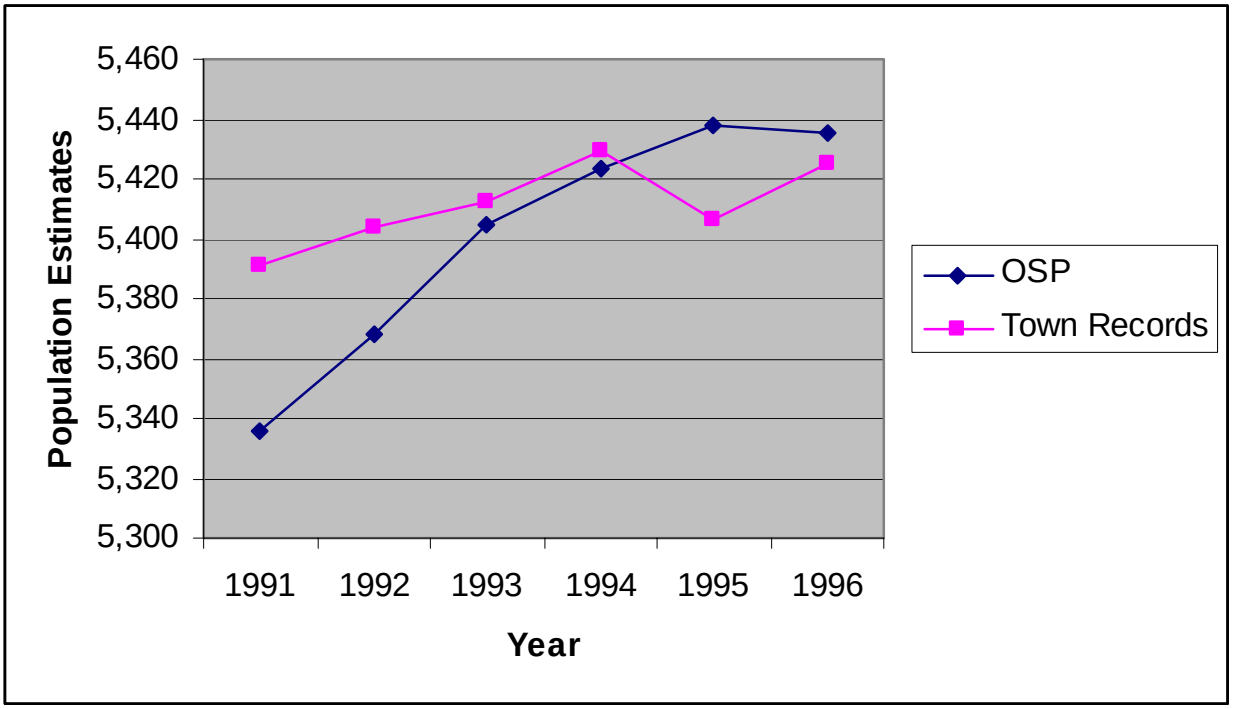


TABLE 2
ANNUAL POPULATION ESTIMATES

Year	OSP Estimates	Avg. Annual Percent Change	Town of Jaffrey Estimates	Avg. Annual Percent Change
1991	5,336	-0.5	5,391	0.3
1992	5,368	0.6	5,404	0.2
1993	5,405	0.7	5,412	0.1
1994	5,423	0.3	5,429	0.3
1995	5,438	0.3	5,406	-0.4
1996	NA	--	5,425	0.3

SOURCES: NH OFFICE OF STATE PLANNING; JAFFREY TOWN RECORDS

GRAPH 2
ANNUAL POPULATION ESTIMATES



In discussing population growth, it should be pointed out that two factors affect this growth: (1) natural increase (the excess of births over deaths); and (2) migration (the movement of people into or out of the community). The table below (Table 3) presents the birth and death statistics for Jaffrey for the years 1980 through 1994. The natural increase has been positive (more births than deaths) in each year examined with the exception of 1992 and 1993. The greatest increases occurred in 1985 and 1987, which both experienced 41 more births than deaths.

TABLE 3
NATURAL INCREASE

Year	Births	Deaths	Natural Increase
1980	73	48	25
1981	57	48	9
1982	69	50	19
1983	76	51	25
1984	75	59	16
1985	91	50	41
1986	83	46	37
1987	97	56	41
1988	63	54	9
1989	59	54	5
1990	79	67	12
1991	**67**	54	13
1992	54	73	-19
1993	51	56	-5
1994	49	49	0
Total	**1043**	**815**	**228**

SOURCES: NH BUREAU OF VITAL STATISTICS; JAFFREY ANNUAL REPORTS

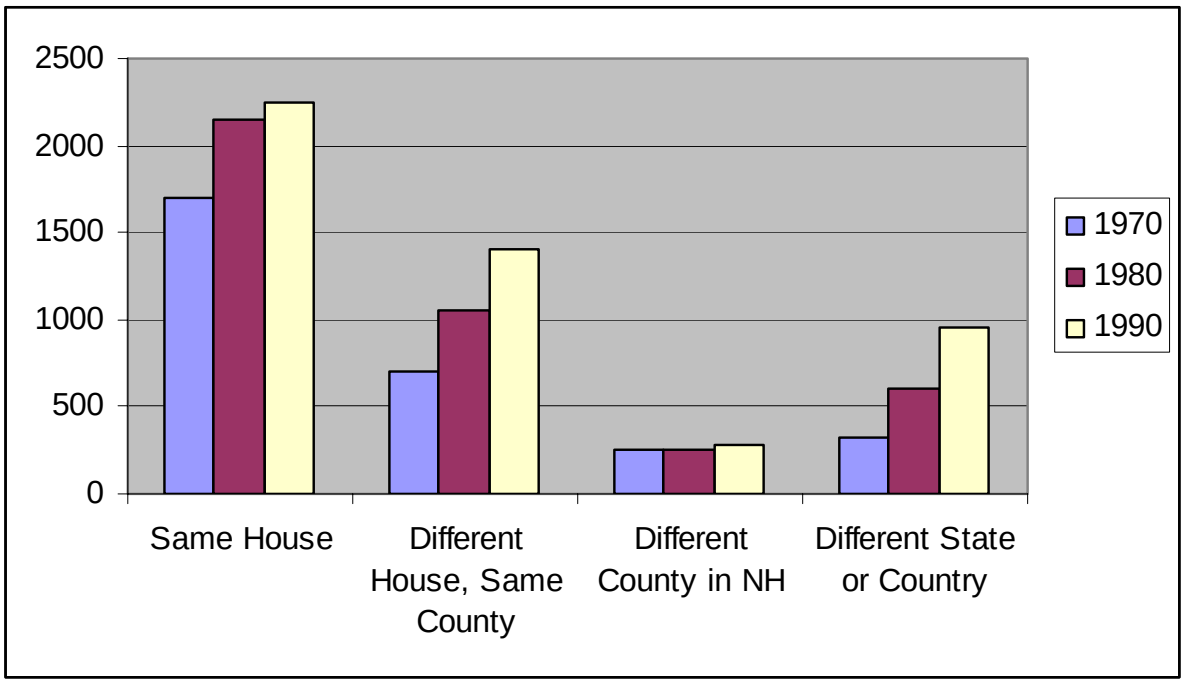
If the natural increase figures are applied to the 1980 and 1990 Census information, a determination can be made as to the effect of in-migration on the population. For example:

POPULATION (1980)	4,349
NATURAL INCREASE (1980-1989)	227
POPULATION IN 1990, IF NO MIGRATION	4,576
ACTUAL 1990 POPULATION	5,361
THEREFORE, INCREASE DUE TO IN-MIGRATION	785

Thus, based on the above calculation, in-migration accounted for 77.5% of the 1990 population. And, according to earlier statistics, this has been the case since at least the 1970s. Between 1980 and 1994, natural increase accounted for only 21% of the population growth experienced during those 14 years.

Additional data gathered from the US Census reinforces the role that in-migration plays 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. Not only do the numbers tell us how many people have been in one place for at least five years, but also where they come from before the came to Jaffrey.

GRAPH 3
PLACE OF RESIDENCE



The above data indicate that in all three time periods examined, the majority of Jaffrey's residents had lived in the same house five years prior to the census count, although this percentage has declined each decade — from 59 to 53 to 46 percent. The category exhibiting the most change was that of "Different State or Country," doubling in percentage between 1970 and 1990. The relative ratios of all four categories have stayed the same, however.

Population Density and Distribution

Population density in Jaffrey has increased along with the Town's population growth. Density is expressed in terms of people per square mile and is determined by dividing the population (at any given time) by the area of the Town (40.7 square miles). In 1970 the population density was 82 people per square mile; by 1980 the density had risen to 107 people per square mile; and in 1990 the figure was 140 people per square mile — a 70% increase in density over a 20-year period.

A sizable portion of Jaffrey's population is concentrated in a one-mile radius of the town center. The remainder of the population is distributed along the numerous roads that access the rural areas of the town. This concentration of population in and around the town center has a very different effect on the density of population. For example, the area of the one-mile circle is slightly less than a square mile (0.78 square mile to be exact). According to the 1990 Census, the population density within the town center (identified in the Census as a "Census Designated Place") was 1,023.2 people per square mile, meaning that 19% of the population resided in less than two percent of the land area.

By comparison with other towns in the southwest region, Jaffrey's population density in 1990 was about equal to that observed in Rindge, Hinsdale, and Swanzey; all remaining towns in the region have much lower population densities, ranging from 12.2 people per square mile in Sullivan to 94.5 in Marlborough. However, Jaffrey had the highest population density of all the towns in the region that have an identified

Census Designated Place — those being Hinsdale, Jaffrey, Marlborough, West Swanzey, and Winchester. Nevertheless, Jaffrey has not yet become a city, demographically speaking, where population densities are much higher.[3]

Population Projections

Population projections are developed for all municipalities in New Hampshire by the Office of State Planning. Table 4 (following) presents the latest figures, which were distributed in October 1994.[4] The methodology employed by OSP is based on the decennial Census figures for each county. The county totals are then "distributed" to the local level, factoring in such variables as historical growth trends.

The table below compares the OSP projections with a simple straight line projection that assumes a 1% annual increase in population. The 1980 Master Plan had set a desirable growth rate at 2% per year. As the figures in Table 1 illustrate, this level of growth was met in the 1980s but has dropped significantly in the 1990s. The OSP projections presented in Table 4 are somewhat higher than what Jaffrey has experienced in this decade, but much less than the 2% per year goal set in 1980. Therefore, a 1% projection was used here as an alternative since it seemed to be more in line with the trend identified for the 1990s.

TABLE 3
POPULATION PROJECTIONS

Year	OSP Projected Population	Average Annual % Change (OSP	Projected Population (at 1% annual increase)
1990 Census	5,361	--	5,361
1995	5,780	1.6	5,580
2000	6,221	1.5	5,824
2005	6,652	1.4	6,121
2010	6,880	0.7	6,433
2015	7,195	0.9	6,760

SOURCE: NH OFFICE OF STATE PLANNING, OCTOBER 1994

Note that the population projected for 1995 was 5,780 people. According to the OSP annual population estimates, Jaffrey should have had 5,423 people in 1994. Given the past population trends and assuming

[3] In 1980, Keene's population density was 600 people per square mile; by 1990, this figure had barely changed — 601.3 per square mile. By contrast, although Swanzey has the largest town population in the region, its population density in 1990 was 138.6 — slightly less than Jaffrey.

[4] The projections represent only *resident* population — they do not include seasonal or transient people.

some level of accuracy to these numbers, it seems unlikely that the town will add another 357 people in one year.

At this point, it is difficult to say which projection may be more accurate, but if the percent growth rate for the 1990s continues, the 1% straight line projection may be more accurate through the next several decades anyway. Jaffrey is beginning to see somewhat more development at this time than has occurred so far in this decade (*e.g.*, the Shattuck Inn proposes to revise an earlier plan for single-family development at the golf course site that was never built out). The realization of this plan will significantly affect Jaffrey's population. Furthermore, it is difficult to determine how the state and regional economies will react over the next five to ten years. It is these economies that determine, to a large degree, how the region and its constituent communities will grow.

Age Characteristics

The following table presents Jaffrey's population by various age groups. Typically for planning purposes, it is useful to know how many school-age children are in the town as well as the number of elderly. The latest Census figures are compared to the 1980 figures in order to gauge shifts in population age groups. A further comparison of Jaffrey's age characteristics to those of Cheshire County and the state shows that Jaffrey had:

- a slightly lower proportion of people in the 0-17 age group;
- fewer people in the 18-64 age group; and
- more people over age 65.

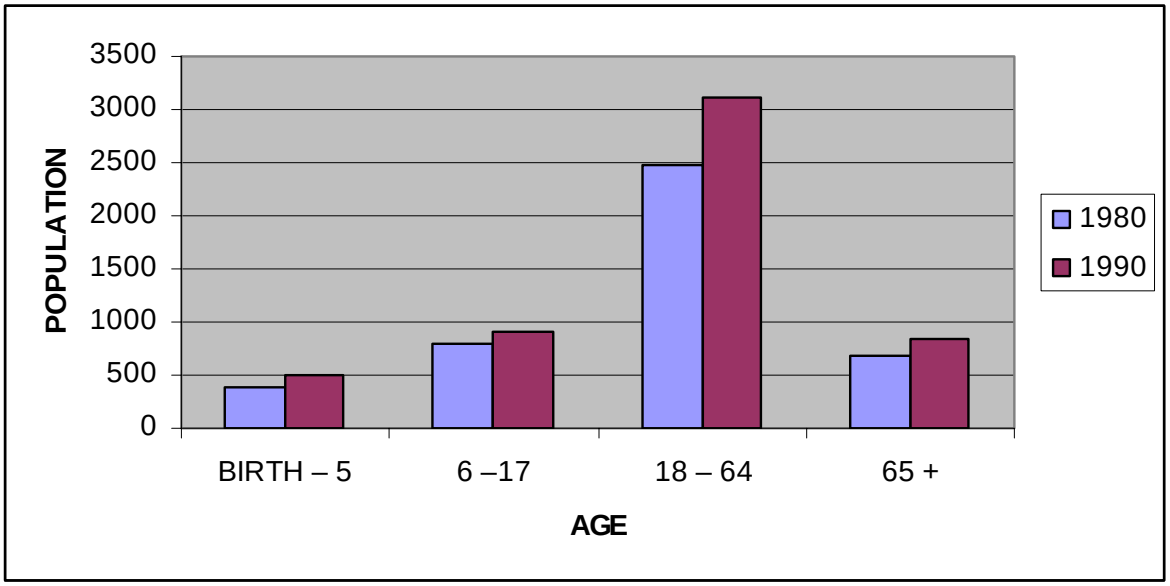
This situation has not changed since the 1980 Census was taken. Note, however, that the differences are slight — a percentage point or two is all that separates Jaffrey from the county or the state.

TABLE 5
AGE STRUCTURE OF THE JAFFREY POPULATION

	1980		1990	
	NUMBER	PERCENT	NUMBER	PERCENT
BIRTH – 5 YEARS	382	9%	499	9%
6 –17 YEARS	798	18%	911	17%
18 – 64 YEARS	2,476	57%	3,110	58%
65 YEARS +	693	16%	841	16%
TOTAL	**4,349**	**100%**	**5,361**	**100%**

SOURCE: US BUREAU OF THE CENSUS

GRAPH 4
AGE STRUCTURE OF THE JAFFREY POPULATION



According to the above figures, the percentage of the total population accounted for by each age group has not changed. The one percent drop for the 6-17 group and the one percent increase in the 18-65 group are insignificant. The majority of Jaffrey's population remains in the 18-64 age group.

In terms of planning for the future, it is important to know that neither the school-age nor the elderly populations have changed — either by increase or decrease. This information will assist the Planning Board in determining levels and types of services appropriate and necessary for each of these age cohorts.

Other Characteristics

Also of interest when examining a local population are factors of education, income[5] and employment. The tables and graphs following present the available data for Jaffrey, comparing 1980 with 1990 information.

TABLE 6
LEVEL OF EDUCATION FOR PEOPLE AGE 25 AND OVER WHO…

	1970	(%)	1980	(%)	1990	(%)
Did Not Finish High School	**794**	**41%**	**803**	29%	654	23%
Finished High School Only	773	40%	1,062	39%	1,174	42%
Had 1-3 Years of College	137	7%	301	11%	276	10%
Had 4+ Years of College	252	13%	586	21%	665	24%

SOURCE: US BUREAU OF THE CENSUS

* Note that the percentage figures represent only the targeted group – those age 25 and over – not the entire population.

TABLE 7
NUMBER OF WORKERS IN FAMILY/MEAN FAMILY INCOME

	Number of Workers (% of Families)				Mean Family Income	
	1980	**(%)**	**1990**	**(%)**	**1980**	**1990**
No Workers	157	13%	131	9%	$9,365	$20,700
One Worker	344	29%	349	24%	$20,621	$35,200
2+ Workers	679	58%	982	67%	$25,619	$53,100

SOURCE: US BUREAU OF THE CENSUS

[5] Census data on income include: wage or salary; self-employment; farm self-employment; interest, dividends, or royalties; social security; public assistance or welfare; retirement or disability income.

TABLE 8
INCOME INFORMATION

	Median Family Income		Per Capita Income		Percent Pop. Below Poverty Level	
	1980	1990	1980	1990	1980	1990
Jaffrey	$18,316	$38,030	$7,791	$15,206	6.3%	4%
Rindge	$19,295	$36,200	$5,645	$11,303	8.7%	3.3%
Peterborough	$21,931	$46,330	$8,424	$19,144	7.2%	5.2%
Cheshire County	$18,496	$36,556	$6,580	$13,887	10%	7%
New Hampshire	$19,724	$41,628	$6,968	$15,959	8.5%	**6.4%**

SOURCE: US BUREAU OF THE CENSUS

Table 6 shows that education attainment for people over age 25 had improved dramatically between 1980 and 1990. For example, the percentage of people who did not finish high school decreased from 29% in 1980 to 23% in 1990. During this same period, the percentage of high school graduates increased from 39% to 42%. The percentage of residents with some college education (one-three years) declined one percent, while those having four or more years of college increased from 21% to 24% of this age group.

The income information does not show appreciable shifts since 1980. Median family incomes have risen dramatically, but this has more to do with inflation than with a significant rise in disposable income. The county and state income figures are included in the table in order to illustrate that the relative change is minimal: in 1980 and 1990, the state had the highest median family income; Jaffrey was the lowest in 1980, while Jaffrey dropped to the lowest percentage of families below poverty level in both years examined followed by New Hampshire and Cheshire County.

Mean family incomes relative to number of workers also show increases in absolute income, but maintain the same relative position (*i.e.*, the more workers, the higher the income). The major difference between 1980 and 1990 is the decrease in the "No Worker" and "One Worker" categories and the increase in the "Two+ Worker" category. These figures are consistent with state and national data pointing toward the inability of one worker to support a family.

Subregional Comparisons

Since Jaffrey is not an island unto itself but part of a larger region, an examination of population characteristics is not complete without a comparison of Jaffrey's growth with that of its immediate neighbors. 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, such a comparison can be used, albeit with caution since the towns are all somewhat similar in size, with the exceptions of Sharon and Temple.

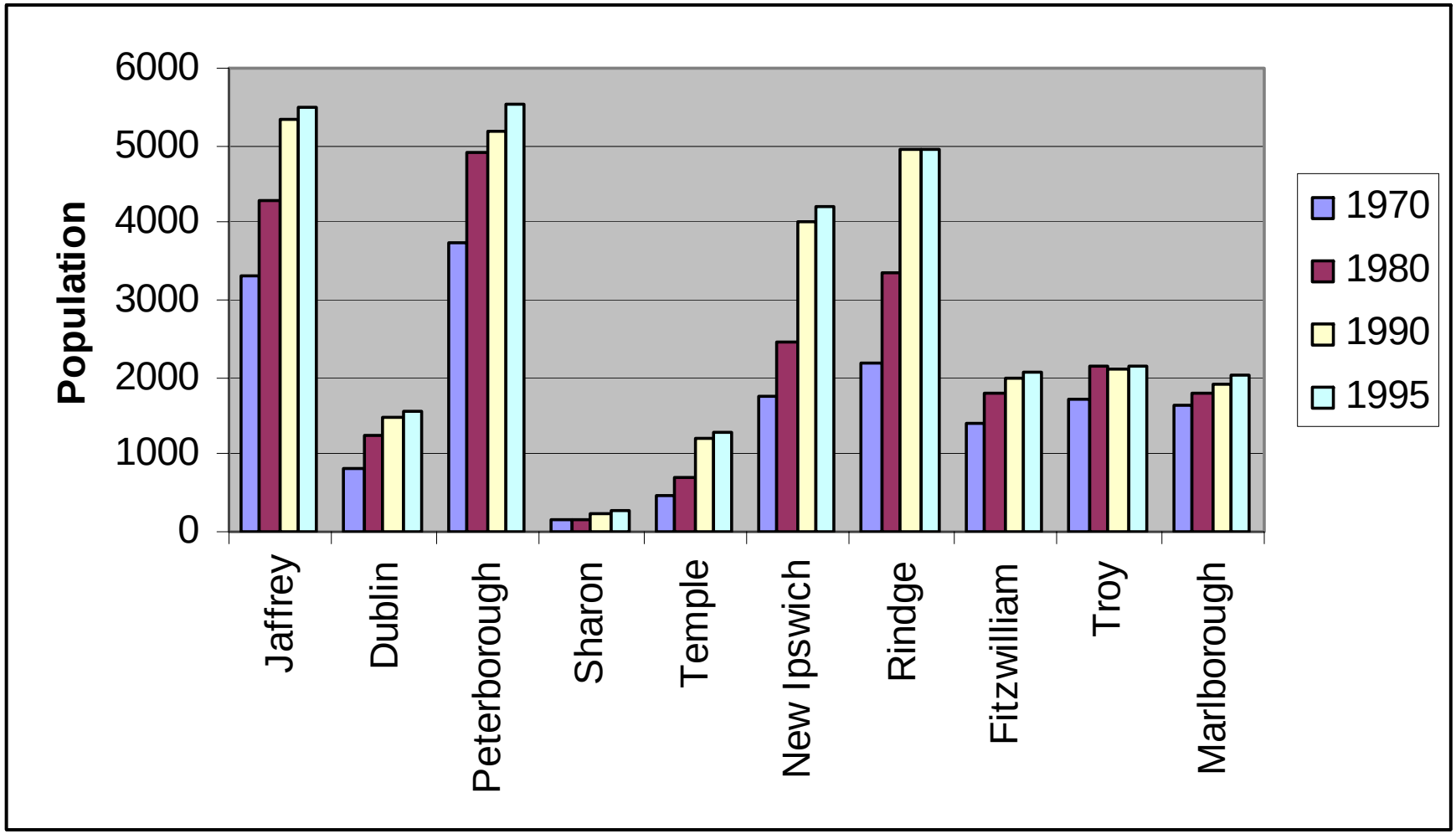
As the table and graphs illustrate, Jaffrey's growth over the 24-year period has been fairly consistent with the subregional average for all three time periods: 1970-80; 1980-90; and 1990-94. Temple and Sharon have experienced the highest percentage increases over the entire period; however, as mentioned earlier, these figures could be misleading as they are based on a much smaller population to begin with. These

two towns continue to represent the smallest percentage of subregional population.

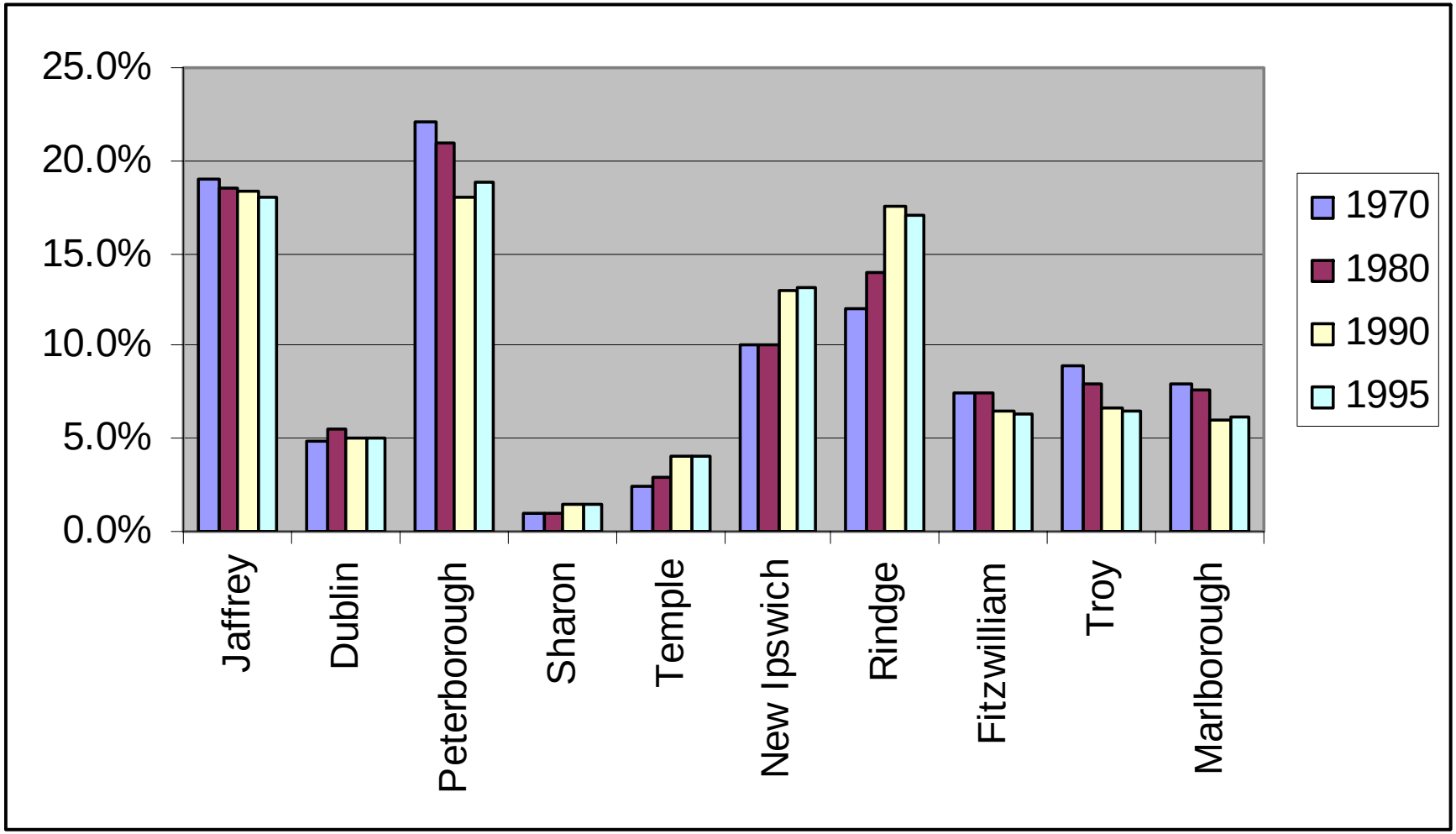
Within this subregion, Jaffrey ranked second in absolute numbers of people after Peterborough, up to the year 1990, at which point Jaffrey surpassed Peterborough by 122 people; and, according to the 1994 OSP estimates, Jaffrey held the first place by 63 people. Two towns in the subregion lost population: From 1980 to 1990, Troy's population declined by 0.2 percent (34 people); and between 1990 and 1994, Rindge's population decreased by 1.3% (256 people).

Overall, seven of the ten towns in the subregion experienced their greatest increases in the 1970s — Sharon, Temple, and New Ipswich peaked in the 1980s. And, the estimates for the 1990s point toward a dramatic slowing of population growth — 0.3% as compared to 2.4% in the 1980s.

GRAPH 5
SUBREGIONAL POPULATION: 1970, 1980, 1990 & 1995



GRAPH 6
TOWN POPULATION AS % OF SUBREGIONAL POPULATION
1970, 1980, 1990 & 1995



The Census figures further illustrate that Jaffrey has accounted for a fairly level percentage of the subregional population since 1970 — between 18 and 19 percent. In 1970 and 1980, when Peterborough had the highest subregional population, the two towns were three percentage points apart in population allocation. Since 1990, however, they are almost equal in allocation of subregional population. The ranking of the other eight towns has remained consistent over the 24-year period. The percentage allocation for all the towns over each time period is illustrated in four graphs that are appended to this section.

Jaffrey's status relative to other economic characteristics can also be compared to the surrounding towns. This information for the town of Jaffrey, the county, and the state has been presented in the preceding tables. The Office of State Planning uses available Census data (collected in 1989) for the state to rank all towns by various indicators (*e.g.*, income, poverty level, and per capita income) and can be used to illustrate where Jaffrey stands relative to all other towns in the Southwest Region.

	Highest	Lowest	Jaffrey
Median Family	$53,935 (Mason)	$26,250 (Windsor)	$38,030
Median Household	$52,137 (Mason)	$26,753 (Hinsdale)	$32,549
Percent of Persons in Poverty	14% (Marlow)	1.9% (Mason)	4.0%
Per Capita Income	$20,903 (Francestown)	$11,086 (Winchester)	$15,206

These figures indicate that Jaffrey's economic health is quite good, compared to the region as a whole. The town ranks 30th out of 35 for "percent of people in poverty," meaning that there are 29 towns out of 35 that have a higher percentage of their population living in poverty; and 26 out of 35 for "per capita income," meaning that there are 25 towns in the region with a lower per capita income than Jaffrey.

HOUSING ANALYSIS AND PLAN

Housing Trends

Information regarding housing trends, types, and number of units built is provided by the U.S. Census Bureau, the Office of State Planning, and town building permit records. To assess the current housing stock in Jaffrey, building permit data were added to the 1990 Census count of total existing housing units. Following are the decennial Census counts of housing supply as well as the OSP housing estimates based on building permit data submitted to OSP by the Town.

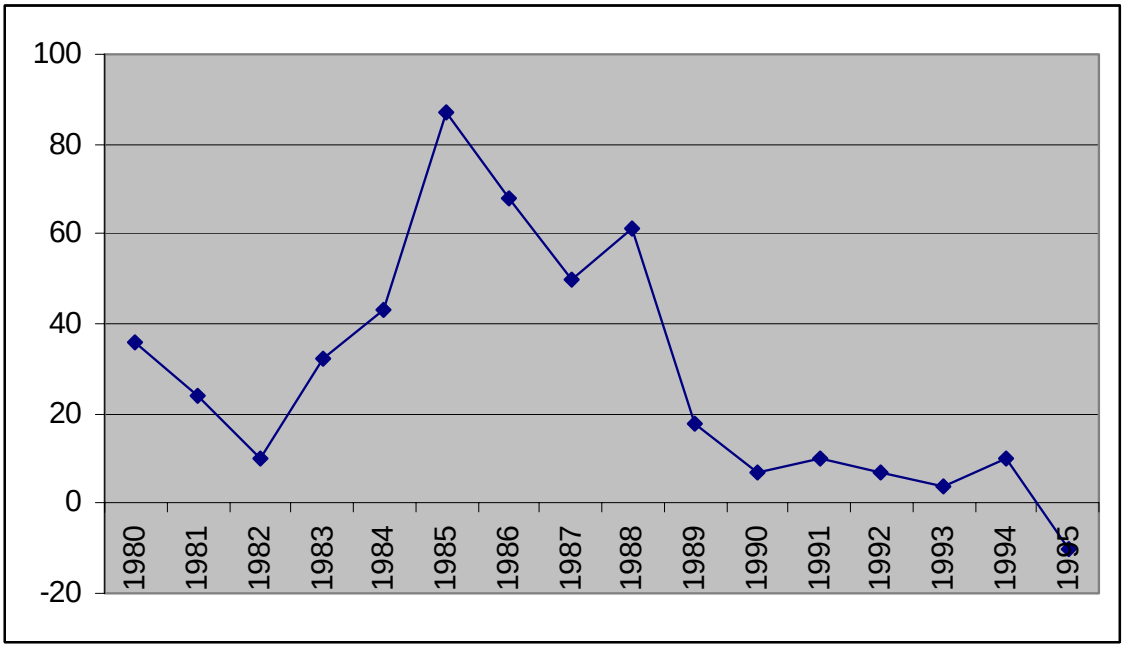
Between 1980 and 1990, Jaffrey's housing stock expanded by only 3.7% — from 1,770 units to 2,426 units. These numbers represent all housing types. To break these numbers out to the three types of housing generally examined (single-family, multifamily, and manufactured housing) we need to refer once again to figures published by the Office of State Planning. On 1992, OSP published a report entitled *Current Estimates and Trends in New Hampshire's Housing Supply 1980-1990*. This report, which was based on the decennial census counts, is being updated annually by OSP to provide the figures presented in Table 8. The validity of the information is subject to consistency and accuracy of reporting by all New Hampshire towns. Given the potential for miscalculations as definitions change, *etc*., it is wise to view these numbers merely as indicative of an overall trend and not as an absolute number.

TABLE 9
BUILDING PERMIT ACTIVITY: 1980 - 1995

Year	Building Permits Issued	Year	Building Permits Issued
1980 Base	1,770	**1988**	61
1980	36	**1989**	18
1981	24	**1990**	7
1982	10	**1991**	10
1983	32	**1992**	7
1984	43	**1993**	4
1985	87	**1994**	10
1986	68	**1995**	-10
1987	50	**1995 Total**	2,263

SOURCE: NH OFFICE OF STATE PLANNING

GRAPH 7
BUILDING PERMIT ACTIVITY: 1980 - 1995



Note that the figures in Table 9 are inconsistent with the Census data: when the numbers of reported building permits through 1994 are summed, they account for only 2,235 units; according to the Census, there were 2,426 units in 1990 and, adding in the 38 building permits reported by the Town since 1990, the total housing supply as of 1994 should be 2,464. These inconsistencies are typically the result of changing definitions of housing stock, accounting for seasonal conversions, single-family to multifamily conversions, *etc*. Also, Jaffrey did not have a full-time code enforcement officer to maintain the building permit system until the late 1980s.

Despite these weaknesses in the data, it is nevertheless useful to present these numbers. They do, in fact, appear to be consistent with the population data examined earlier (*i.e.*, fast growth in the 1980s with a dramatic slow down in the 1990s). This rate of change is illustrated in the graph on the preceding page.

TABLE 10
UNITS BUILT AND DEMOLISHED: 1990 - 1996

Year	Permits Issued	Units Built	Units Demolished
1990	7	6	2-unit apartment
1991	10	5	
1992	7	4	
1993	4	3	
1994	10	12	6-unit apt. + 1 SF unit
1995	2	1	14-unit apartment
1996	NA	7	

Housing Types

The present housing stock is broken down by type: single-family, multifamily, and manufactured housing (see Table 9). At this point, it is instructive to note the definitions that apply to the figures used in this section. The OSP uses definitions developed by the US Census, but sometimes combines categories, as follows:

- Single-family: A one-unit structure detached from any other structure. This also includes mobile homes or trailers to which one or more permanent rooms have been added.

- Multifamily: Any structure containing two or more housing units (this includes the Census classification of “Single-family Attached”).

- Manufactured Housing: Both occupied and vacant mobile homes to which no permanent rooms have been added. The OSP report includes the Census classification of “Other” — units used as living quarters that do not fit any of the previous categories (*e.g.*, houseboats, campers, vans, *etc*.).

TABLE 11
HOUSING STOCK IN JAFFREY, BY TYPE

	1980		1990		% Chg	1995		% Chg
Type	Qty	%	Qty	%	1980-90	Qty	%	1990-95
Single Family	1,043	58.9%	1,539	63.4%	**47.5%**	1,578	64.3%	51%
Multi-Family	635	35.9%	721	29.7%	13.5%	707	28.8%	11.3%
Manufact. Housing	92	5.2%	166	6.8%	80%	169	6.9%	83.7%
Total	1,770	100%	2,426	99.9%	37%	2,454	100%	

SOURCE: CURRENT ESTIMATES AND TRENDS IN NEW HAMPSHIRE'S HOUSING SUPPLY UPDATE, 1994, NH OFFICE OF STATE PLANNING, DECEMBER 1996; US CENSUS

Jaffrey, like other towns in the region and subregion, has more single-family house than either multifamily or manufactured housing; nevertheless, multifamily units comprise nearly one-third of the town's housing stock. The proportions of housing types were essentially the same in 1980, although the actual percentages have shifted slightly (the percentage of single-family homes has increased, as has manufactured housing, while the percentage of multifamily units has decreased).

Other Housing Characteristics[8]

A. Families/Households

Some interesting trends can be derived by comparing the data from the 1980 and 1990 US Censuses regarding housing and the population. For example, between 1980 and 1990 the number of families increased by 22.2% and the number of households 22.6%. In 1990, families accounted for 27% of the total population; this is essentially unchanged from 1980 when the figure was 27.5%. This may explain, in part, the high proportion of multifamily units in town, as many nonfamily or single-person households do not live in a single-family home, due, perhaps, to the high cost or, in other cases, a lack of interest in maintaining such a property.

B. Housing Tenure

Somewhat in contrast to the above figures are the statistics that show Jaffrey's housing stock to be 56% owner occupied and 44% renter occupied. These figures represent a rather sharp decline in the percentage of owner-occupied units since 1980 when the Census showed that to be 64%. Since the most recent data on housing types (see Table 10) indicate single-family development to account for 64% of the total housing supply and, if it can be assumed most owners occupy single-family homes and most renters occupy apartments, it appears some single-family units are rented.

[8] A note on compatibility of data: in both the 1970 and 1980 Censuses, housing characteristics were generally presented only for year-round units; in the 1990 Census, characteristics are shown for all housing units.

C. Vacancy Rates

There have also been significant changes in the status of occupied versus vacant housing units. In 1980, Jaffrey has 110 vacant units out of a total of 1,404 housing units (7.8%). By 1990, there were a reported 332 vacant units (13.7%), although of these 332 units, more than half were classified as vacant by the Census because they are used only seasonally or for recreation or other occasional use. This accounted for the greatest increase of all listed under "Vacant" (in 1980 there were only 25 seasonal units, and by 1990 this number had increased to 173 units[9]).

From these actual numbers, the Census calculates a vacancy rate, further broken down by tenure (*i.e.*, for home owners and for renters[10]). In 1990, these rates were 2.8 and 8.7 respectively. That the rental vacancy rate is much higher than the home owner rate is quite typical, not only for this region, but across the state as well, reflecting much more mobility among renters than home owners.

D. Cost of Housing

The cost of housing has risen significantly over the past 20 years. In 1970, the average value of an owner-occupied home was between $10,000 and $20,000. By 1980, the value had risen to between $40,000 and $80,000. By 1990, the value ranged between $91,500 and $146,100.[11]

The rental market has seen similar increases. In 1970, rents averaged between $80-$150 per month; by 1980, rents in Jaffrey averaged between $150-$300 per month; and in 1990, this had risen to $359-$545 per month.

It must be noted here, however, that this situation is not unique to Jaffrey. All towns in the state experienced spiraling housing costs during the 1980s for a variety of reasons that will not be discussed here. What is useful for this analysis is to compare the current housing costs in Jaffrey with those of Cheshire County and the state; the costs are as follows:

TABLE 12 CURRENT HOUSING COSTS

	Median Value of Home	Median Rent
Jaffrey	$115,300	$459
Cheshire County	$110,600	$449
New Hampshire	$129,400	$479

[9] A note on comparability of data: The Census Bureau has been collecting data on vacancy status since 1940; in 1990 the "Seasonal/Recreational/Occasional Use" category combined two categories previously classified in the 1980 Census as "Seasonal or Migratory" and "Held for Occasional Use."

[10] The Home Owner Vacancy Rate is the percentage relationship between the number of vacant units for sale and the total home owner inventory. The Rental Vacancy Rate is the percentage relationship of the number of vacant units for rent to the total rental inventory.

[11] Note that the housing values are as reported by the home owners; they are not based on independent research.

Those figures indicate that Jaffrey is not so very different from its region or the state as a whole; both the value of an owner-occupied home and the rental costs in Jaffrey are slightly more than the county average and less than the state average.

Subregional Housing Comparisons

Housing data for the subregion can be compared to see how the towns compare relative to the provision of housing. The two tables following present not only the comparison of total housing supply for Jaffrey and its subregion, but also the housing types for each town for the years 1980 and 1990. The year 1994 is not included in these tables since the data come from the OSP estimates and, as noted above, depend largely on each town's responsibility to accurately report the information.

TABLE 13
SUBREGIONAL HOUSING COMPARISONS BY TYPE, 1980 & 1990

	1980				1990				1980 – 90
TOWN	SF	MF	MH	Total	SF	MF	MH	Total	% Chg
Jaffrey	1,043	635	92	1,770	1,539	721	166	2,426	37%
Dublin	430	48	13	491	549	68	34	651	33%
Peterborough	1,346	592	14	1,952	1,393	811	38	2,242	15%
Sharon	79	2	0	81	121	5	2	128	58%
Temple	225	19	8	252	369	33	27	429	70%
New Ipswich	622	113	63	798	1,044	145	137	1,326	66%
Rindge	798	114	73	985	1,493	160	128	1,781	81%
Fitzwilliam	614	64	67	745	833	79	119	1,031	38%
Troy	495	213	74	782	497	244	126	867	11%
Marlborough	482	192	29	703	538	260	58	856	22%
Subregion:	6,134	1,992	433	8,559	8,376	2,526	835	11,737	37%

SOURCE: CURRENT ESTIMATES AND TRENDS IN NEW HAMPSHIRE'S HOUSING SUPPLY, 1980 TO 1990; NH OFFICE OF STATE PLANNING, JANUARY 1992

In 1980, Jaffrey had the second highest subregional population and the second highest proportion of subregional housing units; by 1990, Jaffrey had surpassed Peterborough in both population and housing supply. The rankings of the other towns in the subregion also stay consistent with the population data. Temple, New Ipswich, and Rindge experienced growth that far surpassed the other towns in the area: Rindge had an 81% increase in housing units over this time period. Overall, total housing units increased by 37% (compared to a 25% population growth). Single-family and multifamily units had moderate increases comparable to the overall change, but manufactured units almost doubled over the 10 years (a 92% increase).

TABLE 14
PERCENT OF SUBREGIONAL HOUSING, 1980 & 1990

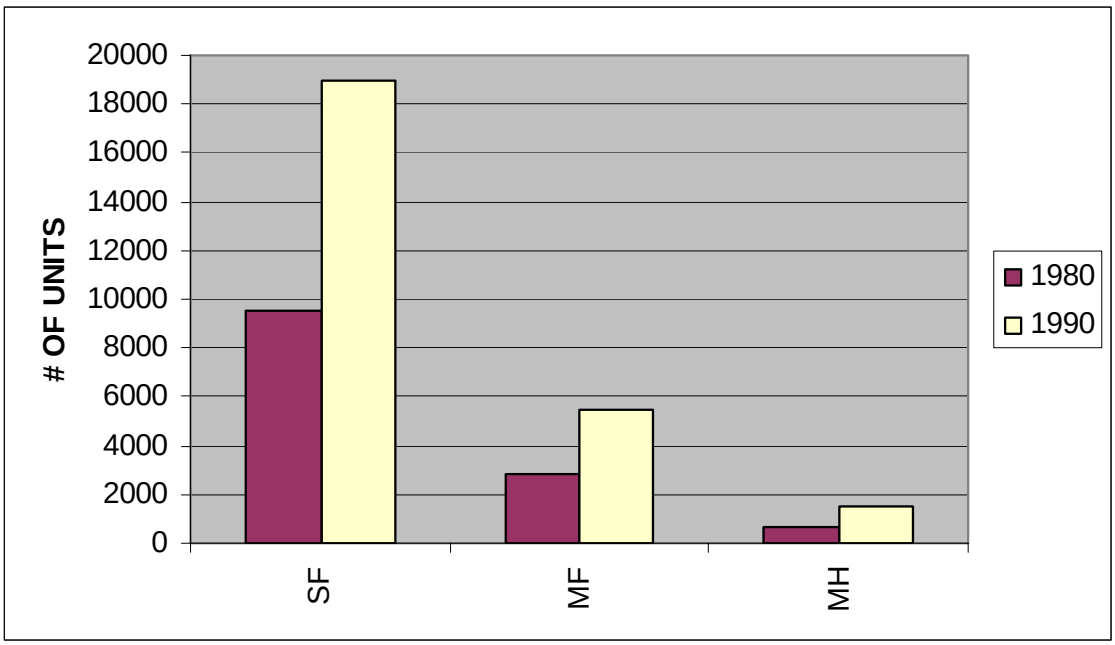
	1980				1990			
TOWN	SF	MF	MH	% of Total	SF	MF	MH	% of Total
Jaffrey	17%	32%	21%	21%	18%	28%	20%	21%
Dublin	7%	2.4%	3%	5.7%	6.6%	2.7%	4.1%	5.5%
Peterborough	22%	30%	3%	23%	17%	32%	4.6%	19%
Sharon	1.3%	0.1%	0%	0.9%	1.4%	0.2%	0.2%	1.1%
Temple	3.7%	0.9%	1.8%	2.9%	4.4%	1.3%	3.2%	3.6%
New Ipswich	10%	5.7%	14%	9.3%	12%	5.7%	16%	11%
Rindge	13%	5.7%	17%	11%	18%	6.3%	15%	15%
Fitzwilliam	10%	3.2%	15%	8.7%	10%	3.1%	14%	8.8%
Troy	8%	11%	17%	9.1%	5.9%	9.7%	15%	7.4%
Marlborough	7.8%	9.6%	6.7%	8.2%	6.4%	10%	6.9%	7.3%
Subregion:	71.7%	23.2%	5.1%	100%	71.4%	21.5%	7.1%	100%

TABLE 15
SUBREGIONAL HOUSING COMPARISONS, 1990 – 1995

	1990				1995				1990 – 95
TOWN	SF	MF	MH	Total	SF	MF	MH	Total	% Chg
Jaffrey	1,539	721	166	2,426	1,578	707	169	2,454	1.1%
Dublin	549	68	34	651	577	68	40	685	5.2%
Peterborough	1,393	811	38	2,242	1,432	976	39	2,447	9.1%
Sharon	121	5	2	128	134	5	2	141	10.1%
Temple	369	33	27	429	391	36	29	456	6.3%
New Ipswich	1,044	145	137	1,326	1,126	144	147	1,417	6.9%
Rindge	1,493	160	128	1,781	1,592	161	128	1,881	5.6%
Fitzwilliam	833	79	119	1,031	864	83	120	1,067	3.5%
Troy	497	244	126	867	524	245	121	890	2.6%
Marlborough	538	260	58	856	577	278	58	913	6.6%
Subregion:	8,376	2,526	835	11,737	8,795	2,703	853	12,351	5.2%

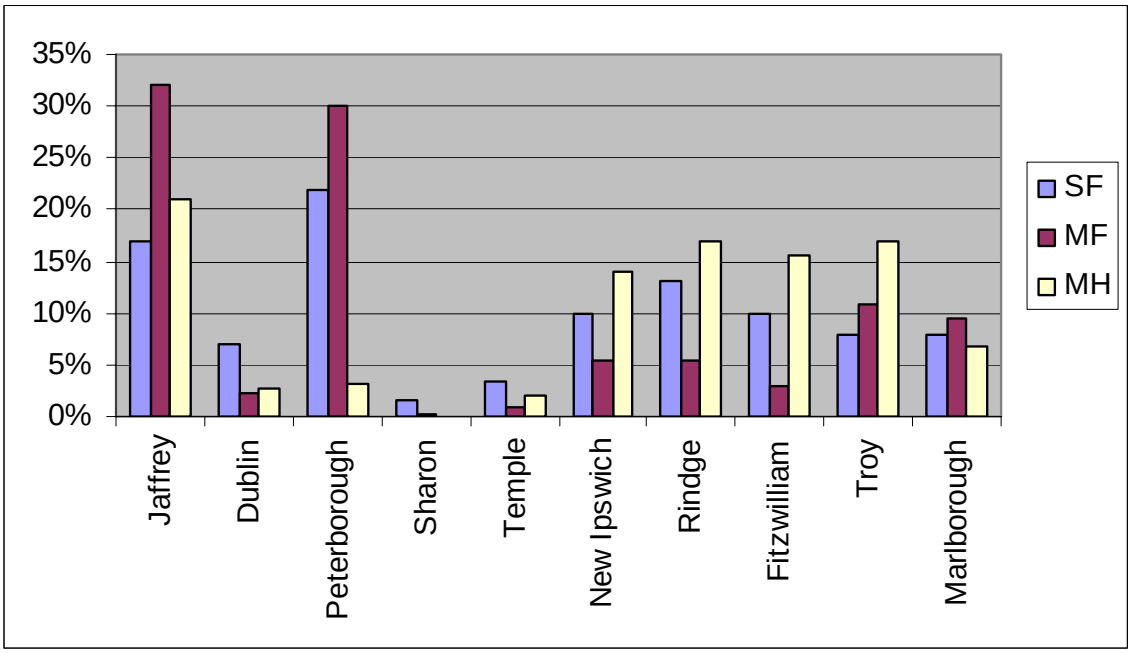
SOURCE: CURRENT ESTIMATES AND TRENDS IN NEW HAMPSHIRE'S HOUSING SUPPLY, 1980 TO 1990; NH OFFICE OF STATE PLANNING, DECEMBER 1996

GRAPH 8
SUBREGIONAL HOUSING COMPARISONS, 1980 & 1990

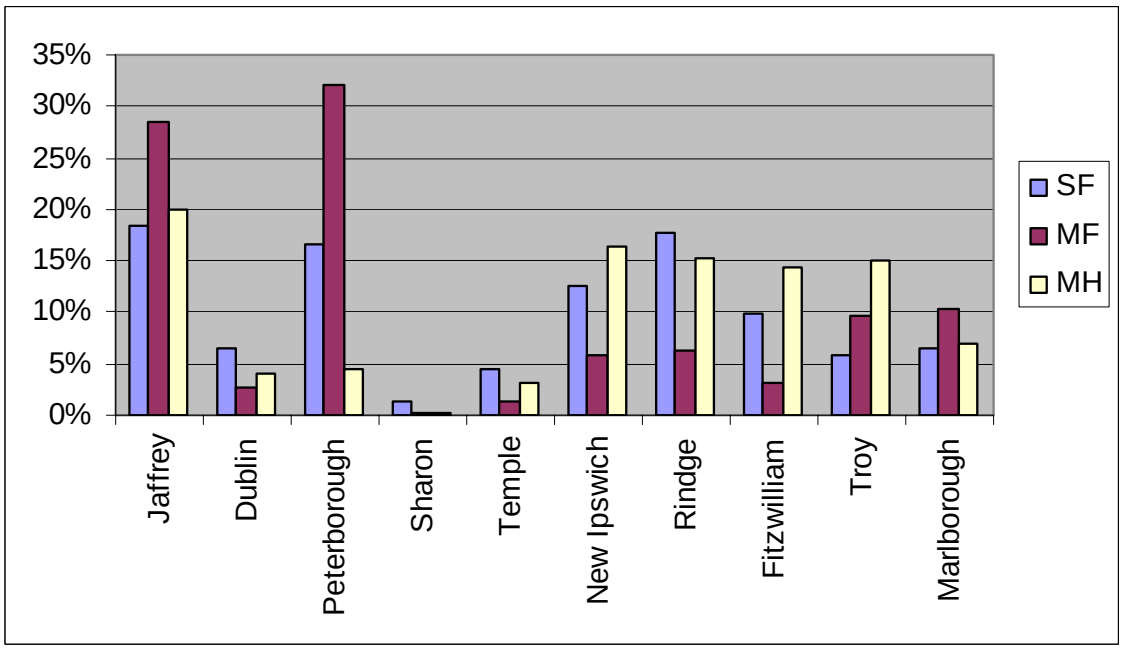


Graphs 9 and 10 (following) present the information from Table 14 in the form of percentages. Both of these tables clearly point to the prevalence of single-family development in the subregion, although the percentage dipped slightly from 71.7% in 1980 to 71.4% in 1990; growth in manufactured housing development is the reason for this shift. Manufactured housing accounts for only 7.1% of all subregional units in 1990 (up from 5.1% in 1980, and Jaffrey's share of that total is 20% — the highest of any of the towns). Jaffrey also accounts for the bulk of the multifamily development: in 1980, Jaffrey had 32% of all multifamily units compared to 30% in Peterborough; by 1990, this had shifted slightly to 28% for towns with municipal water and sewer infrastructure as well as the highest population figures in the subregion.

GRAPH 9
% OF SUBREGIONAL HOUSING TYPES BY TOWN, 1980



GRAPH 10
% OF SUBREGIONAL HOUSING TYPES BY TOWN, 1980



In Summary:

- Jaffrey's population has grown at a steadily decreasing rate over the last 24 years.
- This rate of population change is typical with that of most of the other towns in the subregion.
- Immigration has consistently accounted for the majority of the population in Jaffrey.
- Jaffrey's population is becoming better educated, relative to itself, as well as the county and state.
- Jaffrey's economic ranking relative to the 34 other towns in the Southwest Region is above average.
- Housing development in Jaffrey has kept pace with the rate of population change.
- Jaffrey's housing stock is typically single-family dominated, although the town has the second largest number of multifamily units, as well as the largest number of manufactured homes, of all towns in the subregion.

TABLE 16
SELECTED HOUSING NEED ASSESSMENT DATA

TOWN	# of Year-Round Housing Units in 1980	Indigenous Housing Need in 1980	Housing Need with Equal Distrib., 1989	Adj. Total Fair Share Need, 1989	Diff. *	% Change
Jaffrey	1,770	182	179	97	-85	-47%
Dublin	491	21	50	31	+10	+48%
Peterborough	1,952	153	198	196	+43	+28%
Sharon	81	3	8	10	+7	+233%
Temple	252	6	26	10	+4	+67%
New Ipswich	798	57	81	56	-1	-2%
Rindge	985	84	100	120	+36	+43%
Fitzwilliam	745	54	76	60	+6	+11%
Troy	782	98	79	28	-70	-71%
Marlborough	703	75	71	64	-11	-15%

* - Difference is the numerical difference between the indigenous need and the adjusted fair share need. The percentage difference is based on the difference.

Source: Southwest Regional Planning Commission; Regional Housing Study and Fair Share Analysis for the Southwest Region of New Hampshire; May 1989

HOUSING NEEDS ASSESSMENT

This section of the Master Plan has examined the existing housing stock in order to address current and future housing needs. To further determine if a need exists for housing for low- and moderate-income residents, the relevant findings of a regional housing needs assessment and fair share analysis that were completed by the Southwest Region Planning Commission will be discussed. Towns are now required, by state statute, to incorporate a housing element and the results of the regional needs assessment into their Master Plans, and this implies new responsibilities for housing planning.

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 facilitate this provision, the legislature also amended RSA 36:47, making it a requirement for all regional planning commissions to prepare a regional housing needs assessment for people and families of all levels of income.

The Southwest Region Planning Commission undertook such a housing needs assessment in 1989, along with the other regional planning commissions in the state. This assessment is currently in the process of being updated, as the law requires; therefore, this analysis is based on the 1989 study and will need to be reviewed when the update of the regional study is complete.

While the statutes address housing need for people at all income levels, the general consensus, at state and regional levels at that time, was for the regional assessment to specifically identify needs for low- and moderate-income households. A study conducted by a private planning consultant for the New Hampshire Office of State Planning determined that housing for low- and moderate-income residents had not been able to keep pace with the economic growth of the 1980s.

A. Fair Share Analysis

The response to this identified need was the “fair share housing” concept, which grew out of a landmark housing discrimination case in the state of New Jersey. Under such a concept, housing for low- and moderate-income residents is distributed equitably and fairly throughout the state or region based upon certain need criteria that most closely measure the region’s share of statewide need. The underlying assumption is that all towns should participate equally in the provision of housing to people in need.

In order to accomplish this objective, a formula was developed and made available for all regional planning commissions to use in preparing their regional needs assessments. The methodology used in the analysis takes into consideration indigenous housing need, employment, vacant developable land, and equalized valuation per capita; credits are also given for a town’s participation block grant programs, number of mobile home permits granted, and existence of rent-assisted housing.

<u>Fair Share Criteria</u>

- Indigenous Housing Need

  This information was taken from the Census. For the purposes of the regional needs assessment, it was defined as the number of households earning less than 61% of the median income for each region in 1980. For the Southwest Region, the median income was $16,397; 61% of that amount is $9,999. These households are further defined by meeting one or more of the following conditions:

- *living in an overcrowded unit (having more than 1.01 person per room);*
- *living in a substandard unit (one that lacks complete plumbing facilities);*
- *renters paying more than 30% of their income for housing;*
- *owner-occupied units built prior to 1940 and valued in 1980 at less than $25,000.*

♦ Employment

The assumption for including this information is that centers of employment will have a greater need for lower-cost housing and that communities with larger employment bases will have the fiscal and infrastructural capabilities to better absorb housing needs.

♦ Developable Land Area

For the purposes of the regional study (defined as the total land area minus that which has soil and slope restrictions or is otherwise environmentally fragile), the assumption is that the more land there is available for development, the greater the ability of the town to absorb the identified housing need.

♦ Equalized Valuation per Capita

These data were used to gauge the relative economic well being of the towns. This kind of information is a standard element in a fair share allocation formula. Some formulas, however, used median income, but as these figures were quite dated, the regional model used equalized valuation. The intent was to measure the fiscal capacity of the town to afford lower-cost development.

The formula takes the total regional need and distributes it among the individual towns based upon the factors described above. The fair share factor is intended to balance out the inequity inherent in the definition of "indigenous need" for each town; a town that has, through its zoning ordinance, managed to exclude lower-income households, will not be measured in the same way as towns that have households meeting the need criteria.

The result of the analysis is a "number" for each town representing its fair share obligation for the region in providing housing to the targeted population. The analysis represents a redistribution of households already residing in the region. The Southwest Region Planning Commission and the Office of State Planning recognize that there are limitations of the formula mainly associated with the age of the Census data from which the need factors are derived and the assumptions implicit in the formula that deal with land development potential and a town's ability to absorb low- and moderate-income growth. Nevertheless, the results do establish a baseline for attempting to estimate housing need at a fixed point in time; furthermore, it is possible to identify which towns already have a reasonable (or "fair share") of low- and moderate-income residents and which do not. This information can represent the town's goal over a five- or ten-year period until such time as the 1989 study is updated.

It is important to note here that the interpretation of this "fair share" number has been much discussed; a fear has been expressed that the towns will be held responsible for actually constructing and financing housing for low- and moderate-income people. There is no indication that this is, or has ever been, the case. The primary objective of the needs assessment is to encourage towns to review and develop their land use regulations in light of the fair share apportionment (*i.e.*, to make a determination as to if the local regulations in any way prohibit reasonable opportunities for the development of low- and moderate-income housing [*e.g.*, minimum lot sizes and if various housing types are permitted by right in a particular zoning district or only by special exception of the Zoning Board of Adjustment are the kinds of issues to which the town should be paying attention]).

This intent has, in fact, been borne out by the recent New Hampshire Supreme Court ruling on the *Britton v. Town of Chester* case. The Town of Chester had completely prohibited multifamily housing until 1986 and then only allowed it as part of a Planned Unit Development with a minimum of 20 acres (estimated to compose less than 2% of the town's total land area). In their decision, the justices ruled that the Town of Chester had exceeded its zoning authority and created impediments to affordable housing opportunities by placing unreasonable and expensive obstacles in the way of multifamily development. It is important to note that, even though the Court recognized a concept of "community" that could extend beyond the municipal boundaries and that "each Municipality should bear its fair share of the burden of increased growth," it *SPECIFICALLY REJECTED* the appropriateness of a mathematical quota to determine the plaintiff's remedy. This does not mean that the regional needs assessment is useless; the figures will undoubtedly still be taken into consideration when determining the "fairness" of a Town's Zoning Ordinance.

In Jaffrey's case, the analysis indicates an adjusted "fair share apportionment" of 97 units (see Table 13) out of a total of 1,376 units for the entire southwest region. This figure considers the need of both renters and owners in all age groups. According to the formula, the need in Jaffrey is the greatest for those home owners who are under the age of 62. Since this study was conducted, a 28-unit senior housing complex was built in town, thus contributing to the low- and moderate-income housing supply; the need for 97 units can, therefore, be reduced by almost 30%, resulting in a revised need of 69 units.

Table 12 shows some of the pertinent housing needs assessment data for Jaffrey and towns in the subregion (*e.g.*, the indigenous housing need as of 1980, the housing need based on an equalized distribution throughout the region, and the adjusted "fair share" need). As can be seen, Jaffrey's indigenous need was 182 units and its need, based on an equalized distribution, would be 179 units. However, when the applicable credits are factored in, the adjusted fair share need is reduced to 97 units (a reduction of 85 units [47%] from the indigenous needs). Troy and Marlborough are the only towns aside from Jaffrey that show a significant decrease in the number of units, while Peterborough and Rindge show a substantial increase in the number of units required to meet their "fair share" need.

B. Housing Opportunity

In this section, the zoning provisions for Jaffrey 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 are for these dwelling units). Jaffrey has six zoning districts, five of which permit residential uses. Examination of Jaffrey's Zoning Ordinance reveals the following provisions that deal with housing issues and could help the Town address the affordable housing need; these are presented in Tables 17 and 18 below:

TABLE 17
HOUSING OPPORTUNITIES IN JAFFREY

	DISTRICTS				
HOUSING TYPE	**RURAL**	**RES A**	**RES B**	**C/G.B.**	**MT.**
Detached Single Family	P	P	P	P	P
Duplex (Two-Family)	P*	NP	P	P	XA
Multi-Family	P*	NP	NP	NP	XA
Mobile Home Parks & Subdivisions	P	NP	NP	NP	XA
Conversion Apartments	P	NP	NP	NP	XA
New Apartments	NP	NP	P	P	NP
Cluster Development	P	P	NP	NP	XA
Elderly Housing	NP	P	P	P	NP
Accessory Apartments	XA	XA	XA	XA	XA

* - Only in a Cluster Development

SOURCE: TOWN OF JAFFREY ZONING ORDINANCE

TABLE 18
MINIMUM LOT REQUIREMENTS FOR SINGLE FAMILY DEVELOPMENT

DISTRICTS	LOT AREA
Rural without Town Water	120,000 sq. ft.
Rural with Town Water	60,000 sq. ft.
Residence A	43,560 sq. ft.
Residence A with Town Sewer	20,000 sq. ft.
Residence B	43,560 sq. ft.
Residence B with Town Sewer	20,000 sq. ft.
General Business	43,560 sq. ft.
Industrial	2.5 acres
Mountain	Same as in the Rural District

SOURCE: TOWN OF JAFFREY ZONING ORDINANCE

In addition to the lot size requirements set forth in Table 15, the ordinance contains specific provisions for the development of other than single-family homes, as follows:

1. Conversion of a Single-family to Duplex or Multifamily: multiply the required lot area for the district by the total number of units to be created, then multiply that number by two-thirds (.667).

2. Accessory Apartment: multiply the required lot area for the district by two, then multiply by .667.

3. Apartment Houses: one acre for the first living unit in a building, plus one-half acre for the second living unit in the building, plus 5,000 square feet for each additional unit.

4. Duplex: twice the required lot area for the district.

In summary, the Jaffrey *Land Use Plan* (Zoning Ordinance) permits a number and variety of low- and moderate-income housing possibilities. And, since the Housing Needs Analysis was completed in 1989, the Town has added seven units of manufactured housing. As Table 18 indicates, lot area requirements are flexible relative to the availability of town water or sewer.

C. 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 the results of the regional fair share analysis. Between 1980 and 1990, the housing stock in Jaffrey increased by 37%, while the population grew by 23%. The Census data indicate that, in general, Jaffrey's housing stock is in good condition in terms of availability of full kitchen and plumbing facilities. Furthermore, the incidence of overcrowding of dwelling units is very low.

The New Hampshire Office of State Planning population projections can be used to estimate future housing need, based on a person-per-unit estimate. The projections for Jaffrey and surrounding towns are presented below in five-year intervals up to the Year 2015, beginning with the projection for 1995.

According to these projections, the entire subregion is expected to increase by 27% over the 20-year period. Within the subregion, there is a wide range of projected growth — from Marlborough, with the lowest projection of only 4% over the 20 years, to Temple, which is expected to gain 54% in population. Jaffrey is closer to the subregional average with 24% projected growth. This amounts to 1.2% average annual growth, which is less than half of the growth experienced over the last 20 years. If this is translated into needed housing units, the results would be as follows:

Thus, according to these calculations, it would appear that Jaffrey will have no problems in supplying housing for the expected population growth over the next 20 years. The estimates above account for much less than the growth already experienced in the past.

CONCLUSION

As noted above, the Jaffrey Zoning Ordinance does provide for a number of residential uses that relate to not only affordability, but also availability of housing types in town. And, due somewhat to the development of local infrastructure (water and sewer), Jaffrey also has the largest share of multifamily and manufactured housing in the subregion. Over the last several years, the Planning Board has recommended several zoning changes that were designed to enhance opportunities for housing development in Jaffrey.

- The Cluster Development regulations have been revised and now award bonus points for increased density based on the provision of open space, buffering the periphery, and landscaping the entrance.

- Provisions have been added to the ordinance that address accessory apartments in single-family homes.

Nevertheless, the availability and affordability of housing opportunities need to be monitored carefully and the estimated need can be adjusted as new data are obtained and validated. In addition to the previous zoning considerations and the recent additions to the housing stock, the Planning Board suggests that the following steps could be taken to help address the housing issue on an ongoing 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. Discourage the conversion of residential units to commercial and other nonresidential uses, especially in the downtown area. Most of the older residential units in the downtown area are located in older homes, and the loss of these units could adversely affect the availability of housing for low- and moderate-income households. Such conversions should also be discouraged in other areas because they tend to weaken the neighborhood fabric through the introduction of too many mixed uses.

3. Investigate if a reduction in the acreage requirement for multifamily housing will result in a significant reduction in land costs for such units.

4. Pursue, as appropriate, any state or federal funds that may be available for subsidized housing.

5. Encourage local industries and businesses to participate in local and state efforts to provide affordable housing.

6. Make every effort, including programs of local help through community action volunteers, through imposition of impact fees on new construction and other programs, to keep local property taxes down and assist low-income elderly to continue to maintain their homes.

7. Support other local and state efforts to provide affordable housing, such as the development of a housing trust to provide alternative home ownership means.

JAFFREY MASTER PLAN
1997 UPDATE

TRAFFIC AND TRANSPORTATION ANALYSIS

INTRODUCTION

A viable thoroughfare and transportation system is the most significant public investment a town can make in its infrastructure and physical development. The existing transportation network has a profound influence on the location and development of land use throughout the town. All land use activities requiring access to adequate transportation routes are most likely to locate where access is the easiest and least costly. Likewise, transportation improvements have the potential to alter existing land use patterns by opening up once inaccessible areas, either by new road construction or deficient road upgrading.

Because of the financial commitment required to support a road network and the direct relationship between land use patterns and traffic circulation, identifying and analyzing current transportation needs is crucial to the orderly accommodation of growth and development. This section of the Master Plan is intended to provide such an analysis. By developing an inventory of the existing transportation network, analyzing the impact of regional growth on traffic volumes, and identifying road deficiencies, the transportation section should provide the necessary data for the Town to establish a road improvement schedule that can be incorporated into the Capital Improvements Program (CIP).

A corollary purpose of this document is to enable the Town of Jaffrey to fully participate in all levels of transportation planning — not only local, but regional, state, and federal as well. Transportation infrastructure is heavily dependent on public funds. The New Hampshire Department of Transportation (NHDOT) sets the priorities for spending through the development and implementation of a statewide Transportation Plan and Transportation Improvement Program. Both of these are required under 1991 federal legislation known as the Intermodal Surface Transportation Efficiency Act (ISTEA). ISTEA prescribes the federal disbursements to the states, and, in order to qualify for New Hampshire's full allocation of funds, the NHDOT must comply with the federal planning requirements.

To accomplish this task, the NHDOT requires each of the nine regional planning commissions in the state to develop a regional transportation plan that describes existing state road conditions, identifies problems and concerns, declares goals and objectives for the regional network, and makes specific recommendations for improvements. The regional plans provide the towns with an opportunity to link municipal planning, state spending, and federal policy. This local transportation analysis will, therefore, take the regional issues into account in the process of ensuring that Jaffrey's transportation network supports and promotes the town's overall community plan.

HIGHWAY CLASSIFICATION SYSTEMS

The first step in evaluating a transportation network is to define the roads by the type of service they provide and by the funding that is available to build, maintain, and repair them. There are three classification systems used to accomplish this: (1) federal; (2) state; and (3) functional use.

Federal Classification

This classification determines whether or not a particular road is eligible for a share of federal funding for reconstruction, rehabilitation, or resurfacing activities. At this time, Jaffrey has no roads that fall within this classification.

State Classification System

This system has been developed by the NHDOT for determining funding levels and maintenance responsibilities. *Revised Statutes Annotated* (RSA) 229:5 specifies the following six classes of roads within the state system:

- Class I: Trunk Line Highways belong to the primary state highway system. The state assumes full control and pays costs of construction, reconstruction, and maintenance.

- Class II: State Aid Highways belong to the secondary state highway system. All sections improved to the state standards are maintained and reconstructed by the state. All other sections must be maintained by the Town until brought up to state standards. The same applies to bridges on Class II highways.

- Class III: Recreational Roads consist of all roads leading to and within state reservations/parks designated by the Legislature. The NHDOT assumes full control of reconstruction and maintenance.

- Class IV: Town and City Streets consist of all highways within the compact sections of towns and cities of 7,500 (or more) inhabitants.

- Class V: Rural Highways consist of all other traveled highways that the Town has the duty to maintain.

- Class VI: Unmaintained Highways are all other existing public ways, including highways discontinued as open highways, highways closed subject to gates and bars, and highways not maintained by the Town in suitable condition for five consecutive years or more.[12]

Of the six possible state classifications, Jaffrey's roads fall into five of the categories: Classes I, II, III, V, and VI (these are illustrated on Map #1 and described below).

Route 202 is the only Class I highway located in Jaffrey. It serves as a major north-south traffic corridor in Jaffrey as well as the eastern portion of the Southwest Region planning area.

Routes 137 and 124 are classified as Class II highways because they are part of the secondary highway system. Both roads are completely state maintained and act as major traffic corridors in their own respect. In addition, two other minor state roads (the Dublin and Troy Roads) are included in this classification.

Jaffrey has one road that has been classified as a Class III (or state recreational) road. This road is located off Dublin Road and proceeds into the Monadnock Mountain State Park.

The majority of roads within the Town of Jaffrey are of the Class V category. These roads are maintained by the Town and consist of both paved and dirt or gravel road surfaces. Class V roads are considered adequate for development, but often do not meet state standards for construction.

[12] 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 no longer a public way; it then belongs to the abutting landowners.

The other road classification in the town (Class VI) accounts for a very small portion of the total road network. Furthermore, development on Class VI roads is permitted only in accordance with the procedures of RSA 674:41.

The approximate road mileage for these five classifications of roads in shown in Table 1. The table represents data obtained from Jaffrey's Department of Public Works (DPW) and the NHDOT.

TABLE 1
APPROXIMATE ROAD MILEAGE BY CLASSIFICATION AND SURFACE TYPE

Classification	Miles
Class I:	
Route 202	4.70
Class II:	
Route 137	3.91
Route 124	9.04
Dublin Road[2]	1.34
Troy Road	.07
	14.36
Class III:	
Poole Road	.81
Class V:	
Paved	47.18
Gravel	15.20
	62.38
Class VI:	11.30
TOTAL:	93.55

Sources: Town of Jaffrey; NHDOT Classified Road Mileage "RDIFO4," January 1996.

Functional Classification System

State classifications should not be confused with each highway's functional classification. Functional classifications identify the role of each highway within the state system, based upon standards developed by the United States Department of Transportation (USDOT). The functional classification of a highway

[2.] Jaffrey does winter maintenance on this road.

attempts to show how each road provides for the efficient channeling of traffic throughout an area and how much of an impact that particular highway makes.

Map #2 (Functional Classification Map for the Town of Jaffrey) illustrates the system and how it applies to the town. The functional classification system provides a way to connect the land planning and transportation elements of the Master Plan. By staying with a highway's intended functional use, possible conflicts between land use and adjoining roads can be avoided.

Ideally, the land use pattern in a town is related to the functional classification of the roads that serve various land uses. For example, it would not be wise to locate a residential development along a major arterial or heavily traveled minor arterial highway because of the obvious possibilities for interruption of traffic flows in the vicinity of the development. Such a development would be better suited for a less traveled minor arterial or collector road where the majority of traffic is local. The need for access on a major road causes many left-hand turns that interrupt the steady flow of through traffic.

Functional Categories

- Major Arterial Highways: These highways are designed to carry the largest percentage of traffic entering and leaving a region as well as the greatest amount of traffic traveling through the region. The majority of trips throughout a region that do not require a stop in the area should be handled by the major arterial highway. There are no major arterial highways located within Jaffrey. The closest road fitting this description is Route 101 to the north.

- Minor Arterial Highways: These highways provide the next lower level of service, often connecting directly with major arterial highways. Route 202 is classified by the NHDOT as a minor arterial highway. When looking at the role of Route 202 within the municipal transportation system, it is easy to see that the highway provides the main access north to Route 101 in Peterborough and eventually beyond to Route 9 in Hillsborough, as well as southern access into Rindge and western Massachusetts. (Route 202 is actually a federal, not a state, highway and runs from Maine to Maryland.)

- Major and Minor Collectors: The collector system provides more in the way of land access than minor arterials. Collector streets may enter residential areas, business districts, and industrial areas. A collector street will often act as a funnel by channeling traffic onto a minor arterial highway that in turn may channel this traffic to a major arterial. Collector streets differ in another way from arterial highways in that they are more likely to distribute traffic onto its ultimate destination than a major or minor arterial. Route 124 has been classified as a major collector highway while Route 137, Troy Road, Squantum Road, and a section of Prescott Road have been classified as minor collectors. These roads provide land access, service, and traffic circulation throughout Jaffrey's residential and commercial areas.

- The Local Street System: The local street system includes all other streets not already classified by the higher systems. The primary function of the local system is to provide direct access to the higher systems and abutting properties. It offers the lowest level of mobility, and through-traffic is usually deliberately discouraged.

TRAFFIC VOLUMES

Population increases in the southwest region of New Hampshire have resulted in increased traffic volume over state and local roads. As part of an ongoing effort by the state transportation agency to monitor traffic flows and volumes around New Hampshire, the NHDOT maintains traffic counting devices at various locations and for various periods of time. Relative to Jaffrey, there are permanent traffic counters

on Route 202 at both the Rindge and Peterborough town lines and on Route 124 at the Sharon and Troy town lines. Data compiled by the traffic counters are in the form of average daily trips (ADT). Table 2 and the accompanying graph represent ADT data compiled since 1970.

In addition to the permanent traffic counters, the NHDOT places aboveground tubes in miscellaneous locations around town on a rotating basis. The available information is included in Table 2 and presented on the Jaffrey Traffic Data Map (Map #3).

The data show that Route 202 at the Rindge town line experienced the most dramatic increases in traffic over the 25-year period examined and that Route 202 at the Peterborough town line saw a mere 19% increase. Note, however, the traffic counts have been consistently higher at the Peterborough town line, although the rate of growth is much lower. Rindge had only 2,500 vehicles per day in 1970 compared to 6,300 at the Peterborough town line.

TABLE 2
AVERAGE DAILY TRAFFIC DATA

Route 202/Rindge Town Line

Year	ADT	Average Annual % Change
1970	2,500	-
1980	3,600	4.4%
1990	6,349	7.6%
1995	7,925	5.0%
70-95% Increase:		217.0%

Route 124/Sharon Town Line

Year
1970
1980
1990
1995
80-95% Increase:

1

Route 202/Peterborough Town Line

Year	ADT	Average Annual % Change
1970	6,300	-
1980	6,560	0.4%
1990	7,472	1.3%
1995	7,518	0.1%
70-95% Increase:		19.3%

Route 124/Troy Town Line

Year
1970
1980
1990
1995
80-95% Increase:

1

Miscellaneous Locations Throughout Jaffrey

Location	Year		
	1993	1994	1995
Gilmore Pond Road over Mountain Brook	725		
Old Peterborough Road over Contoocook River	1,747		
Hadley Station Road over Contoocook River	2,418		
Route 137 at Dublin Town Line	975		
Route 124 east of Dublin Road	4,083		3,855
Route 124 west of Sawtelle Road		3,561	
Route 124 west of Highland Avenue			5,100
Route 202 east of Route 137			11,090
Squantum Road east of Stratton Road			1,701
Annett Road east of Squantum Road			1,144
Frost Pond at Dublin Town Line			726

Source: NHDOT

This marked increase is due, in part, to the development along Route 202 in Rindge over the last several years; at the Routes 119 and 202 intersection, a shopping center has been established, including a large supermarket chain store. In addition, a Wal-Mart store is located further south on Route 202 near the Massachusetts border. Furthermore, given that the Rindge zoning ordinance designates the Route 202 corridor as a commercial district, it can be expected that this type of development will continue for some time.

MOTOR VEHICLE REGISTRATIONS

The residents of Jaffrey rely on private vehicles to meet the majority of their transportation needs. This dependence is reflected in the ever-increasing number of local automobile registrations. According to the Motor Vehicle Division of the New Hampshire Department of Safety, Jaffrey had 5,658 passenger cars registered as of December 31, 1995. This figure represents a 104% (8.7% average annual) increase since 1983, the earliest year reliable figures have been available from the Department. (The Planning Board notes that the state figure is actually higher than the total population of Jaffrey [5,438]. In an effort to understand this phenomenon, the Board notes that this number reflects multiple registrations — occurring when people change vehicles during the year and also that many people today have more than one vehicle registered. It is also possible that these figures illustrate a growing trend noted in New Hampshire border towns in that motorists from Massachusetts are registering their vehicles in New Hampshire so as to avoid their state motor vehicle taxes.)

The average number of passenger vehicles per household can be determined by dividing the passenger car registration by the number of households. Unfortunately, the most recent figure available for number of households is from the 1990 U.S. Census, while the registration numbers are from 1995. Nevertheless, this will provide a ballpark estimate. The calculation yields a figure of 2.7 vehicles per household — quite a bit higher than the figure of 1.6 for the state.

Jaffrey's Town roads and state highways are obviously the major element of the transportation. It appears that town residents will continually face the need for better and safer roads to satisfy their need for quick and reliable transportation. The condition and safety of these roads will be the next component of this transportation element.

EXISTING ROADWAY CONDITIONS

Local Roads

The first step toward building a better and safer road system is to identify hazardous locations and determine which roads are deficient. A distinction can be made between: (1) locations that are hazardous based on accident experiences; and (2) locations and sections that are potentially hazardous due to design or physical features. Road deficiencies include such problems as:

- narrow travel ways
- narrow bridges
- guard rail deficiencies
- hazardous curves
- rough pavement
- fixed objects near pavement edge
- inadequate shoulders
- steep grades
- inadequate sight distance
- poor drainage
- steep roadside slopes
- dangerous intersections

The initial area to be examined is this section is road width deficiencies. In March 1986, the NHDOT published *Minimum Geometric and Structural Guides for Local Roads and Streets*. These standards

concern travel way and right-of-way widths, adequate drainage, shoulder widths, and base course depths. The state specifications recommend a minimum pavement width of 18 feet for roads with an ADT of 0-50 trips per day. As the ADT total for a particular road increases, so does the minimum width recommended by the state. A 20-foot width is recommended for roads with 50-750 trips per day, a 22-foot width is recommended for roads with an ADT count of 750-1,500 per day, and a 24-foot width is recommended for roads that have 1,500 or more trips per day. Based on these state criteria, the minimum standard width for Class V roads in Jaffrey is 18 feet.

Jaffrey has taken this minimum width requirement a step further by adopting a minimum road width of 22 feet with a right-of-way width of 50 feet as the standard for acceptance as a Town road. This width coincides with the state requirements concerning streets with an ADT count of 750-1,500 trips per day. Additional road design standards the Town requires before acceptance as a Town road include four-foot shoulders on both sides and a surface course of two-inch bituminous concrete and a one-inch wearing course. The Town also deemed necessary a base course consisting of 14 inches of sand, 12 inches of bank run, and four inches of crushed gravel (see illustration — Town of Jaffrey, NH Road Construction Specifications for Class V and Private Roads).

Table 3 lists the paved Town-maintained roads that are considered deficient with regard to the 18-foot NHDOT minimum road width standards. Most of these roads also happen to be a unique category of Town road that serve only one or two residences. Therefore, the potential for problems related to narrow roadways is somewhat minimized. Also, all but three of these roads have a dirt or gravel surface.

TABLE 3
CLASS V ROADS THAT ARE LESS THAN 18 FEET IN WIDTH

Road Name	Width	Length	Number of Dwellings
Annett Road	16 feet	600 feet	1
Blackberry Lane	16 feet	450 feet	2
Chadwick Road	16-18 feet	2,800 feet	1
Cobleigh Hill Road	16 feet	2,050 feet	1
Coleman Road	16 feet	2,100 feet	1
Frost Pond Beach Road (paved for the first 150 feet; road to public waters)	16 feet	800 feet	3
Sandy Lane	16-18 feet	4,290 feet	3
Hawthorn Road	16 feet	690 feet	2
Peabody Hill Road	16 feet	700 feet	1
Laundry Road (paved; in addition to two apartment houses, a laundry is located at the end of the road)	16 feet	250 feet	2
Red Gate Lane (applies to only the first 600 feet)	16 feet	600 feet	1
Thorndike Pond Road (approximately half of the total length)	16 feet	5,785 feet	
Spaulding Road	16-18 feet	900 feet	1
Stoney Brook Road	16 feet	650 feet	1

Source: Jaffrey Department of Public Works, September 1996

It should be noted that, during the preparation of the last Master Plan (1989), a citizen survey conducted by the Jaffrey Sounding Board indicated that town residents believe many of the narrow paved and gravel roads should not be upgraded, despite the deficiencies in terms of engineering standards. People seem to

feel that narrow, winding roads contribute to the rural character and charm typical of the southwest region of New Hampshire.

The topic of a scenic road network was brought up for discussion by the Sounding Board in 1989. The majority of the Board's participants agreed that it is in Jaffrey's best interest to preserve and manage its roads for their scenic character, whether or not they are designated as state scenic roads in a legal sense. Under the provisions of RSA 231:157, the designation of "scenic road status" is determined by a majority vote at a regular or special Town Meeting when roads are proposed for such designation by a petition of ten people who are either voters of the town or who own land that abuts such roads.
After a road is designated as a scenic road, "any repair, maintenance, reconstruction, or paving work done with respect thereto ... shall not involve the cutting, damage, or removal of trees or the tearing down or destruction of stone walls or portions thereof, except with the prior written consent of the Planning Board or any other official municipal body designated by the (Town) meeting." A properly noticed public hearing must be held prior to the Planning Board making any comment or recommendation on such proposed repairs, maintenance, or construction.[13]

The inadequacy of rural roads creates a potential for safety problems due to the physical and functional deficiencies. However, eliminating these deficiencies could conflict with the Town's desire to maintain its present rural New England character. Consequently, the desire to preserve the rural character by establishing a scenic road system should be carefully balanced against the need for certain safety improvements and needed widening and/or reconstruction projects. It is felt that the charm and character of these rural, unpaved roads can be maintained and necessary improvements made through implementation measures that are based on contemporary engineering and landscaping techniques. In the Town of Jaffrey, only Thorndike Pond Road has been designated as scenic under the provisions of the statute.

Road deficiencies other than inadequate road widths are also present in Jaffrey. These locations include hazardous curves and intersections, steep grades, drainage, and flooding problems, limited site distance, and other trouble spots. Such areas in Jaffrey are listed in Table 4 and shown on Map #4 (Road Trouble Areas).

TABLE 4
ROAD HAZARDS AND OTHER PROBLEM AREAS

Location	Problem
Nutting Road/Route 202	Steep grade
Amos Fortune Road	Narrow one-lane bridge in disrepair
Route 202/Pierce Crossing Road/Nutting Road	Dangerous intersection
Sharon Road/Hadley Road	Narrow bridge and poor intersection design
Route 124 — Jaffrey Center	Parking problems
Proctor Road/Harkness Road	Dangerous intersection
Harkness Road	Narrow road section in Jaffrey Center
Paradise Lane	Steep grade
Downtown Jaffrey	Parking on Main Street interferes with sight distance
Route 124/Milliken Road	Reverse "S" curve; very dangerous in the winter

Source: Jaffrey Department of Public Works, September 1996

Several of the roads that are identified in Table 4 as problem areas are targeted by the Highway Department for improvements. The problems with Sharon Road have at least been defined by an engineering study completed for a project that was not built. The narrowness of Harkness Road in Jaffrey

[13] RSA 231:158,11

Center will only be partly addressed as this is an Historic area and there is some perception, as mentioned earlier, that narrow and/or unpaved roads add to the character and charm of rural New Hampshire. And, in Jaffrey Center, four parking spaces have been created across the street from the Monadnock Inn, and plans are under way to improve the sidewalk situation (this is discussed in more detail later).

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. Jaffrey has 15 bridges, six of these being State owned and nine Town owned. The status of these bridges is detailed in Table 5 and their locations are illustrated on Map #5. Most of the local bridges in Jaffrey meet state standards, except for the two identified in Table 4: (1) the bridge on Amos Fortune Road (one lane wide with a deck width of 16 feet or less); and (2) the bridge on Sharon Road (21 feet in width, but it has other design problems).

In addition to the information contained in Table 5, note, also, that four of the bridges are considered functionally obsolete (FO) and two are structurally deficient (SD). The NHDOT defines functional obsolescence as a bridge that is carrying more traffic today than it was originally designed to do; and structural deficient means just that: there are problems with the physical structure. The bridges are as follows:

TABLE 6
FUNCTIONALLY OBSOLETE/STRUCTURALLY DEFICIENT BRIDGES

Bridge	ID Number	Ownership	Status
Nutting Road/Contoocook River	156087	Town	FO
Nutting Road/Contoocook River	159094	Town	FO
Nutting Road and Brook Street	161099	Town	FO
Fitch Road and Contoocook River	170087	Town	SD
Route 202 and Mountain Brook	148068	State	FO
Route 202 and Contoocook River	171087	State	SD

Of the two bridges that are rated as structurally deficient, the Fitch Road bridge is scheduled for reconstruction (this project is described in more detail later).

PARKING CONDITIONS

Parking in downtown Jaffrey (between School Street and Peterborough Street) has been an issue for many years. The problems have resulted from several factors, but namely: (1) limited on-street parking areas; (2) traffic congestion in this two-block area; and (3) limited public off-street parking areas. Two types of parking are needed in the downtown area: (1) short-term (one-to-two hours) for customers/shoppers; and (2) long-term for employees and business owners.

The majority of on-street parking in the downtown area is situated between the Route 202/Stratton Road intersection and the Main Street/School Street intersection. For many years, parking opportunities in this area consisted of both angle and parallel parking spaces as well as a public parking area (limited to 26 spaces located in front of the old Town Office Building, now the Police Department).

The parking arrangements in downtown Jaffrey were altered in 1995 when Phase I of the NHDOT project to improve the intersections in the downtown area was completed. This work consisted of adding signalization to both the Routes 137 and 202 intersection and the intersection of Routes 202 and 124. Through the completion of this project, the angle parking was eliminated along Main Street between these two intersections (replaced by parallel parking spaces), and a parking lot was created on Blake Street to replace lost parking capacity on Main Street. In addition, when the Town Offices were moved to Goodnow Street, a municipal parking lot was created in the space that had previously been a private parking area behind the bank.

Map #5 (Existing Parking Facilities) shows the current location and distribution of public parking in the downtown area. The rearrangement of parking spaces in Jaffrey meant the loss of a number of spaces (when the angle parking was converted to parallel parking, the spaces were reduced from 76 on-street spaces to 34). The two public parking areas, however, have made up the difference in numbers; in fact, there are more spaces now than there were before (153 compared to 112). The question of convenience, however, still remains — there are fewer opportunities for people to park directly in front of a store on Main Street.

THOROUGHFARE IMPROVEMENT PROGRAM

A thoroughfare improvement program should be based on a set of general goals and objectives to properly evaluate all elements affecting the transportation system. The principal goal for transportation, as noted in the Statement of Goals and Objectives, is that a safe and convenient transportation network that provides ease of movement for pedestrians and vehicles is essential to the smooth operation and safety of any community.

A specific highway improvement program that evaluates new road projects, reviews road improvements, and schedules these projects over a period of several years is an essential part of a sound transportation plan. Beyond just scheduling these projects, a transportation plan should try to make evaluations as to their direct or indirect influence on the Town road system and also as to the impact on the related *Land Use Plan*.

Town Road Improvements

Local improvements under the auspices of the Jaffrey Department of Public Works consist primarily of road resurfacing/reconstruction and bridge repairs. Maintaining a road system is a challenge for all towns — the highway departments' budgets are typically the highest in New Hampshire towns, second only to schools. Equipment is very costly, and the expectations of the general public are much higher than they used to be — people expect to be able to drive, regardless of weather conditions.

Furthermore, the regular maintenance, repair, and construction of roads is much more involved than it used to be, complicated by the topography and weather in this part of the country. Alternating freezing and thawing wreak havoc with roads, and steep hills and curves make road construction expensive and difficult. These problems are compounded by the fact that most local roads were not constructed "new " — rather, they evolved from bridle or walking paths to a road that now carries vehicles. A proper roadbed was never constructed; therefore, the underlying base is typically inadequate for handling the problems of drainage, which is the single most significant factor causing road deterioration. Unfortunately, the correction of that problem tends to be prohibitively expensive, so that local road agents are frequently left to repair roads on an ongoing basis rather than digging up the entire roadbed and starting anew.

In Jaffrey, however, it has been the goal of the Public Works Department to reconstruct every Town road and to establish a schedule for maintaining and improving these roads on a regular and/or "as needed" basis. This goal was set in 1976 under the direction of the Superintendent, who set out a 20-year program in which to accomplish this task. The Department believes that by 1998, at the latest, it will have reached this goal.

To assist the Department with its road management objectives, it has instituted a Road Surface Management System (RSMS) for prioritizing and scheduling road improvements projects. The RSMS methodology was developed by the Technology Transfer Center at the University of New Hampshire, Durham. It provides a means to visually inventory and evaluate road surfaces, based on surface type, widths, shoulders, condition of surface, *etc.*, which then enables the user to prioritize the needs and to outline maintenance strategies.

State Road Improvements

At this time, there are only two state projects pending: (1) replacing Fitch Road bridge; and (2) constructing a sidewalk in Jaffrey Center. The Fitch Road bridge over the Contoocook River appears in the State's Ten-year Transportation Improvement Program as a State Aid project scheduled for 1997. The

total cost for the project is set at $240,000, 20% of which will be financed by the Town of Jaffrey ($48,000).

The sidewalk project is funded under the State's Transportation Enhancement Program. The engineering and right-of-way purchase are scheduled for 1998 and construction in 1999 at a total cost of $34,000. The proposal is to construct a new sidewalk in Historic Jaffrey Center. The new sidewalk will be about 1,000 feet in length and consist of an asphalt base with a layer of stone dust on the top — this is intended to provide a more historic look to the District. The sidewalk will be curbed with granite for the entire length, and grass will be planted between the curbing and the edge of pavement.

The 1990 Master Plan contained a detailed discussion of problems with the intersection in the center of downtown Jaffrey and possible solutions. The major issue had to do with the so-called "dogleg" intersection of Routes 202 and 124. In 1995, work was completed on Phase I of the project. This work consisted of adding signalization to both the Routes 137 and 202 intersection and the Routes 202 and 124 intersection. In addition, the angle parking was eliminated along Main Street between these two intersections (replaced by parallel parking spaces), and a parking lot was created on Blake Street to replace lost parking capacity on Main Street.

The 1990 Master Plan also described certain design problems with Route 124, which have yet to be addressed by the NHDOT — namely, the road's horizontal and vertical alignment, the narrow width of the road surface, and the lack of adequate shoulder width. A serious alignment problem exists where Milliken Road intersects with Route 124. At this location, there is a reverse "S" curve with a very short straight section between the two curves. Compounding the problem is a relatively short sight distance on the curves, and the curves are at the base of a fairly steep grade. The close proximity of existing buildings and stone walls, coupled with grade changes, will complicate improving this hazardous location. The lack of adequate shoulder width and possibly right-of-way width becomes more critical in the winter due to the inadequate snow storage area, which tends to reduce the visual perception of the road's width. In essence, resurfacing Route 124 did not eliminate the serious deficiencies that extend along this road from the Troy town line to Sawtelle Road.

IMPLICATIONS FOR FUTURE LAND USE AND DEVELOPMENT

As was previously mentioned, the present condition of the road network has many implications for growth and land use within Jaffrey. Most of the future development in Jaffrey will probably occur on Class V town roads, some of which lack the physical and functional capacity to serve large-scale subdivisions or some types of commercial uses. Therefore, new proposals for development will need to be carefully monitored in terms of expected impacts on the road network, as the Planning Board currently does. In addition, the Planning Board has developed regulations for cluster development in an effort to reduce using Town road frontage and to encourage interior development.

Other situations that will have a limited bearing on future land use and development include the limited access sections in the Route 202 corridor. The "limited access restriction" applies to the sections of Route 202 that extend from: (1) the Peterborough town line south to the vicinity of D.D. Bean Match Co., and (2) the Rindge town line north to Mountain Brook Reservoir. The "restriction" means that properties located in these sections of the corridor are entitled to one access point (driveway), and large tracts with extensive frontage may have an additional driveway location. In essence, this means that larger tracts cannot be subdivided into numerous lots, each having *direct* access to Route 202. Instead, such parcels must be served by interior service roads that will have access to Route 202 at the designated driveway or intersection points.

CONCLUSION

In concluding the discussion of thoroughfare and traffic circulation improvements, there are several nonconstruction-type activities that the Town can initiate to help improve the local situation and reduce the potential for pedestrian and vehicular accidents. An effective maintenance program considers several activities that must be executed to ensure the development and continuation of high-quality street systems. These activities, many of which are already a part of the Town's highway improvement program, aided by the RSMS program, include:

(1) Constant monitoring of the total road system and related facilities (*e.g.*, drainage systems, bridges, road surface, *etc.*) by the Department of Public Works, the Board of Selectmen, and the Planning Board to promptly identify potential problem areas.

(2) Inventorying the street system and then determine the type and magnitude of the needed improvements so that they can be prioritized on the basis of:

   (a) the seriousness of the problem;
   (b) the potential for causing accidents and/or vehicle damage;
   (c) the type of repair needed and who is responsible for making it (*i.e.*, the Town or NHDOT); and
   (d) available funds for implementing the necessary improvement or corrective action.

(3) Correcting minor problems *promptly* to prevent them from becoming more serious and costly problems.

(4) Developing a good record keeping system so that regular maintenance and resurfacing schedules can be established and maintained.

(5) Developing detailed construction plans and cost estimates for resurfacing, reconstruction, or construction and drainage improvements based on sound engineering and construction practices.

(6) Developing resurfacing and improvements schedules consistent with the need to replace water and sewer pipes so that reconstruction efforts will not be duplicated.

(7) Continuing to insert needed improvements (and cost estimates) into the Town's annual capital budget and/or the capital improvements plan.

(8) Ensuring that all new roads and streets or improvement projects to existing roads have been properly constructed and inspected by the Town Engineer before being accepted by the Town.

Jaffrey is ahead of many towns in that it already has a functioning highway improvement plan in place and adequate staffing and administration to carry out the plan. However, Town appropriations for the DPW have remained fairly constant over the last several years, and examination of the current Capital Improvements Program indicates a proposed level spending for the Department out to the Year 2001. If the Town wishes to retain a safe and adequate road system in the future, it must realize that additional funding will be needed for the highway budget. The added funds will permit the DPW to develop an adequate schedule for road maintenance as well as to make the necessary bridge and road construction/reconstruction.

Overall, Jaffrey's street system, as it currently exists, is generally adequate for the Town's current needs. But, along with increased traffic and development will come the need to reconstruct and repair many Town roads to ensure the continued safety of those using the local road system.

RECOMMENDATIONS

(1) Continue to work with the New Hampshire Department of Transportation for the continual maintenance and eventual reconstruction of Route 124 from and through Jaffrey Center to the Troy town line.

(2) Continue to work with the New Hampshire Department of Transportation for a solution to the second phase of the Route 202 improvement program (the extension of Route 202 south from the Main Street/Peterborough Street intersection to the new section of Route 202 south of Mountain Brook Reservoir a.k.a. “The Through Pass”).

(3) Provide for adequate off-street parking in all future developments.

(4) Stress the desirability of locating future development in areas that are set back from local roads.

(5) Provide for adequate streets and street systems in all future residential, commercial, and industrial subdivisions.

JAFFREY MASTER PLAN
1997 UPDATE

COMMUNITY FACILITIES ANALYSIS

One of the most important functions of a community is the provision of certain public facilities and services for its residents, taxpayers, visitors, and business people. These include public schools, public safety and utilities, municipal buildings, and recreation facilities. The degree to which they are developed greatly determines the quality, convenience, and general character of the community.

There is a close link between the provision of certain public facilities and the levels and location of growth in a community. If decisions about new and/or expanding facilities are consistent with a town's Master Plan, the plan will be reinforced and the town will see development occurring in the manner envisioned in the Master Plan.

The Community Facilities Analysis is that component of the Master Plan that discussed recommendations for improving the existing facilities, as well as providing new facilities where needed. The expenditures associated with the identified services and facilities are also presented in this section. Accompanying this discussion is the Community Facilities Map illustrating the existing and proposed facilities.

PUBLIC BUILDINGS

Town Offices

The 1990 Master Plan determined that the existing Town Office Building on Main Street was no longer big enough to meet the needs of a growing municipal government. One of the options identified to meet the overcrowding problem was to acquire another building. This, in fact, was done, and the Jaffrey Town Government moved into a building renovated for this purpose at 10 Goodnow Street, directly behind the old Town Office Building in November 1995.

The new building houses the offices of Town Manager, Town Treasurer, Town Clerk, Selectmen, Planning Board, Tax Collector, Assessor, Zoning Board of Adjustment, Building Inspector, and Welfare Officer. In addition, there is a meeting room available for town board and committee meetings.

Office hours are generally 8:30 a.m. to 5:00 p.m., Monday through Friday, with the various boards and committees meeting in the evenings. The annual Town Meeting is still held in Pratt Auditorium, which is attached to the Jaffrey-Rindge Middle School.

Post Office

At the time the 1990 Master Plan was drafted, Jaffrey had two separate Post Offices, each with its own Zip Code: the main Post Office, located on East Main (Turnpike) Street, and a rural station in Jaffrey Center. As of this writing, Jaffrey has only the Turnpike Street facility. This Post Office has a total of 800 post boxes, 720 of which are rented. In addition, the Post Office supports three rural routes and two city routes that serve a total of 2,900 customers. Parking is sometimes a problem at the main Post Office, but there are no immediate plans to move the facility for that reason; and with 80 boxes empty, there is still some capacity for future expansion.

Jaffrey-Peterborough District Court

Jaffrey is one of the few towns in the region that still maintains a District Court. Since 1985, this court has handled cases from the towns of Jaffrey, Peterborough, Dublin, Greenfield, Hancock, New Ipswich, Rindge, Sharon, and Temple.

The court is located on Route 124 east (Turnpike Road) in a former ball bearing factory. It is generally agreed that the facility is no longer adequate for this purpose, and proposals for a solution have included moving the court to Peterborough. Jaffrey and Peterborough each presented their case to the New Hampshire Court Accreditation Commission in September, and the decision was made to keep the court in Jaffrey. The new location will be next to the Monadnock Plaza on Route 202 north, on vacant land adjacent to the existing plaza. A new complex is planned at a cost of about $2-million; to date, the Legislature has yet to appropriate the funds needed for site planning and land purchase.

Other Public Buildings

Other public buildings include: the Meetinghouse in Jaffrey Center (not completely publicly owned, but used for a wide variety of public functions, meetings, festivals, *etc.*); the Little Red Schoolhouse; the Jaffrey Civic Center (which is open to the public but is not publicly owned); the Woman's Club Building (also privately owned but available to the public); and Melville Academy (a museum in Jaffrey Center devoted primarily to artifacts of early Jaffrey history).

Fire Protection

Fire protection in Jaffrey is provided by a called staff of about 30 people (in addition to a Fire Chief). Until recently, Jaffrey maintained a primary and an auxiliary station; the auxiliary station located on Route 124, west of Jaffrey Center, is, however, no longer used as a fire station.

The main station is the existing facility on Turnpike Road, approximately one-half mile from the intersection of Routes 124 and 202. The station is a one-storey building constructed in 1982. Facilities include eight truck bays, a meeting room, kitchen, and storage space. The station houses the following pieces of equipment:

- 1938 Chevrolet Pumper
- 1942 Brush Truck
- 1981 2,000-gallon GMC Tanker with a 1,250-gallon front end pump
- 1987 600-gallon Ford Diesel two-wheel drive with a 1,000-gallon pump
- 1989 International Hose Reel Truck
- 1991 Ford Fire Rescue Vehicle
- 1993 Freight-Liner Pumper

Jaffrey is also a member of the Southwestern New Hampshire Fire Mutual Aid, which has its headquarters in Keene. Fire Mutual Aid is essentially a dispatch center for the member towns, receiving all emergency calls for fire, police, and ambulance service. In addition, Mutual Aid is tied into the Fish and Game Department and the Sheriff's communications bands and can dispatch these services when necessary. The Mutual Aid system is under the direction of a Chief Coordinator, providing round-the-clock coverage with a staff of eight full-time dispatchers, two of whom are on duty with a backup at all times.

In addition to Jaffrey's membership in the Mutual Aid center, there is now the Enhanced 911 emergency number, instituted by the State of New Hampshire in July 1995. This number is for fire, police, or

ambulance. The development of this new system required that every town in the state undergo a complete house numbering process so that all emergency response personnel have consistent and accurate information on road names and building locations.

In summary, the Fire Department appears to be in good shape at this time. Discussions with the Fire Chief indicated no immediate problems with staffing, facilities, or equipment.

Ambulance Service

The Town of Jaffrey is served by the Veterans of Foreign Wars (VFW) Ambulance Service, which also serves Rindge. In addition to providing ambulance service to the two towns, hospital transport within a 100-mile radius of Jaffrey is available for patients. And, on an "as needed" basis, the service responds to Mutual Aid calls for other towns in the area.

The building is located on Route 124 west in Jaffrey. Equipment consists of two ambulances. The service is operated by a volunteer staff of 18 Emergency Medical Technicians (EMTs). Three of the EMTs are certified to administer intravenous injections and some drugs, and all but two or three of the personnel are certified to treat cardiac arrest through the use of a defibrillator.

The service operates a "Ride Along Program" for people interested in becoming an EMT and serving on the squad. This has been very successful for both the service and the individuals involved, as it provides an opportunity to observe and gain understanding of what the job entails before the investment — both financial and personal — is made in undergoing the EMT training.

The service was founded in 1948 and has operated since solely on donations. There are no charges for this service and, except for Workers' Compensation Insurance paid by Jaffrey and Rindge, no tax dollars go toward funding this service.

Police Protection

The Jaffrey Police Department, under the direction of a full-time Police Chief, maintains a force of 12 full-time officers (two of whom also serve as Health Officer and Animal Control Officer) in addition to a full-time desk officer, an animal control officer, and school crossing guards. Police officers receive training through the New Hampshire Police Academy in addition to continuous in-house training programs.

Police assistance, like fire protection, can be dispatched either through the Mutual Aid system, by a direct call to the Jaffrey Police station, or through the Enhanced 911 system.

Police headquarters are located in the old Town Office building on Main Street, which was renovated for this use following the move of the Town offices into the building immediately behind this one. The Police Department has the use of the entire building, which includes two lock-ups and a juvenile detention area. The building is entirely self contained with its own generator — although the existing generator is in need of upgrading. The inside of the facility is kept secure through a camera security video system. Future plans for the department include increasing the surveillance around the perimeter of the building.

Equipment maintained by the Police Department include three marked cruisers, one unmarked cruiser, and one promotional vehicle (a D.A.R.E. truck), a base radio, ten portable radios, five mobile cruiser radios, a video camera, several Polaroid cameras, a camcorder, office computers, recording systems for radio and telephone calls, and a variety of miscellaneous equipment (electronic and other).

The department seems to be in good shape at this time. Staffing and equipment levels appear to be appropriate for the needs of the community. The recent move into the old Town Office building has made a major difference in the ability of the department to be more efficient and provide better service.

PUBLIC WORKS

The Town of Jaffrey supports a Department of Public Works, which is responsible for Town road construction and maintenance, solid waste disposal, public water supply, sewage treatment, and maintenance of all Town parks, commons, and cemeteries. The department has a full-time Director, a staff of 16 full-time employees, two seasonal employees, and a full-time administrative assistant.

The department is housed on Knight Street, which also serves as the location for the Highway Department. Dozens of pieces of equipment and vehicles, valued at nearly a million dollars, are maintained by the Public Works Department. All repairs are made in house by the employees of the department; in addition, all Town vehicles are repaired and maintained by the Public Works Department.

Highway Department

As mentioned above, the department facility is located on Knight Street. The building has an eight-bay garage attached to it. Other structures on the site consist of an old salt shed (now used for storage), a new (as of 1994) salt shed, and a covered bay for three sanders.

The department has a staff of six to maintain approximately 64 miles of Town roads. In addition, private contractors are hired on an “as needed” basis to pave roads, mow grass and brush along the roadsides, and plow snow in winter.

A more detailed description of the road network in Jaffrey is addressed in the Transportation section of this Master Plan.

Solid Waste Disposal

The Town operates a recycling center and transfer station on approximately 150 acres off Sharon Road in the southeasterly section of town. Recycling has been mandatory in Jaffrey since 1989 in anticipation of the eventual closing of the old landfill, which closed completely in September 1992. Monitoring wells are in place to ensure there is no groundwater pollution from the old landfill. The center employs two full-time staff people; in the summer months, one employee from within the Public Works Department usually works a half day on Saturdays.

Facilities include a small building that houses a swap shop for used items and a building that accommodates the recycling bins, a glass crusher, a baler, and a forklift. The crushed glass is stored in 50-gallon barrels, magazines are stored in gaylords, and the other materials are all baled. Every six weeks, a truck arrives to remove the materials. There is a roll-off for the nonrecyclable rubbish and two roll-offs for construction and demolition materials. Metal is collected and sold; batteries and tires are collected, as are refrigerators (although there is a $10 fee to cover the cost of disposing of the CFCs). The Town has a burn permit from the state, so yard waste, *etc.*, is burned periodically. Mulch from stumping is stored on site and is free to Jaffrey residents.

Since Jaffrey has no municipal collection system, users must transport their refuse to the site. All residents and nonresident property owners are eligible to use the facility. Users must display a current

sticker on their vehicles in order to gain access to the facility. The stickers are provided on an annual basis by the Town Clerk. (Currently, there is no charge for the stickers.)

Water Supply

The Jaffrey Water Works office is located on Turnpike Road. Two full-time operators are employed, and the system supplies approximately 1,500 hookups. Prior to 1994, the Jaffrey water system consisted of two wells (one located at Contoocook Lake and one between Turnpike Road and Fitzgerald Drive) and two reservoirs (Poole Reservoir within the Monadnock State Park and Bullet Pond in Rindge). Poole Reservoir supplied all of Jaffrey Center down to St. Patrick's Church and was considered the "high-pressure" side of the system. The rest of Jaffrey and about 156 hookups in Rindge were supplied by a combination of Bullet Pond, the Turnpike well, and the Contoocook well. This was considered the "low-pressure" side of the system. The two systems were separated by a closed valve located approximately in front of St. Patrick's Church.

The Surface Water Treatment Rule of the *Safe Drinking Water Act* requires any water system using surface water supplies to either treat the surface supplies or stop using them entirely. Following the recommendations included in a water needs analysis performed by Dufresne-Henry, Inc., in 1993, the Town decided to stop using Bullet Pond and Poole Reservoir as water sources and to rely solely on the two wells. New Hampshire's Department of Environmental Services (NHDES) approved the plan with the condition that a third groundwater source be developed that can meet average daily demand with the largest well out of service.

A water systems improvements project was started in 1994 and completed in 1996. The project involved building two storage tanks (a 750,000-gallon tank at Bullet Pond and a 500,000-gallon tank at Poole Reservoir) and a booster pump station on Main Street in the vicinity of Prospect Street. These changes allowed the wells to supply both the high-pressure and low-pressure sides of the system. Also included in the project was the complete renovation of the two wells and the replacement of over 100,000 feet of water mains.

The total cost of the project was $2,988,000, of which the Town paid only $85,000 (the cost to design the tanks, booster pump station, and the renovations of the two wells). The remainder was funded through Rural Development (formerly Farmer's Home Administration) by a $2,355,000 loan and a $548,000 grant.

Turnpike well is rated at 325 gpm (468,000 gpd) and, although the Contoocook Lake well aquifer has a capacity of 350 gpm (504,000 gpd), the NHDES has limited the pumping rate to 270 gpm (388,000 gpd) due to the presence of cyanide in nearby monitoring wells. With an average daily flow of approximately 475,000 gpd (measured from March through December 1996), the system is not capable of meeting average daily demand with either well out of service. As of this writing, the system is at 90% peak demand.

A search for additional groundwater sources was initiated as part of the water system improvements project. The D.L. Maher Company identified a potential source in the area of Mud Pond in the town of Sharon that is estimated at being capable of supporting the two wells with 300 gpm and 200 gpm yields. Maher recommended that the Town perform a limited seismic refraction survey to profile a groundwater divide and also to request approval from NHDES to perform sustained pumping tests as the next step toward developing this source.

Current efforts of the Water Department are focused on improvements to the delivery system. Ionized pipes are a problem, and finding and plugging leaks in the system is a painstaking process. The Jaffrey

Capital Improvements Program provides for funding to replace four sections of water mains, install one new section, and to retrofit meters. The work on the mains is scheduled for completion in 1999, and the retrofit project carries through to the year 2001.

There are two state programs currently in place that could affect protection of both the wells and the reservoirs in Jaffrey. These programs are described in detail in the Natural Resources section of this Master Plan; therefore, only a brief summary is included here:

- The Wellhead Protection Program: This program is intended to protect drinking water supplies from chemical contamination. The Town of Jaffrey has been a participant and, to date, has completed the delineation of the wellhead areas for the two public wells and identified the potential sources of contamination from materials that are regulated by the Environmental Protection Act (EPA) as being hazardous. A management program now needs to be developed that will outline the techniques for ensuring the users of these materials are following the best management practices.

- Water Supply Land Protection Program: This program is aimed at the protection of surface water supplies, primarily through the acquisition of land around the surface water bodies. The program outlines a variety of techniques for acquiring the land or, at a minimum, acquiring the rights to the land. This could be important for Jaffrey, with its two reservoirs and the identified concerns over the two wells that currently serve as the Town's only source of water. Even though there are no plans at this time to develop either of the reservoirs for a public water supply, this Master Plan needs to be forward thinking and mindful of potential advances in technology that could make surface water treatment economically feasible.

Sewage Treatment

The sewage treatment plant is located on Hadley Road. Two full-time employees operate the plant. The system consists of three lagoons and an ultraviolet process that treats effluent from the lagoon system before it is discharged into the Contoocook River. Pumping stations that bring the sewage to the plant are located at Jaffrey Center, Cross Street, River Street, Erin Lane, and Hadley Road.

The original system, built in 1958, consisted of stabilization ponds; these were upgraded to aerated lagoons in the same year. The current treatment plant was built in 1986. The system serves 788 connections (residential, commercial, industrial, and institutional) and the average daily flow is approximately 350-400,000 gallons per day. The treatment facilities are designed for an average daily flow of 1.26-million gallons per day and a peak or maximum daily flow of 2.9-million gallons per day.

A recent report by consultants hired to examine the inflow problems in the system indicated that three major areas of inflow have been identified: (1) water from roof drains; (2) sump pumps; and (3) other nonwastewater sources. The sites of these inflows are: one on School Street; two on Goodnow Street; and one on Peterborough Street. Work still remaining includes preparatory cleaning and inspection of approximately 10,000 feet of sewer line by television camera to discover additional inflow sources. Action to correct these problems vary, and the Town can choose the corrective action that is most suitable.

The Town is currently under an Administrative Order from the DES to upgrade the system in order to renew the permit. This situation is also related to a one-time record maximum daily flow of about 120% over capacity. As a response to the order, the Town has planned improvements to the existing system, which are scheduled in the Capital Improvements Program (CIP), as follows:

- The design and construction of advanced treatment for wastewater, consisting of a regional study, inflow/infiltration evaluation, and a detailed treatment plant design. (This is a high priority.)

- Inflow/Infiltration Correction and Rehabilitation Construction.

- An upgrade for the River Street pump station.

- A 12,000-foot extension of new sewer main on Squantum Road. (This is not a new proposal, but was, in fact, part of the original design of the treatment plant.)

In sum, capacity of the sewage treatment system is not as critical as the water distribution system; the problems revolve around advanced treatment of effluent and the inflow and infiltration difficulties. One treatment alternative for the Town to consider is the use of sand filters, which may be a cheaper option and able to meet required state standards.

Jaffrey's growth has slowed considerably since the 1980s, but questions still persist as to whether or not the system will be able to accommodate any future demand. And, if growth pressures should arise, then consideration will have to be given to expansion of the system. Map #1 shows the existing public utility service areas, as well as potential areas for future expansion, based on the Planning Board's determinations of projected growth areas in town:

- Sharon Road, given the potential for industrial development. There are 190 acres zoned for industrial use on this road.

- If the Shattuck plans for development should materialize, extension of the lines to this property bear examination.

- Should a new school be developed on Route 202 at the Rindge Town line, decisions will need to be made as to the feasibility of extending service, or having a school develop with on-site water and sewer.

Cemeteries

The Town of Jaffrey owns and maintains five public cemeteries. One other cemetery in town is overseen and controlled by St. Patrick's Church. These cemeteries are as follows: the Old Burial Ground behind the Meeting House in Jaffrey Center; the Village (Baptist) Cemetery on Turnpike Road; Cutter Cemetery in Jaffrey Center; Conant Cemetery of Stratton Road; the Phillips-Heil Cemetery by Old County Road in southwest Jaffrey; and the cemetery of St. Patrick's Church on Route 202 north (across from Cheshire Pond). In addition to these, there is also a small plot of land on the Horace Deschenes farm called the "Smallpox Cemetery" that has two grave sites.

The cemeteries are maintained by the Cemeteries/Parks and Commons Department, under the umbrella of the Public Works Department. The building in Jaffrey Center that once housed a fire station is now used by the Department to store equipment. The cemeteries are maintained in excellent condition, aided by the VFW and the American Legion, who ensure that every cemetery has a flagpole and a commemorative plaque. Funding for the cemeteries comes from various trust funds and the Town. In addition, some revenues are collected through the selling of lots for burials.

The addition of new plots is an issue. Some additional space was developed at Conant Cemetery in 1991, but there are not many other opportunities for expansion on the other cemeteries. One potential site has

been identified, and that is on Town-owned land between Route 202 and Sharon Road. Since the Town owns the land and it is presently undeveloped, an opportunity exists to reserve this for future cemetery use.

LIBRARY

The Jaffrey Public Library is located on Main Street in a three-storey building that was constructed in 1896. Known as the "Clay Library Building," this edifice has been identified as an architecturally significant building. In 1989, an addition was built to provide more space for the existing services.

Administration of the library is carried out by an elected board of trustees. Library staff consists of a Director, a Children's Librarian, four Assistant Librarians, and a Maintenance person. The library is funded by the Town, various trusts, and other income managed by the trustees.

The library has approximately 1,712 registered adult borrowers and 623 registered juvenile borrowers, which is down slightly from the numbers recorded in the 1990 Master Plan (1,800 and 725). As of December 1996, the library contained over 24,000 printed volumes, augmented by interlibrary loans, periodicals and pamphlets, microfilms, videos, audiotapes and nonlibrary materials such as puppets. Equipment consists of a VHS recorder/player, a television set, 10-to-15 tape recorders, three film strip projectors, six computers and two printers, and a computer that is connected to the New Hampshire Automated Information Networks, which links references and resources with other libraries throughout the state. Within the next year, the library will also have an automated catalog database and will be able to offer Internet access to its users.

Supplementing these resources are special programs, which include films, lectures, book talks, story times, book discussion groups, and a summer reading program. An additional, rather special acquisition of the library is a number of original documents from Amos Fortune, a freed black slave who settled in Jaffrey. The library is a vital part of the community, serving as an educational resource for Jaffrey residents of all ages. Another role of the library is to provide information on town history to all people and organizations making inquiries.

RECREATION

The provision of adequate recreation facilities is an important function and responsibility of local government. Attractive and conveniently located recreation facilities serve to enhance a community's appeal as a desirable place to live. They can also be a positive factor in influencing people and businesses when they need to make decisions regarding where they want to locate. This perception stems from the generally accepted premise that communities with good recreational facilities and programs are progressive, dynamic, and viable and, thus, are desirable places in which to live, work, and play.

Recreation should be considered as important community service because leisure-time activity is one of the most important needs of modern man. People need to enjoy life and relieve the tensions of the work-a-day world. In fulfilling this function, recreation is as important to human existence as education, sanitation, transportation, or police and fire protection. In short, individuals and families recognize and appreciate communities that have established, well rounded recreation facilities and programs that serve the leisure-time needs of various age and interest groups.

The Town of Jaffrey has an extremely active recreation program. The Recreation Department was established in 1976. In addition to the Town-related functions, the Recreation Department also coordinates sport events scheduling and the facility use for all three schools in Jaffrey. As part of a

reciprocal agreement between the Town and the School District, the Recreation Department has free use of all school facilities when they are not being used by the pupils.

Since 1982, the Department has had a full-time Program Director; however this position has recently been eliminated. A Recreation Director remains on staff, as well as a part-time secretary, a full-time maintenance man, several program aides, and seasonal employees for summer and winter functions. Other duties are shared by the seven-person advisory Recreation Committee and by the many volunteers who participate in all levels of programming, funding, construction, and maintenance.

The Recreation Department has a new office facility (in a building constructed for this purpose at Humiston Park) built by Town of Jaffrey personnel.

In 1995, the Recreation Department, through its wide variety of programs and events, served over 23,000 participants. Programs and activities offered by the Department included various youth programs, senior programs, adult and family programs, special events, ice skating, and the summer beach programs.

Table #1 lists all recreation facilities, both public and private, in Jaffrey. These are also depicted on the accompanying Recreation Facilities Map. Note that the map illustrates lands that are State owned, Town owned, and "Other," which can include properties protected by conservation easement.

In order to evaluate the adequacy of these facilities, comparisons can be made to standards generally accepted by such agencies as the National Recreation Association. It must be taken into consideration, though, that any such standards have their weaknesses due to variability in travel time and other factors concerned with accessing the facilities. Also, these standards are really more applicable to towns that are larger than Jaffrey. For these reasons, the following table merely suggests a measure of general adequacy (in terms of numbers) of Jaffrey's present physical facilities and not an absolute standard.

TABLE #2
NATIONAL RECREATION STANDARDS

Type of Facility	Existing	Standard	Difference
Total Park and Recreation Space (one acre/100 population)	3,285 acres	54 acres	acres
Playgrounds (one acre/800 population)	4	7	3
Tennis Courts (one court/2,000 population)	4	3	4
Baseball Diamonds (including Little League - one diamond/6,000 population)	2	1	2
Softball Diamonds (one diamond/3,000 population)	3	2	3
Swimming Areas (to serve 3% of population)	3	to serve 163 population	3
Miscellaneous Sports Fields (one field/2,500 population)	3	2	3
Miscellaneous Game Courts (one court/2,500 population)	1	2	1
Picnic Areas (one area/2,500 population)	4	2	4

Jaffrey appears to be deficient in only two areas: playground availability and miscellaneous game courts. All the other facilities meet or exceed national standards for recreation. These standards are, of course, based on certain assumptions as well as the tested use of facilities over time. It should be noted that the school facilities have been included in the existing facilities since they are available for after school use and that the total park and recreation space includes the State forests and other private nonprofit natural areas.

Improvements to Humiston Park have recently been undertaken. Besides moving the Recreation office to the site, night lights have been installed, a concession area built with a handicap ramp, and the fencing has

been improved. The Recreation Department has submitted requests to the Town for further improvements that have been incorporated into the Capital Improvements Program, as follows:

- Humiston Park (1997): Pave, surface seal, and coat parking lot, rink, multipurpose court, and walkway areas.

- Thorndike Pond (1997): Purchase and installation of new rest rooms; add access improvements.

- Humiston Park (1998): Replace play structure with new; add safe surface; add new preschool-age play equipment; add benches, picnic tables, and trees.

- Humiston Park (1999): Purchase abutting land for additional parking.

EDUCATION

The Town of Jaffrey is part of the Jaffrey-Rindge Cooperative School District, which was formed in 1970. As of 1989, the School District is also its own Supervisory Union (SAU #47), with the Superintendent and Business Manager's offices located in Jaffrey. Computer services for the business office are shared with SAU #1 in Peterborough. The possibility of combining these services with the Jaffrey Town Offices is being investigated.

This system provides facilities in both towns: an elementary school in Rindge; and an elementary school, a middle school, and a high school in Jaffrey. The District has a seven-member school board — three being from Rindge and four from Jaffrey. The two towns share in the District's costs based on a formula that allocates 50% of the costs to student population and 50% to equalized valuation. Then each town's share of the cost is proportionate to its share of the total student population and the total equalized valuation of the total district. The public schools within the District are as follows:

Rindge Memorial School

Located on School Street near Rindge Center, the school was originally built in 1950 and has had several additions. It sits on approximately ten acres of land and is of brick construction with a concrete foundation.

The Rindge school serves pupils from Kindergarten to Grade 5. The school has 19 regular classrooms, three Learning Center rooms, a music room, art room, library, cafeteria, Chapter I reading room, speech therapy room, and a staff room. Other facilities include a middle-school-size gymnasium with bleacher seats for 500, a soccer field, baseball diamond, and a play area. Staff consists of 19 classroom teachers, three special education teachers, and a number of instructional associates (formerly known as teacher's aides).

The annual Rindge Town Meeting is held at the school, as the Town Offices cannot accommodate this function. District school meetings and School Board meetings are held alternately in Jaffrey and Rindge.

Jaffrey Grade School

Located on School Street near downtown Jaffrey, the school was originally built in 1938 of brick and concrete. In 1987, there were renovations and an addition that doubled the size of the building to 42,500 square feet. The school, on three acres of land, has a playing field and a community-built playground.

The school serves pupils from Kindergarten through Grade 5. The school has 19 grade-level classrooms, three Learning Centers, a Title I Program, counseling, reading recovery, media center (library and computer lab), art, physical education, and music rooms. The building also contains a gymnasium and a cafeteria.

The school is staffed by a principal, clerical support, nurse, classroom teachers, learning specialists, instructional associates, speech and language pathologists, and other support staff.

Jaffrey-Rindge Middle School

The Middle School is located on 2½ acres on Stratton Road in Jaffrey. The building, constructed in 1915 of brick with a concrete foundation, was added to in 1954 and has had several renovations. Grades 6-8 attend this school. The staff includes 31 classroom teachers, as well as instructional associates, and office, cafeteria, and custodial personnel.

The facility houses 20 regular classrooms, a media center, cafeteria, shared gymnasium/auditorium, art room, music room, home economics center, computer lab, and an industrial technology shop. A small playground with three basketball standards is available at the rear of the building. The office area encompasses the main office, principal's office, a small conference room, nurse's room, guidance office, and two small work sites.

Conant High School

The high school is situated on 18½ acres of land, sharing the parcel with the Jaffrey-Rindge Middle School. The building, built in 1972, was extensively renovated in 1990. It is constructed of brick and mortar with a steel frame. A soccer field, tennis courts, and a softball field are located on this property, as well as a gymnasium that is shared with the Middle School.

The school serves students from Jaffrey and Rindge in Grades 9-12. It has 23 full-size classrooms, one half-size classroom, four full-size special education classrooms with one half-size classroom, a cafeteria, exercise room, library, a small theater, and a teacher's room. Additionally, the school has main offices, a health office, three practice rooms for music, and a guidance area consisting of four offices and a conference room. Conant also houses a preschool/Head Start program located in a classroom next to the exercise room.

The school is staffed by a principal, two teaching assistant principals, a part-time athletic director, clerical support, a nurse, 32 classroom teachers (regular and special education), guidance counselors, custodians, a media generalist, and instructional associates.

Other Educational Facilities

Besides the four schools of the Jaffrey-Rindge Cooperative School District, there is also a private church school operating in Jaffrey. St. Patrick's is located on Main Street, not far from the Jaffrey Elementary School. This school serves pupils from Kindergarten through Grade 8. As a rule, student population, not

all from Jaffrey or Rindge, ranges from 150-160. Upon leaving St. Patrick's, students will go on to Conant or Conval High Schools, Dublin School, or St. Bernard's in Fitchburg, Massachusetts.

Other private church schools have coexisted with the District from time to time. Notably, the Heritage Christian School on Route 119 in Rindge currently serves about 75 pupils in Grades Kindergarten through 8.

At the writing of the 1990 Master Plan, the Calvary Assembly of God also had a school, with grades 1 through 7. This school is no longer in operation, and there are no plans at this time to reopen the facility.

In addition, home schooling is now playing a role for some families in the area. Currently (March 1997), there are 41 students registered with the Superintendent as being schooled at home. The number fluctuates: 49 in 1994; and 37 in 1995. The procedure for parents to follow is to file a curriculum and an immunization form with the Superintendent, who either acknowledges this submission or not. There is, however, no policy or procedure in this school district for a home-schooled pupil to receive a high school diploma. It is assumed that these students simply move out into the workforce when the parents cease to home school their children.

Public School Population

The enrollment figures for the last three school years are presented below. According to these figures, there has been very little recent change in school population. Comparing these figures with those of the 1990 Master Plan (1,586), one sees that only 37 students district wide have been added to the system. This represents a 2.3% overall increase (or a 0.3% average annual increase), which is much lower than the changes experienced during the 1980s (about 3% annually). Enrollments in both grade schools have been generally about 400 students each, with a few spikes in both school enrollments. Table #3 shows actual Jaffrey-Rindge school district enrollments for the past three school years, and Graph #1 presents actual enrollments and future estimates of enrollments.

TABLE #3
JAFFREY-RINDGE SCHOOL DISTRICT ENROLLMENTS

School	1994/95	1995/96	1996/97
Jaffrey Grade School	419	407	409
Rindge Memorial	389	407	386
Jaffrey-Rindge Middle School	378	409	387
Conant High School	428	444	435
TOTAL:	1,614	1,667	1,617

Source: Jaffrey-Rindge Cooperative School District, SAU #47

Cost of Education

Cost of education is the single greatest expenditure in most New Hampshire town budgets. While cost per student is not the only indicator of the adequacy of education, it is, nevertheless, interesting to compare school districts' cost per student around the state. This information for the school districts within the Southwest Region and the state is presented in Table #4. An attempt has been made to order the schools on the basis of size and "likeness."

TABLE #4
COMPARISON OF SCHOOL DISTRICT COSTS

School District	Per Student Cost
JAFFREY-RINDGE	$5,122.85
Contoocook Valley Regional	$6,079.35
Mascenic Regional	$4,327.31
Fall Mountain Regional	$5,855.50
Keene	$6,051.53
Monadnock Regional	$4,784.12
Hinsdale	$4,321.46
Winchester	$5,158.12
Chesterfield	$4,926.01
Marlborough	$5,928.21
Westmoreland	$5,418.38
Harrisville	$6,457.71
Marlow	$6,355.82
Stoddard	$6,242.89
Nelson	$4,998.27
State of New Hampshire Average	$5,242.58

Source: New Hampshire Business Review, December 20, 1996

Classroom Capacity

Classroom capacity is related to the larger questions of adequacy of the facilities and costs for teaching and support staffs. The State of New Hampshire, which sets guidelines for classroom size, recommends that a classroom should accommodate 30 students at 30 square feet per student (*i.e.*, a 900 square-foot classroom). The Jaffrey-Rindge Cooperative School District recommends only 25 students per classroom (or 750 square feet). Table #5 uses both sets of standards to evaluate capacity relative to student enrollment for the 1996/97 school year.

TABLE #5
ENROLLMENT AND CAPACITY STANDARDS
FOR JAFFREY-RINDGE SCHOOL FACILITIES**

	1996/97	Capacity Standards		Excess Capacity	
	Enrollment	State	District	State	District
Rindge Memorial	386	630	525	244	139
Jaffrey Grade School	409	600	500	191	91
Jaffrey-Rindge Middle School	387	420	350	33	-33
Conant High School	435	730	600	285	165
Total Enrollment	1,617				

These figures show the Middle School is already over capacity by District standards and very close to exceeding the State standards. If the student enrollments projected by the School Board prove accurate (see Graph #1), the Middle School would then be over the District capacity of 55 students (assuming the same ratio of students per school). The three other schools would remain within the guidelines of both the State and the District. These figures must be used with caution, however, since many of the existing classrooms are below the recommended size by both sets of standards. True functional capacity of each room would need to be determined on a room-by-room basis, measuring each one and applying standards based on the use of that room.

These and other school facility issues have been the subject of discussion and examination by the School District for a number of years. The most recent effort to resolve some of these problems is the *Report of the Capital Improvement Plan Advisory Committee* (CIPAC), submitted to the School Board in February 1996. The Committee was appointed by the School Board in January 1995 and charged with the development and preparation of a Capital Improvement Plan to meet the facility needs of the district. The specific tasks of the Committee were as follows:

CIPAC's Mandate

1. Assess and appraise existing buildings and grounds;

**. Based on national guidelines of 80% capacity.

2. Identify long-range facility needs for the School District based on an analysis of existing space and needs; and

3. Suggest facility alternatives/options and costs, including an Applied Technology Center to be located in the District.

Included in the CIPAC's study were analyses of the development of a new site for a school on Route 202 at the Rindge town line, establishing a Community Center at the new site for use by both towns, and developing an Applied Technology Program for the high school that will prepare students for future study and/or work in either the biotechnology, natural resources, or technical mechanics field.

The complete report is available from the Superintendent's Office of SAU #47. In summary, CIPAC identified specific problems that affect each of the four school buildings and school sites in the District. Overall, the major categories of issues identified are: (1) structural problems with the buildings that will require expensive renovations; (2) space limitations that call for expansion; and (3) problems with the land on which the buildings sit that limit or restrict the ability to further develop the sites. Highlights of the CIPAC's findings are presented below:

<u>CIPAC's Findings</u>

- Student population is expected to increase slightly through 1999 and then level off; in the meantime, however, the Middle School and the High School will experience some space problems.

- The Middle School continues to be the facility with the most pressing problems, since it is the oldest of all school buildings. The building needs structural renovations as well as additional space.

- The High School is in generally good condition, although space is an issue for auditorium needs and will be an issue if the proposed Applied Technology Center is to be created.

- The Middle and High School sites have limitations that affect the ability to expand either school facility (*i.e.*, wetlands, slopes, parking, and traffic issues).

- The Elementary Schools appear to be in the best shape of all structurally, as they are new facilities, and both probably have the capacity to serve current and future student populations. Both schools, however, do have weaknesses in terms of general adequacy.

On the basis of their year-long study, the CIPAC developed four options and several recommendations that were presented to the School Board. These are presented below:

<u>Options</u>

A. Remain on the Existing Site

   1. Add program space to both the Middle and the Senior High Schools.
   2. Add/find space for the Applied Technology Program.
   3. Add/find Community Center space.
   4. Acquire land or lease property for parking.
   5. Develop play fields at the Route 202/Carter Hill site.

B. Construct New High School on Route 202

1. Convert Conant to Middle School.
2. Reassign the Middle School.
3. Add the Applied Technology Program.
4. Add Community Center

C. Construct New Middle School on Route 202

1. Add program space to the High School.
2. Renovate space in the High School.
3. Add/find space for the Applied Technology Program.
4. Add the Community Center.

D. No New Construction (simply make renovations as needed)

On January 27, 1997, the School Board voted to accept Option "B" of the CIPAC's report and agreed to ask voters during the next School District meeting (March 8, 1997) to establish a Building Committee to propose a bond vote on Option "B" for a future School District meeting.

Recommendations

1. To continue to develop and prepare a Capital Improvement Plan to meet the facility (building and grounds) needs of the Jaffrey-Rindge Cooperative School District.

2. To critically review the proposed facility options for the District study matrix.

3. To continue to serve as a resource to the School Board.

4. To recommend to the School Board Option "B" of the proposed matrix identified in the CIPAC's report to the School Board as most suitable to resolve the pressing facility needs of the District in a timely manner.

5. To recommend to voters that as the District's bonded indebtedness is reduced, those monies be put into a capital improvement fund.

PUBLIC EXPENDITURES

Table #7 is an itemization of the funds expended by the Town each year since 1990 on the various community facilities/services discussed in this section. The actual amounts expended in each category are also compared to the total amount for all categories and the total Town expenditures for each year.

Graph #2 illustrates the proportion each of these facilities accounts for in the total amount spent on public facilities/services. Note that education has not been included in the graph, since the dollar amount is so much higher than the others that the graph would be meaningless.

As can be seen from this information, the rate of change for the various departments has held relatively steady over the five years, with the exception of the Highway Department, and this is not at all unusual. For most towns, highway expenditures are the single most expensive item in the budget, second only to schools. Four of the departments actually show a decrease in expenditures: Highways, Parks and Commons, Solid Waste, and Recreation. These trends are, for the most part, a one-year blip, since the

other years experienced overall more increases than decreases. The Fire Department experienced the greatest increases, but again, given the cost of such equipment, this is not surprising.

RECOMMENDATIONS

1. Water Supply

   The proposal outlined in the 1990 Master Plan to develop Mountain Brook Reservoir as a surface water supply has been abandoned. In addition to the two wells currently supplying water to the town, a potential source for a third well has been identified. In addition, many improvements have been made to the distribution system and many are still in progress.

   A. Support the Board of Selectmen's and the Public Works Department's efforts to implement the Wellhead Protection Program.

   B. Investigate the feasibility of acquiring the land or the rights thereto, through specific conservation easements, surrounding Poole and Mountain Brook Reservoirs.

2. Sewage Treatment

   The pump stations have been upgraded; infiltration and inflow problems are being addressed. The system has excess capacity, but treatment continues to be an issue.

3. Recreation

   Improvements have been completed at Humiston Park, and other work is scheduled for the near future.

4. Education

   The recommendation of the Capital Improvement Plan Advisory Committee is to develop the site on Route 202 for a new High School and to establish both a Community Center and an Applied Technology Program at this facility.

5. Solid Waste/Recycling

   The landfill has closed and the Transfer Station/Recycling Center is operating efficiently.

6. Cemeteries

   The existing cemeteries are at, or nearly at, capacity. The Town should take steps now to set aside land to be used for the development of a new cemetery when the need arises.

JAFFREY MASTER PLAN
1997 UPDATE

NATURAL FEATURES ANALYSIS

INTRODUCTION

The Natural Features section of this Master Plan uses topography, soils, slopes, and water resources as criteria of evaluating land and its potential for 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 where existing development has occurred. Although transportation routes are another factor in the location of development, to a great degree these are determined by the natural features of the land.

This section will allow the Planning Board to address areas of the town that are most suitable for development and high intensity land uses and to evaluate the existing limitations of the land. Environmental limitation may include steep slopes, seasonally wet soils, wetlands, floodplains, shallow bedrock, and underground aquifers. This section will also point out areas that deserve protection due to the environmental function of the land (*e.g.*, a wetland that provides flood water storage during times of heavy rain). The plan will also point out areas that the Town may wish to conserve for future community use due to their aesthetic qualities. Not all open space needs to be steep slopes or wetlands. Some may be prime lands set aside for future school sites, parks, agricultural land uses, or other limited low-intensity land uses that add value to the overall community.

Jaffrey has many natural features that make it a very desirable town for residents and tourists. Jaffrey offers a variety of scenic vistas, including Mount Monadnock, rolling pastures, and alpine bogs, as well as an excellent view of Contoocook Lake.

Outside of its typical New England village center and the 19th-century mill and associated commercial area, the town is still quite rural. The town is in close proximity to Keene and Peterborough, the region's two socioeconomic centers. Outside of the town's center, lots are often five acres or more in size. As the value of land increases, there is greater motivation to subdivide large parcels into smaller lots. This "Natural Features" section will assist the community and its Planning Board in establishing where they want growth to occur while preserving the natural environment that the residents currently enjoy.

TOPOGRAPHY

The topography of Jaffrey is dominated by Mount Monadnock, which is located in the town's northwest corner. The mountain slopes downward in a southeasterly direction towards the center of Jaffrey. The elevations ranges from 3,165 feet at the summit of Mount Monadnock to 1,000 feet in the town's center. The heavily glaciated terrain surrounding Mount Monadnock is referred to as the Monadnock uplands. Here large boulders, exposed bedrock, and steep slopes are common landscape features.

The central and eastern portions of town are dotted with small, rolling hills known as drumlins. The slope gradient of these hilly areas often exceeds 15%. Most of the town's upland areas drain into the Contoocook River, which flows in a northerly direction along Route 202. Numerous watercourses and waterbodies form an extensive surface water network throughout the lowland areas. Jaffrey's largest population cluster is in the downtown area, which is located along the Contoocook River.

SLOPE

Slope is a major consideration when examining the town in respect to future development. Slope refers to the gradient or steepness of the land. The slope of land 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. Below is an example of an 8% slope.

8/100 = .08 or 8%

When looking at the publication *Soil Potential Ratings for Development: Cheshire County* (prepared by the Cheshire County Conservation District in 1984), one will notice that the soil symbols are followed by the letters "B," "C," "D," or "E." These letters represent the percentage of slope that is associated with a particular soil type. Below are the expressions of slope used in this publication plus their corresponding development capability.

SLOPE DEVELOPMENT CAPABILITY

B	5-8%	higher density
C	8-15%	less intensive
D	15-25%	limited capability
E	over 25%	prohibitive

During the preparation of the accompanying Slope Map for Jaffrey, some of the aforementioned slope categories have been combined. This is especially true in the case of slope categories D and E (15-25% slopes and over 25% slopes respectively).

The topographic and slope maps should be used in conjunction with the soils map so the letter symbols on the soils map and the actual topographic lines can be compared. An on-site analysis should take place when the topographic maps and the associated soil symbols are in question or they may vary.

Development Capability

Land in the 0-8% slope category is preferred for all types of development. Gradual slopes are most favorable for building roads, and public water and sewer systems 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 controlled on site. The exceptions to this would be wetlands and floodplains because they occur primarily in the 0-5% slope range. An examination should be made as to the environmental function of these wetland areas and what risks might be inherent in their development before such lands are utilized for building sites or other changes in use that might cause environmental or aesthetic damage.

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

Once a slope exceeds a 15% gradient, development is generally considered unsuitable. These areas have benefits as conservation areas for low-intensity recreational uses and for wildlife habitats. Also, their disturbance has the potential for serious erosion problems. Forestry practices on such slopes must be low impact, with proper erosion controls, minimal basal area cutting (definitely no clear cutting), and skid roads designed for steep slope timber harvesting.

The potential for environmental damage increases as the degree of slope 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; regrading and prompt reseeding should take place afterwards. Surface water runoff rates and erodibility factors increase as the slope steepens. This

will cause sedimentation of the lands down slope and clog stream channels and rivers if no erosion controls are in place. In Jaffrey, where steep terrain and soils with low infiltration rates combine together to produce high surface water runoff rates, soil erosion could be a major problem for future development.

In terms of development, slope is the major limiting factor in Jaffrey. Approximately 7,800 acres (or 30% of the town) is covered by slopes of 15% or greater. Mount Monadnock accounts for more than half of this total. Many of the town's steep sloping areas contain soil properties that are rated high in terms of development potential. Many areas along the town's side slopes contain deep, well drained soil deposits. Despite having favorable soil properties, these areas should still be considered generally unsuitable for development due to their erosion potential.

There are several large land areas scattered throughout Jaffrey that have both good soil properties and minimal slopes. These spots are primarily located in the southern half of Jaffrey. However, much of this land is already developed. Abutting the town's existing road network are many wetland areas and hills with steep slope gradients.

The situation described above makes the issue of hillside development a critical one for the Town. Hillside development should be evaluated in terms of potential soil erosion, septic system placement, water well placement, roadway and driveway construction, surface water runoff, and general aesthetics. In such areas, the presence of municipal water and sewer can be a slightly mitigating factor in terms of construction impact. However, other aspects of construction (*e.g.*, driveways, lot preparation) still present the potential for erosion; therefore, strict erosion controls need to be in place. Soil properties should be considered in conjunction with slope gradients when evaluating a site's erosion potential.

SOILS

The northwestern corner of Jaffrey is dotted with large boulders, stones, and sections of exposed bedrock. In addition, some of the rolling drumlin hills located in the town's eastern half have prohibitive slope gradients. This is significant in light of the fact that the majority of the town's eastern half contains soil properties rated high in terms of development potential. A large portion of the eastern part of Jaffrey contains sandy soils and undifferentiated sand and gravel, residue from a large glacial kame that runs from Peterborough south to Lake Contoocook.

Mount Monadnock contains the town's largest concentration of unsuitable soils; in fact, the vast majority of unsuitable soil properties can be found in the western half of Jaffrey. Besides Mount Monadnock, other large concentrations of unsuitable soil properties can be found south of Old Fitzwilliam Road, east of Old County Road, and the majority of land area between Mead Brook and Stony Brook.

Steep Soils

Jaffrey contains several soil groups associated with steep slopes. These soils are found primarily in the town's western section along ridgetops, sides of hills, and rocky outcrops void of soil cover. These soil groups are described below:

Symbol	Soil Type	Characteristics
22E	Colton	loamy fine sand, 15 to 50% slopes
60D	Tunbridge-Berkshire	stony fine sandy loams, 15 to 25% slopes
61D	Tunbridge-Lyman	rock outcrop, 15 to 25% slopes
72D	Berkshire	fine sandy loam, 15 to 25% slopes
73D	Berkshire	stony fine sandy loam, 15 to 25% slopes
76D	Marlow	fine sandy loam, 15 to 25% slopes
77D	Marlow	stony fine sandy loam, 15 to 25% slopes
77E	Marlow	stony fine sandy loam, 25 to 50% slopes
143D	Monadnock	stony fine sandy loam, 15 to 25% slopes
161E	Lyman-Tunbridge	rock outcrop, 25 to 50% slopes
365D	Berkshire-Monadnock	very stony fine sandy loam, 15 to 25% lopes
365E	Berkshire-Monadnock	very stony fine sandy loam, 25 to 50% slopes
526E	Caesar	loamy sand, 15 to 50% slopes

Floodplain Soils

Jaffrey contains very few soils that are subject to flooding. According to the most recent SCS soil survey, only 295 acres (or approximately 1.1% of the town's land mass) can be described as having floodplain soil characteristics. These soils are scattered throughout the town; however, there are three major concentrations of floodplain soils. These include: (1) a long stretch of floodplain soils along the Contoocook River, (2) an area just north of the Black Reservoir, and (3) an area between White's Pond and Bailey Pond. Jaffrey does maintain eligibility in the Nation Flood Insurance Program sponsored by the Federal Emergency Management Agency (FEMA). The extent of Jaffrey's flood hazard areas is delineated on the accompanying Flood Hazard Map. The source of this map is the Jaffrey Flood Hazard Boundary Map, prepared by FEMA in 1979. Detailed Flood Insurance Maps are currently being prepared by FEMA. Floodplain soils found in Jaffrey include:

Symbol	Soil Type	Characteristics
5	Rippowam	fine sandy loam, frequent flooding - once every two years
6	Saco	mucky silty loam, frequent flooding - once every two years

107	Rippowam-Saco	fine sandy loam and mucky silt, frequent flooding - once every two years

Wetland Soils

The Cheshire County Conservation District describes wetland soils as those soils that are poorly drained or very poorly drained (including muck and peat). Jaffrey has a moderate amount of wetland soil areas that are scattered throughout town (the Mount Monadnock area being the only exception). Only 3,870 acres (or approximately 15% of the town's total land area) can be described as having wetland soil characteristics. This wetland acreage total can be broken down further into 1,028 acres of poorly drained soils and 2,842 acres of very poorly drained soils. The exact locations of the town's wetland soil areas are delineated on the accompanying Wetland Soils Map. Wetland soils in Jaffrey include the floodplain soils listed above, plus:

Symbol	Soil Type	Characteristics
15	Searsport	mucky peat, poorly drained
197	Borohemists	ponded, very poorly drained
214	Naumburg	loamy fine sand, poorly drained
295	Greenwood	mucky peat, very poorly drained
347B	Lynne	stony fine sandy loam, poorly drained
395	Chocorua	mucky peat, very poorly drained
414	Moosilauke	fine sandy loam, poorly drained
495	Ossipee	mucky peat, very poorly drained
533	Raynham	silt loam, poorly drained
547B	Lyme	stony fine sandy loam, poorly drained
646B	Pillsbury	dine sandy loam, poorly drained
647B	Pillsbury	stony fine sandy loam, poorly drained

Soil Development Potential

Based on the accompanying Soil Potential for Development Map, the majority of the eastern half of Jaffrey's land area contains soils that are rated high in terms of development potential. Many of these soils occur on hillsides as deep deposits of quality soil. Development of these areas does create the potential for erosion, which may be mitigated if proper erosion controls are in place. According to the Cheshire County Conservation District, the soils in Jaffrey rated high in terms of development include:

Symbol	Soil Type	Characteristics
14B	Sheepscot	loamy sand, 0-5% slopes
22A	Colton	loamy fine sand, 0-3% slopes
22B	Colton	loamy fine sand, 3-8% slopes
22	Colton	loamy fine sand, 8-15% slopes
36A	Adams	loamy sand, 0-3% slopes
36B	Adams	loamy sand, 3-8% slopes
36C	Adams	loamy sand, 8-15% slopes
72B	Berkshire	fine sandy loam, 3-8% slopes
72C	Berkshire	fine sandy loam, 8-15% slopes
73B	Berkshire	stony fine sandy loam, 3-8% slopes
73C	Berkshire	stony fine sandy loam, 8-15% slopes
73D	Berkshire	stony fine sandy loam, 15-25% slopes
76B	Marlow	fine sandy loam, 3-8% slopes
76C	Marlow	fine sandy loam, 8-15% slopes
77B	Marlow	stony fine sandy loam, 3-8% slopes
77C	Marlow	stony fine sandy loam, 8-15% slopes
79B	Peru	stony fine sandy loam, 3-8% slopes
142B	Monadnock	fine sandy loam, 3-8% slopes
142C	Monadnock	fine sandy loam, 8-15% slopes
143B	Monadnock	stony fine sandy loam, 3-8% slopes
143C	Monadnock	stony fine sandy loam, 8-15% slopes
143D	Monadnock	stony fine sandy loam, 15-25% slopes
169B	Sunapee	stony fine sandy loam, 3-8% slopes
169C	Sunapee	stony fine sandy loam, 8-15% slopes
365C	Berkshire-Monadnock	stony fine sandy loam, 8-15% slopes

365D	Berkshire-Monadnock	stony fine sandy loam, 15-25% slopes
526A	Caesar	loamy sand, 0-3% slopes
526B	Caesar	
loamy sand, 8-3% slopes526C	Caesar	loamy sand, 8-15% slopes

Although there may be specific costs associated with developing a certain soil in this category, the soil limitations can be mitigated by designing structures and systems to suit the site. Although many of the above soils occur on land that is not particularly level, the restriction posed by excessive slope can be minimized through the use of erosion control techniques.

Soil Matrix

The accompanying soil matrix is based on soil potential ratings established by the Cheshire County Soil Conservation Service (SCS). The methodology involved in developing the soil matrix is set forth in the publication *Soil Potential Ratings for Development: Cheshire County* published by the Cheshire County Conservation District in 1984. These ratings are used in conjunction with other resource information to make land use decisions. There are three rating categories that are combined for an overall development potential rating:

Septic systems with absorption fields	40%
Streets and roads	30%
Dwellings with basements	30%
Overall Rating	100%

As Soil Conservation Service considers the siting of on-site septic systems to be the most important consideration, this category is given more weight in the rating system.

The SCS classifies soils into five categories (very low, low, medium, high, and very high) based on development potential. However, for the purposes of this report and the accompanying Soil Potential for Development Map, the five categories have been combined to form three categories (low, medium, and high). The following chart has a more detailed description of each category.

SOIL POTENTIAL AND DEVELOPMENT CONSIDERATIONS

Potential	Combined Potential	SCS Characteristics
HIGH	Very High	Site conditions and the properties of the soils are favorable for development. Installation costs for water and sewer systems and low and maintenance costs for roads and utilities would be low as well. Foundation costs are also low.
	High	Development costs are slightly higher than for soils in the above class.
MEDIUM	Medium	

Development costs at this level become significant. Overcoming soil limitations may include specially designed septic systems, terracing to prevent soil erosion, or coping with seasonally high water tables or bedrock close to the surface when excavating or building.LOW	Low	Development costs in these soils are very high and there may be more soil limitations to consider than with the other classes.
	Very Low	Severe soil limitations pose very high to almost prohibitive development costs.

Development limitations in Jaffrey are primarily due to steep slopes and thin soil cover. Wetlands and floodplains are also a restriction, but to a lesser extent. The majority of the town's restrictive soil properties are found in the Mount Monadnock area. The eastern half of Jaffrey is primarily composed of soil properties that are rated medium to high in terms of development potential. The limitation symbols used in the SCS soil matrix are as follows:

- * Farmland soils
- ❍ Wetland soils
- ~ Floodplain soils

Farmland soils may exist in a formation that is too small, inaccessible, or inappropriate for today's small crop farms. Some of these soils may be suitable for only specific crops. The Agricultural Lands Evaluation and Site Assessment (LESA) manual should be consulted when a choice needs to be made regarding the use of one particular farmland soil over another, depending on whether the use is for farming or development. The LESA system was designed by the United States Department of

Agriculture (USDA), Soil Conservation Service. The LESA system is used by the Cheshire County Conservation District when preparing environmental impact statements for federal, state, or local agencies.

WATER RESOURCES

In 1988, the Jaffrey Planning Board prepared a Water Resource Management and protection Plan with assistance from the Southwest Region Planning Commission. Under authority of RSA 4-C:20, local water plans must undergo a consistency review by the New Hampshire Office of State Planning. The Jaffrey water plan has received a fully consistent review from the Office of State Planning. The ensuing water resource information has been taken from the Jaffrey Water Resource Management and Protection Plan that is incorporated into this master plan by reference.

Watersheds

Jaffrey forms a portion of three watersheds: (1) the Ashuelot River Watershed, (2) the Millers River Watershed (both of which drain into the Connecticut River Basin), and (3) the Contoocook River Watershed, which drains into the Merrimack River Basin. The extent of these watersheds in Jaffrey is shown on the accompanying Surface Water Map. The map also shows all watercourses and water bodies within town boundaries. Surface water accounts for approximately 1.009 acres (or 3.9% of the town's total area).

The Ashuelot River Watershed consists of approximately 269,500 acres in portions of Lempster, Washington, Marlow, Alstead, Stoddard, Gilsum, Surry, Nelson, Sullivan, Harrisville, Roxbury, Keene, Chesterfield, Swanzey, Dublin, Marlborough, Troy, Richmond, Winchester, Hinsdale, and Jaffrey. The Jaffrey portion of this watershed consists of approximately 2,982 acres. Jaffrey's portion of this watershed is located in the town's northwest corner at Mount Monadnock.
The Millers River Watershed consists of approximately 250,880 acres in portions of Fitzwilliam, Richmond, Rindge, New Ipswich, and Jaffrey in New Hampshire and extends as far south as Templeton, Massachusetts. The Jaffrey portion of this watershed consists of approximately 3,127 acres located in the town's southwest corner.

The Contoocook River Watershed consists of approximately 490,240 acres in portions of 34 New Hampshire communities, ranging as far north as Danbury and as far east as Concord. The Jaffrey portion of this watershed consists of approximately 19,939 acres. This watershed covers the entire eastern half of Jaffrey and a portion of the western half where it abuts both the Ashuelot River and the Millers River watersheds.

The surface water within the Contoocook River Watershed drains in an easterly direction, eventually emptying into the Contoocook River. The only exceptions to this are a small tributary that begins in Garfield Pond and extends in a westerly direction connecting to Tyler Brook, a tributary in east Jaffrey that flows into Cheshire Pond in a northerly direction, and two tributaries in the eastern corner that join together and flow into Contoocook Lake in a westerly direction.

Watercourses

There are thirty different watercourses in Jaffrey, the most significant being the Contoocook River. The headwaters of the Contoocook River begin in the Town of Rindge at two locations: (1) a tributary flowing out of Bullet Pond, and (2) a small, unconnected tributary in West Rindge. These two tributaries empty into Contoocook Lake along its southern shoreline. One tributary flowing into the northern shoreline of Lake Contoocook arises in Twin Ponds, east of Jaffrey. The river flows out of the lake along its northern shoreline and extends in a northeasterly direction into Peterborough. Its length through Jaffrey is

approximately four and three-quarter miles, thus making it the longest watercourse through town. Jaffrey's downtown area is located alongside the river.

Water Bodies

Water bodies of various sizes are scattered throughout Jaffrey. All told, there are twenty-five water bodies in town. The major ones are the Contoocook Lake (which is shared with the Town of Rindge), Thorndike Pond (which is shared with the Town of Dublin), Mountain Brook Reservoir, and Gilmore Pond. A more inclusive description of Jaffrey's major water bodies (ten acres or more) is presented in the following table:

MAJOR WATER BODIES IN JAFFREY

Water Body	Acres in Jaffrey	Average Depth (feet)	Elevation (feet)
Thorndike Pond	224.0	12	1,159
Contoocook Lake	215.0	22	1,009
Mountain Brook Reservoir	194.0	-	1,015
Gilmore Pond	115.0	21	1,052
Frost Pond	55.6	12	1,095
Cummings Meadow Pond	42.0	4	1,220
Cheshire Pond	27.0	-	964
Parker Pond	20.0	6	1,050
Ainsworth Pond	15.0	-	1,030
Hodge Pond	14.2	-	1,060
Gilson Pond	12.0	3	1,210
Black Reservoir	10.3	-	1,090

Sources: USGS topographic maps and the USGS publication *Characteristics of Lakes, Ponds, and Reservoirs of New Hampshire* published in 1975.

Contoocook Lake, Thorndike Pond, and Gilmore Pond have a substantial amount of shoreline residential development. Mountain Brook Reservoir and Cheshire Pond also show evidence of shoreline development, but to a lesser degree. Much of Jaffrey's shoreline development consists of seasonal residences on small-sized lots with on-site septic systems. This type of development poses a potential threat to the water quality of the water bodies. As some of these seasonal residences are converted to year-round homes, there will be more incidents of septic system failure, thus increasing the threat of contamination. Possible solutions to this problem may include: substantial setback requirements for septic systems and structures, a regular inspection and management program for septic systems surrounding water bodies, a regular water quality monitoring program for the town's major water bodies, or extension/development of municipal sewer systems.

In the 1988 legislative session, two amendments were made to the State law dealing with septic systems and sewage disposal (RSA 149-E). The two new provisions are as follows:

(1) Prior to expanding any structure or occupying an existing seasonal structure on a full-time basis, the owner must submit to the National Department of Environmental Services' Water Supply and Pollution Control Division (WSPCD) an application for approval that includes either: (a) evidence that the existing sewage disposal system meets current State and local standards, or (b) a design for a new system that meets current standards.

(2) Prior to selling any property with a sewage disposal system located within 200 feet of a great pond (defined by law as public waters greater than 10 acres), the owner must engage a licensed sewage disposal designer to perform a site assessment study to determine if the site meets current standards for a sewage disposal system.

The Shoreland Overlay District (subject to RSA 483-B) serves to protect the water resources further.

Jaffrey's smaller ponds are shallow, much less developed, and emergent vegetation is quite common. The Town maintains two public beach areas: (1) one on the northern shoreline of Contoocook Lake (the town's most active), and (2) one on Thorndike Pond off of Dublin Road. There is also an undeveloped site at Gilmore Pond. Jaffrey makes use of two surface water sources as part of its municipal water system: (1) Poole Reservoir, located within the Monadnock State Park; and (2) Bullet Pond in the Town of Rindge. The Poole Reservoir is a small impoundment (3.9 acres) serving the high area of Jaffrey's water connections, and Bullet Pond consists of approximately 38 acres serving the low area of Jaffrey's water connections.

In the 1990 Master Plan, reference was made to a Water System Distribution Study that was completed for the Town of Jaffrey recommending the development of Mountain Brook Reservoir as a primary future water supply source. As noted in the Community Facilities Analysis, this plan was abandoned subsequent to the EPA Safe Drinking Water Act and the resulting impact on the economic feasibility of treating surface water supplies.

The Planning Board feels that this option should not be completely eliminated from consideration. Technology is always changing and water supply will no doubt continue to be a serious issue for the town. Therefore, some attention will be paid here to two state programs that focus on protection of surface water supplies and wellhead areas:

- Water Supply Land Protection Program

  This is a design research project of the Society for the Protection of New Hampshire Forests (SPNHF) in conjunction with the NH DES. Funding is provided by EPA through the Safe Drinking Water Act. This project reflects an acknowledgment by the EPA that regulations can only go so far in protecting water supplies. The best method of protection that virtually eliminates the risk of contamination is for the town to control the land surrounding a surface water supply source.

  For this work, SPNHF combines its land conservation expertise with the water supply policy and technical expertise of DES. Under the contract between the two agencies, the Society will identify undeveloped public wellhead protection areas and reservoir watersheds that are not yet protected. These areas will then be assessed for their value relative to natural resources, special habitat, and water supply potential.

  The goal of this project is for SPNHF and DES to design a state program that will assist water suppliers in any efforts to acquire either land or easements to land deemed critical for the protection of water supply sources. Recommendations to a water supplier will include the type of acquisition assistance to be provided, potential funding sources, opportunities for integration with existing source water protection initiatives, and application criteria and requirements. Also provided by SPNHF are model conservation easements for both groundwater and surface water.

- Wellhead Protection Program

  The Wellhead Protection Program represents another joint project - this one between the EPA and NH DES. Wellhead (or groundwater) protection is an approach recommended by the EPA to protect areas that contribute water to public water supply wells from pollution - primarily chemical contamination. This approach is based on the concept that hazardous substances regulated by EPA can coexist in a critical area if handled properly through best management practices. Thus, the focus of the program is on management rather than prohibition.

  Before a town can implement a wellhead protection program, it must first obtain a reclassification of its groundwater. RSA 485-C, the Groundwater Protection Act, establishes a groundwater classification system; within this system are four classes of groundwater: GAA, GA1, GA2, and GB. In order for a wellhead protection program to be authorized, the reclassification requested by the town must be to one of the two highest levels (GAA or GA1). Once reclassification has been accomplished, the town has the authority to inspect for violations of best management practices, and the statute prohibits certain high-risk uses within the delineated area (*i.e.*, solid waste land landfills, outdoor storage of road salt). The steps involved in reclassification are described in brief below:

  (1) The zone of contribution to the well(s) is delineated, using topographical contours, hydrology, *etc.*

  (2) An inventory is conducted of all potential contamination sources (PCSs) in the delineated area and a report is prepared.

  (3) A PCS Management Program is prepared identifying the process that will be used for updating the inventory, notifying the PCSs, and performing inspections.

  (4) The request for reclassification is submitted to DES, affected parties are notified, and a public hearing is held.

The Town of Jaffrey, as of this writing, has completed the delineation of the area of contribution for the two wells and the land use inventory within this area. All potential PCSs have been notified, and the Selectmen are in the process of following up with individual visits. At this point, an exact date for submitting the application for reclassification has not been determined.

Aquifers

The U.S. Geological Survey has prepared detailed aquifer delineation maps for the Jaffrey area. The U.S. Geological Survey Groundwater Availability Map (WRI 77-79, scale 1" = 2 miles, prepared by John Cotton, 1977) was used to identify, low-, medium-, and high-yield aquifers in Jaffrey. The accompanying Aquifer Map shows the locations of three high-potential aquifers, 11 medium-potential aquifers, and five low-potential aquifers. The reference map provides the following narrative regarding the delineated aquifers:

> *Potential High-yield Aquifers - Areas inferred to be underlain by medium-to-very coarse sand or sand and gravel with sufficient saturated thickness to have high potential to yield water. Included are areas with fine grained surficial deposits that are inferred to be underlain by medium-to-very coarse sand or sand and gravel. Wells located by systematic groundwater exploration within these areas should yield sufficient quantities of water to meet or augment municipal and industrial requirements. Deposits are thinner and wells would be less productive along the margins of these areas. Pumping wells adjacent to streams or lakes may induce surface water to infiltrate the aquifer.*
>
> *Potential Medium-yield Aquifers - Areas inferred to be underlain by relatively thin saturated sections of medium-to-very coarse sand or sand and gravel that have medium potential to yield water. Shallow wells and infiltration galleries located by systematic groundwater exploration within these areas may yield sufficient quantities of water for small municipal and rural water districts and commercial and light industrial use. Deposits are thinner and wells would be less productive along the margins of these areas, except where they border areas of high potential. Pumping wells adjacent to streams or lakes may induce surface water to infiltrate the aquifer.*
>
> *Potential Low-yield Aquifers - Areas inferred to be underlain by fine and very fine sand, silt, and clay that have low potential to yield water. These deposits may yield sufficient water to wells for domestic and light commercial use. In places, thin lenses of coarse sand or sand and gravel with higher potential yield may or may not have adequate storage or recharge to provide large sustained well yields. Pumping wells adjacent to streams or lakes may induce surface water to infiltrate the aquifer.*

Areas outside of the identified stratified drift aquifers are assumed to be underlain by glacial till and bedrock aquifers. The reference map provides the following description regarding bedrock and till aquifers:

> *Bedrock and Till Aquifers - Areas in which glacial till (hardpan) and bedrock (ledge) are at, or inferred to be near, the surface and have low potential to yield water. Included are areas with thin deposits of gravel, sand, silt, or clay underlain by till or bedrock and areas of relatively thick deposits of sand or sand and gravel (high terraces) with little or no saturated thickness during dry periods. Wells in till and bedrock commonly yield sufficient water for single-family domestic use. In places where wells penetrate extensive, saturated zones of fractures in bedrock, individual wells may yield more than 40 gallons per minute.*

Following is a brief description of the location and size of each potential low, medium, and high aquifer in Jaffrey. The aquifers are delineated by letter and number on the accompanying Aquifer Map.

High-yield Aquifers

Aquifer A - The first high-yield aquifer has an elongated shape that is bound by Route 124 (Turnpike Road) on the north, the Jaffrey Airport on the east, the Rindge town line on the south, and Contoocook Lake, Squantum Road, and Conant High School on the west. At its widest point, the aquifer is approximately one mile wide. However, the average width is 2,500 feet and the approximate length (north to south) in Jaffrey is 8,500 feet. This aquifer extends into Rindge where it follows the northeast shoreline of Contoocook Lake for approximately 1,000 feet. This aquifer encompasses approximately 334 acres. Currently, two wells - the Turnpike and Contoocook - are located in this aquifer and form the town's municipal water supply.

Aquifer B - This aquifer, more rectangular in shape, is located along the west side of Contoocook Lake between the lake and Route 202. This aquifer is approximately 3,000 feet wide and 4,000 feet long. Like the first aquifer, it extends slightly into the neighboring town of Rindge. Within Jaffrey, the aquifer encompasses approximately 209 acres.

Aquifer C - Jaffrey's third high-yield aquifer consists of a small portion of a larger aquifer that straddles the Cheshire County/Hillsborough County line and includes the extreme southeastern corner of Jaffrey and portions of Rindge and Sharon. Actually, the largest portion of this aquifer is located in Rindge where it surrounds Hubbard Pond. The Jaffrey portion of this aquifer is located adjacent to Black Reservoir and the intersection of Prescott Road and Squantum Road. Jaffrey's portion of this aquifer consists of approximately 27 acres.

Medium-yield Aquifers

Aquifer 1 - This small aquifer is a narrow lineal strip that connects high-yield aquifers A and C. Located in the southeastern corner of town, it parallels Squantum Road and is approximately 0.75 miles in length and 1,000 feet wide at its widest point. It encompasses approximately 70 acres of land.

Aquifer 2 - This is the largest of the medium-yield aquifers. It extends northeast from Route 124 (Turnpike Road) where it abuts one of the high-yield aquifers across Old Sharon Road and continues across the Jaffrey/Sharon town line and into Sharon. The Jaffrey landfill is located over this aquifer and the town's sewage lagoons are situated to the immediate north. The width of this aquifer ranges from 1,500 feet to 3,700 feet. Its length through Jaffrey is approximately 7,200 feet. This aquifer encompasses approximately 350 acres in Jaffrey.

Aquifer 3 - This is a small circular aquifer located south of Lacy Road. It underlies a portion of the Mountain Brook Reservoir. The aquifer is approximately 75 acres in size.

Aquifer 4 - This aquifer begins at the northernmost point of Gilmore Pond and extends northwest, ending approximately 3,000 feet north of Old Fitzwilliam Road. The size of this aquifer is approximately 130 acres.

Aquifer 5 - This is a small aquifer consisting of approximately 21 acres in size and is located along the western shoreline of Cummings Road.

Aquifer 6 - This aquifer begins along the western shoreline of Cheshire Pond. The majority of this aquifer lies between Cheshire Pond and Route 137 (North Street); however, a portion does extend slightly beyond Route 137. The aquifer covers approximately 345 acres.

Aquifer 7 - This is a small aquifer consisting of approximately 21 acres in size. It begins at the intersection of Poole Memorial Road and Dublin Road and extends in a southeasterly direction covering Ark Pond.

Aquifer 8 - This aquifer is a small lineal strip (approximately 600 feet wide) located along the west side of Thorndike Pond. Its size is approximately 46 acres.

Aquifer 9 - This is a small oval-shaped aquifer situated along the eastern edge of town between Lehtinen Road and the Bryant/Old Peterborough Road. Its size is approximately 32 acres.

Aquifer 10 - This is a lineal aquifer approximately 600 feet wide and nearly 5,000 feet long. It begins along the eastern shoreline of Frost Pond and extends southeast to the northern shoreline of Parker Pond. The aquifer is approximately 80 acres in size.

Aquifer 11 - This aquifer is shared with the Town of Dublin. The aquifer's total size is approximately 85 acres, and the Jaffrey portion is approximately four acres. Jaffrey's portion begins along the northern shoreline of Frost Pond and extends north into Dublin.

Low-yield Aquifers

The accompanying Aquifer Map shows the locations of five low-yield aquifers. All are quite small with none exceeding 35 acres in size. Three of these aquifers are isolated, while the two most significant low-yield aquifers abut medium-yield aquifers No. 3 and 5.

The Groundwater Reconnaissance Map, developed by the Rural Community Assistance Program (Winchendon, MA) for the Tri-town Groundwater Reconnaissance Study, shows a somewhat similar configuration for the high- and medium-potential aquifers. However, this map does show the existence of numerous low-yield aquifers clustered about the high- and medium-yield aquifers in the southeastern portion of Jaffrey.

In summary, the aquifers that are most affected by existing development are high-yield aquifers A and B and medium-yield aquifers Nos. 1 and 2. All four aquifers are located in the town's southeast corner, where the bulk of residential, commercial, and industrial development has occurred.

FORESTED LAND

Jaffrey is largely covered by relatively new-growth forest, and while timber production is still important to the local and regional economy, the forest should also be understood as a living system that contributes much to community stability. Forests affect water and clean air resources, timber markets, wildlife populations, recreation opportunities, tourism, and real estate value.

PROTECTED LANDS

There are approximately 5,300 acres of protected lands in Jaffrey. This acreage is comprised of state and town lands, land owned by the Society for the Protection of New Hampshire Forests (SPNHF), land under other private conservation easements, and land owned by the Town of Troy.

These extensive protection lands are shown on the accompanying Protected Lands Map. The map shows that most of the protected acreage - slightly more than 80% (3,856 acres) - is located in the northwest corner of the town, and it protects much of the southern flank of Mount Monadnock.

The State of New Hampshire has five tracts that comprise 1,346 acres. The largest tract is Monadnock State Park, which is 650 acres. The remainder of the State land is state forest property.

The Society for the Protection of New Hampshire Forests owns approximately 2,580 acres, 80% of which is located along the southern flank of Mount Monadnock. This land is located north of Route 124 and

west of Dublin Road. The remainder of the SPNHF parcels are located east of Thorndike Pond, along Old Fitzwilliam Road, and Old County and Gap Mountain Roads.

The Town of Jaffrey owns four parcels that comprise approximately 520 acres. Two of these parcels are located on Mount Monadnock and a third - Carey Park (which is one of the Town's forests) - is located along the eastern bank of the Contoocook River and approximately one mile south of the downtown area. The fourth parcel (also a Town forest) is the 4.3-acre Lacy Lot located on Lacy Road. The Town also owns water rights around Mountain Brook Reservoir, and these "rights" extend to an elevation of 1,022 feet or to the 1,022 contour line that surrounds the reservoir. The land included in this water right area is approximately 120 acres.

Total Town-protected acreage is 634 acres. The remainder of the protected lands are under private conservation easements (600 acres), and the Town of Troy has a 161-acre reserve for its Town reservoir, well, and adjacent watershed.

In conclusion, much of the northwest quadrant of Jaffrey is protected from future development. Moreover, most of the unprotected land in the extreme northwest corner adjacent to Troy and Marlborough is unsuitable for development due to steep slopes, poor soil conditions, or lack of access. Consideration should be given to adding these lands to the adjacent protected parcels. A particularly attractive area is Perkins Pond, which is located at the base of Mount Monadnock, straddling the Troy/Jaffrey town line.

The remaining unprotected land in this quadrant is located along the north side of Route 124 and the west side of Dublin Road. It should be noted that approximately 400 acres is part of the proposed Shattuck Inn development.

Jaffrey should continue to pursue protection for lands through conservation easements or acquisition, which are on the aquifers, or in the watershed areas for possible surface water sources. Also, the Town should continue to work in cooperation with the Monadnock Advisory Commission, The North/South Railbed Project, and the Monadnock Greenway Project.

SCENIC VIEWS

Jaffrey's most prominent physical feature is Mount Monadnock, which is located in the extreme northwest corner of the town. With a height in excess of 3,100 feet, the mountain peak is visible from numerous locations throughout the town. The distinct profile of the mountain provides many scenic views, and these views, whether they be uninterrupted vistas of the mountain from key locations such as Perkins Pond or fleeting glances through the trees as one travels the numerous roads in Jaffrey, are an important part of Jaffrey's heritage. Consequently, it is highly desirable that these views and vistas be protected for the viewing pleasure of future generations and to perpetuate the town's most scenic natural resource. Other scenic views are found in areas south and east of Jaffrey.

The accompanying map titled "Scenic Views" illustrates the many vantage points in Jaffrey from which one can view the mountain. The map also shows other scenic views of other features (*e.g.*, lakes, ponds, and other mountain ranges).

SUMMARY

This section of the Jaffrey Master Plan has examined the various natural features that constitute the town's landscape. In particular, this section emphasizes the importance of Jaffrey's natural features and the need to protect them from degradation caused by development activity. The following points highlight the more significant findings presented in this section:

(1) Jaffrey has many natural features, including Mount Monadnock, that make it attractive to residents and tourists alike.

(2) Approximately 30% of the town (7,800 acres) has land that exceeds a 15% slope gradient. Since development is generally discouraged on slopes over 15%, the Town should carefully monitor and/or regulate hillside development to prevent long-term environmental damage on steeper slopes. Most of the steep slopes are located in the northwestern portion of Jaffrey adjacent to Mount Monadnock.

(3) Mount Monadnock constitutes the largest concentration of unsuitable soils and, in fact, the majority of soils that are not suitable for development are found in the western half of Jaffrey.

(4) Approximately 3,900 acres (15% of Jaffrey's total area) are considered as wetland soils (*i.e.*, poorly and very poorly drained soils). These wetlands and water bodies should continue to be protected from encroaching development through implementation and enforcement of the town's wetlands overlay zoning district.

(5) Jaffrey lies in three different watersheds: (1) the Contoocook, (2) the Ashuelot, and (3) Millers Rivers. The Contoocook watershed includes more than two-thirds of the town. Within these watersheds, there are 25 water bodies and 39 miles of streams that should be protected through various shoreline protective measures.

(6) Several aquifers have been located in Jaffrey, including three high-potential aquifers that are concentrated in the southeast quadrant of town. This quadrant is the most developed portion of Jaffrey and, thus, contains a number of existing and potential threats to the present groundwater system.

(7) Jaffrey has approximately 5,300 acres of protected lands that are comprised of state- and town-owned land, land under protection and management by the Society for the Protection of New Hampshire Forests or other conservation easements.

In conclusion, Jaffrey has significant natural features and resources that should be managed wisely to protect the rural and scenic attractiveness of the town and to prevent unnecessary environmental intrusion/encroachment/degradation from continuous or accelerated development activity.

JAFFREY MASTER PLAN
1997 UPDATE

CONSTRUCTION MATERIALS ANALYSIS

INTRODUCTION

In 1989, the New Hampshire Legislature amended the statute that addresses the purpose and description of a Master Plan. *Revised Statutes Annotated* (RSA) 674:2, VIII-a calls for a:

> *...construction materials section which summarizes known sources of construction materials which are available for future construction needs, including, at a minimum, the location and estimated extent of excavations which have been granted permits under RSA 155-E, as well as reports filed pursuant to RSA 155-E:2, I (d) with respect to nonpermitted excavations.*

The statute does not define "construction materials," nor does it specify what the "construction needs" might be; however, since the statute addressing earth excavations is references (RSA 155-E), it is logical to assume that, at a minimum, sand and gravel are intended.

The primary source for identifying sand and gravel resources is the *Soil Survey of Cheshire County*, which was completed in 1984.[14] The document includes a table entitled "Construction Materials" that lists four types of material by soil category; these are: (1) roadfill, (2) sand, (3) gravel, and (4) topsoil.

The purpose of this section of the Master Plan is to identify such materials as are located in Jaffrey. The soil categories 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 Soil Conservation Service (SCS) survey was digitized and the maps printed out at 11" x 17" size for inclusion in this report.

A corollary purpose of this section is to determine if reasonable opportunities exist in the Town of Jaffrey 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 their Zoning Ordinances provide some opportunity for excavation; otherwise:

> *...excavation shall be deemed to be a use allowed by special exception ... in any nonresidential area of the municipality, ..."*[15]

and the Zoning Board of Adjustment *shall* grant the special exception upon a finding by the Board that the excavation will not diminish property values, unreasonably change the character of the neighborhood, create traffic hazards, or create any health or safety hazards.

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[14] *Soil Survey of Cheshire County, New Hampshire*, US Department of Agriculture, Soil Conservation Service, 1989. (The SCS is now the Natural Resource Conservation Service).

[15] RSA 155-E:4,III.

THE SOIL SURVEY

The following descriptions of the four types of construction materials are based on the above-referenced *Soil Survey of Cheshire 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 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.

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.

  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 and slopes of 15% or less. "Fair" soils have in excess of 35% silt and clay-sized particles, and slopes of 15-25%. "Poor" soils contain many stones or slopes of more that 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, and 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.

CONSTRUCTION MATERIALS IN JAFFREY

Table No. 1 (below) lists the soil units found in Jaffrey that constitute roadfill. According to this information, Jaffrey has 13,989 acres of roadfill, which accounts for 54% of the total land area in Jaffrey. "Good" soils were found to constitute 8,290.5 acres, and "Fair" soils 5,698 acres. This material is distributed all over town with very few areas containing none of these soils.

TABLE NO. 1
ROADFILL SOILS IN JAFFREY, NH

Soil Name and Map Symbol	
Good	Fair
10B Merrimac	4 Pootatuck
10C Merrimac	14B Sheepscot
22A, B, C Colton	57D Becket
24B, C Agawam	73D Berkshire
30C Unadilla	76D Marlow
36A, B, C Adams	77D Marlow
57C Becket	78B, C Peru
72B, C Berkshire	78B, C Peru
76B, C Marlow	108 Hadley
77B, C Marlow	143D Monadnock
142B, C Monadnock	168B Sunapee
143B, C Monadnock	169B, C Sunapee
365C Berkshire	365D Berkshire
526A, B, C Caesar	513B Ninigret
	559B C Skerry
	613B Croghan

Source: *Soil Survey of Cheshire County, New Hampshire*, SCS 1989

Table No. 2 lists the soil units that constitute topsoil. As indicated on the map and in the table, this is the least represented of all construction material soils with only 1,144 acres identified by the mapping process (two acres are categorized as “Good” — the remaining as “Fair”). These soils are located primarily in the southeastern part of town (between Route 124 and Route 137). There are a few scattered deposits of topsoils elsewhere in town as well, but not of much significance.

TABLE NO. 2
TOPSOIL IN JAFFREY, NH

Good	Fair
108 Hadley	4 Pootatuck
	142B, C Monadnock
	526A, B, C Caesar
	613B Croghan

Source: *Soil Survey of Cheshire County, New Hampshire*, SCS 1989

Sandy soils in Jaffrey account for about 6,022 acres (23%) of the total land area. Most of these deposits are located in the eastern side of town, from the town line west to Route 137; there are, as well, a few scattered sites along Route 124 and throughout the center of town south of Route 124.

TABLE NO. 3
SANDY SOILS IN JAFFREY, NH

Probable	
4 Pootatuck	142B, C Monadnock
5 Rippowam	143B, C Monadnock
6 Saco	214 Naumberg
10B, C Merrimac	347B Moosilauke
14B Sheepscot	365C, D, E Monadnock
15 Searsport	395 Chocorua
22A, B, C, E Colton	414 Moosilauke
24B, C Agawam	513B Ninigret
36A, B, C, E Adams	326A, B, C Caesar
107 Rippowam	613B Croghan
107 Saco	

Source: *Soil Survey of Cheshire County, New Hampshire*, SCS 1989

Gravel deposits in Jaffrey amount to only 1,935 acres, most of these located in the eastern side of town between Route 137 and the town line. A small amount of gravel is scattered around town in no discernable pattern.

TABLE NO. 4
GRAVEL SOILS IN JAFFREY, NH

Probable
10B, C Merrimac
14B Sheepscot
22A, B, C, E Colton
347B Moosilauke
414 Moosilauke
513B Ninigret

Source: *Soil Survey of Cheshire County, New Hampshire*, SCS 1989

GROUNDWATER IDENTIFICATION

To further refine the attempt to identify sand and gravel deposits in the Town of Jaffrey, aquifer delineation studies are examined and compared to the SCS soil survey. Inclusion of 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 they can be deposited on valley floors, hillsides, and hilltops. The aquifer studies will identify those soils that were deposited on valley floors (stratified drift). The other formations that must also be considered are eskers and deltas, both of which can be virtual gold mines 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 been sorted by water. However, while all good aquifers are also good sand and gravel sites, good sand and gravel sites are not always good aquifer sites.

The following map illustrates aquifers, river basins, and watersheds for the entire southwest region. This map represents the results of a state-wide aquifer mapping project begun in 1985 by the New Hampshire Department of Environmental Services in cooperation with the US Geological Survey. The goal of the project was to update the reconnaissance level mapping that was completed in the mid-1970s. The new maps identify significant stratified-drift aquifers in terms of their location and areal extent as well as their hydraulic properties and internal characteristics. 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 Lower Connecticut River Basin was the first to be studied and to employ the GIS technology for mapping. The 45 towns in the study area were divided into three groups; Jaffrey is among the six towns that are only partially within this basin and are, therefore, not mapped in detail. This map shows only the boundaries of the aquifer areas. When the Contoocook River Basin study is complete, the map for Jaffrey will include information on ground water flow, depth of deposits, volume of sediment, *etc*.

As this map shows, aquifer deposits in the region run mostly north-south within the Connecticut and Merrimack Basins. As can be seen from the map, all aquifer areas in Jaffrey are located completely within the Contoocook Watershed. These deposits are predominantly located in the eastern part of town and are part of a continuous corridor-like string of aquifers traversing all the Contoocook River towns in the Southwest Region from Antrim to Rindge.

These newly-identified areas are generally consistent with the old aquifer information (see accompanying map). In addition, the four construction materials maps indicate that most of the materials in town are located on the eastern side, also consistent with the aquifer study. This is somewhat to be expected, especially regarding sand and gravel, based on the way in which these materials were originally deposited.

EXCAVATION OPERATIONS IN JAFFREY

As part of this report, all known existing and abandoned sand and/or gravel pits in Town were identified. The accompanying map illustrates the approximate location of the sites. Of these 12 sites, only a few are still active today: Site No. 5 is a newly-permitted operation; Site No. 8 is used by the Town; and Site Nos. 3, 6, 10, and 11 are semiactive.

The construction materials maps illustrate the relation of the known excavation sites to the identified materials. As can be seen from the maps, every known excavation site is located in those areas identified by the soil survey as having sand and/or gravel deposits. More importantly, this information illustrates the existence of excavation operations over an aquifer and, although this is to be expected, it is also important for the Town to be aware of such situations so that care can be taken to protect the aquifer.

OPPORTUNITIES IN JAFFREY FOR EXCAVATING

The information on construction materials in this report 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 location for excavation.

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 location excavation regulations provisions that are aimed at protecting water resources. The information depicted on the accompanying maps enables the Planning Board to do just that.

The Jaffrey Zoning Ordinance allows for earth excavations in the Rural and Industrial districts. Although Jaffrey has a number of zoning districts, the Rural district continues to occupy most of the land area of Jaffrey. Reference to the Jaffrey Zoning Map indicates that all 12 of the identified sites are located in both of these districts. Furthermore, the construction materials maps indicate that most of the resources appear to be located in the Rural district.

CONCLUSION

Based on the maps generated for this report, the soil survey, and the available information on excavation sites in Jaffrey, it appears the town has a meager supply of sand, gravel, and topsoil, and the majority of these materials (with the exception of roadfill) is located in the eastern side of town. All of the known excavation sites are located in the Rural and Industrial districts, and, assuming they were not depleted, some could potentially be used again as a source of construction materials.

Furthermore, under the current zoning provisions, new excavation sites could be developed in the Rural district, subject to the operating standards that must be met under state law, as well as any other applicable state and/or local regulations. The only material that exists in sufficient quantity to be commercially useful that is located in zoning districts where excavation is not permitted is roadfill; and that material is present in sufficient quantities all over town so that ample opportunity does still exist for the removal of this material.

JAFFREY MASTER PLAN
1997 UPDATE

CONSERVATION AND PRESERVATION

It has been evident, surely for many years but certainly since the community surveys in 1980 and 1990, that the citizens of Jaffrey places a high priority on the character of the town (its rural landscape, natural resources, open spaces, view sheds, historic resources, and the appearance of the downtown area).

Recognizing the concerns of the town, the Planning Board recommends that all efforts be made to maintain the unique character of Jaffrey by continuing to identify and preserve the natural, cultural, and historic resources that contribute to this character.

To achieve this policy goal, the Master Plan recommends that the town:

- Insofar as feasible, protect the surrounds of critical historic structures, such as the Meeting House.
- Attempt to buffer development along the roadways, so as to protect the rural appearance of the town. To this end, clustered developments should be encouraged. Furthermore, the Planning Board should review zoning provisions that could enhance the rural appearance.
- Continue to identify strategic lands (*e.g.*, ecologically sensitive, historically important, scenic) and to work with all available partners (including conservation agencies and private land trusts) to protect these lands.
- Encourage the in-fill and rehabilitation of the downtown area, where higher density of population is appropriate, recognizing that in-fill and rehabilitation should be compatible with the historic quality of the neighborhood.
- Monitor the possible improvement of Route 124 W to ensure that the Historic District not be sacrificed to unnecessary improvements.
- Encourage the continuation of the external appearance of the town buildings (*e.g.*, Library, Meeting House, Police Station, *etc.*) consistent with their history.
- Encourage an active effort to replant or maintain the plantings (*i.e.*, trees, shrubs) in the downtown area.
- Recommend that the Town fully document and photograph the cemeteries before acid rain obliterates the headstones.
- Encourage all new utility wires to be placed underground and encourage placement of existing utilities underground as the opportunity presents itself.
- Acknowledge the possibility of adding new historic districts and historic register properties.
- Recognizing there are many areas/buildings/artifacts of historic and cultural importance that are not in the Historic District, the Planning Board encourages the Town to develop a Heritage Commission to provide a town-wide forum for the recognition and protection of resources valued for historic, cultural, and aesthetic significance in the community. (cf. RSA 674:44-b)