

## CHAPTER IV NATURAL AND CULTURAL RESOURCES

This chapter examines the natural and cultural resources of the Town of Brookline. First, the natural features are identified which impose limitations or constraints to development. Particular emphasis is placed upon those natural features which determine land capability to support land uses of different intensities, such as topography, soils, and both surface and groundwater features. Second, the Town's cultural resources are discussed with regard to their importance to the Town and future planning considerations for their protection.

### NATURAL RESOURCES

An understanding of Brookline's natural resource base is important when developing an overall plan to guide development. The following sections provide a brief description and inventory of the natural resources found within Town.

The Town of Brookline is located in the Lower Merrimack River Valley. Like most communities in the Nashua region, the Town is overlain by glacial till soils deposited as glaciers slowly retreated in a northwesterly direction over this region thousands of years ago. These glacial till soils are, in many areas of town, sparsely spread over granite or other types of bedrock.

#### Topographic Features

The topography of Brookline can generally be described as consisting of gently sloping hills located in three of its four corners with a central low-land which runs generally from the north-central portion of Town to the southeast. Topographic features consist of two characteristics: elevation and slope.

##### Elevation

Elevation is a measure of the height of a given point of land relative to Mean Sea Level. To make elevations comparable, they are expressed as "feet above Mean Sea Level" (ft. aMSL). Elevations in Brookline range from a low point of under 220 ft. aMSL, in the Town's southeast corner, to a high point of just over 800 ft. aMSL along the Town's eastern border with Hollis, on Birch Hill. Other significant elevations include Russell Hill which rises to 738 ft. aMSL, and Potanipo Hill and Hutchinson Hill, both over 600 ft. aMSL (Map IV-1).

Building on higher elevations and steep slopes poses problems for septic systems, access, and water supply, due to thin soil cover and shallow depth to bedrock. Conversely, development in low-lying areas may damage wetlands.

The higher elevation areas within Brookline are also important as they provide a vantage point from which to view the area's scenic vistas. Table IV-1 shows these vistas and their corresponding elevation.

MAP IV-1  
TOPOGRAPHIC MAP

TABLE IV-1  
SCENIC VISTAS

Hill Name	Elevation (aMSL)
Birch Hill	810
Russell Hill	738
Unnamed (northwest corner)	642
Potanipo Hill	627
Bear Hill	615
Unnamed (SW of Rocky Pond)	613
West Hill	590
Unnamed (northwest corner)	557
Hutchinson Hill	534
Unnamed (E of Corey Hill)	523
Corey Hill	515
Hobart Hill	508
Rock Ramond	477

*Source: U.S.G.S. maps*

### Slope

Slope is a measure of the pitch or "steepness" of land between two given points. It is expressed as a percentage which is calculated by dividing the change in elevation between two points by the distance between the two points. Land with 0% slope is level, and land with 100% slope has a pitch equal to a 45 degree angle. The slope or relative steepness of a parcel of land is a critical determinant of its ability to support certain land uses. Slope categories, and the problems of development on them are described below. Areas within Town with steep slopes, defined as slopes greater than 15 percent, are shown on Map IV-2.

#### *25% and Greater Slopes*

Land areas in this category are among the most difficult to develop. These areas will require extreme care and usually need special engineering and landscaping to be developed properly. The major problem of development on slopes of 25% or more is that generally, steep slopes have only a very shallow layer of soil covering bedrock. Because of this, safe septic system installation is very difficult, storm water run-off is accelerated rather than absorbed, and soil erosion potential increases. Road and driveway construction to steep sloped sites is more difficult and costly, and also increases the amount and velocity of surface run-off.

#### *15% to 25% Slopes*

While somewhat less severe, the same problems and concerns expressed above regarding slopes in excess of 25% apply to slopes in the 15-25% category. The soil layer over bedrock on 15-25% slopes may be slightly deeper, but in many cases it may be insufficient to properly support the safe installation of a sub-surface waste disposal system. Accelerated surface water run-off and soil erosion will also be legitimate concerns of development proposals for these areas. Road construction will also encounter the same problems as in the 25%+ slope category.

Land areas within the 15-25% slope category should also be subject to thorough reviews of the proposed safeguards needed to protect down slope properties from insufficient septic system treatment of wastes, soil erosion and accelerated surface water run-off.

Picture VI

*Potanipo Hill--Slopes of greater than 25%, such as this one, are difficult to develop.*

MAP IV-2  
STEEP SLOPES

### *8% to 15% Slopes*

Land areas in this slope category will exhibit, to a lesser extent, similar difficulties to those of steeper slopes; however, in many cases the costs to overcome these problems make the development of such slopes much more feasible. Development potential of such sites will, in most cases, be determined by specific site characteristics, such as depth and type of soils and the intensity of the proposed development. For these reasons, specific site investigations and a close review of proposed septic and erosion safeguards are urged for any development proposals on parcels in this category. It is reasonable to expect that more and more proposals to develop such sites will arise as the more suitable low and flat land becomes developed.

### *0% to 8% Slopes*

Land areas within this slope category are generally the best for active development, provided soil types are suitable. Land in this slope category will generally be capable of supporting the most active or intensive land uses in Town, unless specific site characteristics, other than slope, impose constraints upon its use. One notable exception would be for land of 0 to 3% slope at low elevations overlaid by poorly or very poorly drained soils.

The purpose of establishing these slope categories and delineating steep slopes on a map is not to preclude the use of such areas, but rather to identify such areas and provide a general guide to the potential problems which development of such areas may face. The mapping and descriptions of such slope categories is not a definitive guide as to where development should or should not occur. Specific site characteristics should be investigated to determine the extent to which the potential problems identified herein must be overcome in the course of development. The slope data must be used along with soils and water resources information to determine a specific site's natural capability to support a proposed use.

## **Soil Features**

Soil types are perhaps the single most critical determinant of a parcel's capability to support development. In communities such as Brookline, soils serve as the sole medium of sewage purification because of the Town's total reliance upon individual septic systems. Additionally, each soil type has different physical and chemical properties influencing the ways in which that soil may be used. The Natural Resources Conservation Service (N.R.C.S.) of the U.S. Department of Agriculture, has conducted extensive surveys and analyses of the soils found in Brookline and Hillsborough County. From these surveys and analyses, the N.R.C.S. has identified the characteristics of each soil type and determined the capabilities and limitations of each for particular uses (see Soil Potentials for Development, Town of Brookline Soils and their Interpretations for various Land Uses, and the Soils Survey of Hillsborough County, New Hampshire--Eastern Part all available in Town Hall).

For planning purposes, soils are examined here in two ways; the first analysis divides the soil types into seven distinct categories which have broad implications regarding development potential and planning for future land uses. The second analysis examines the ability of a soil type to support the proper functioning of a sub-surface septic system by determining the limitations of the soil to absorb and purify septic effluent.

In general terms, Brookline's soils are predominantly of two types: the low-laying land in the Town Center and southeast quadrant is of Hinckley-Windsor types, while the balance of Town

is characterized as being of Canton-Chatfield soil varieties. The first type (Hinckley-Windsor) is described as excessively drained, gravelly and sandy. However some land areas within this group are poorly and very poorly drained soils or wetlands. The Canton-Chatfield soils are well-drained, loamy soils and are often found on slopes and covered with forest. Map IV-3 shows individual soil types by area throughout Brookline.

A more specific analysis divides the many soil types into the following seven categories: wetland, floodplain, sand and gravel, seasonally-wet soils, shallow-to-bedrock, hardpan, deep-stoney, and soils which are prime farmland or of statewide importance for agriculture.

1) Wetland or Wet Soils: Soils in this category are poorly and very poorly drained, and serve as water storage areas which recharge stream flows during dry months. They are often nearly level and may be ponded or have standing water on their surface. They pose tremendous problems to development and their active use for development purposes is prohibited through the Wetlands Zoning Ordinance. More detail is given to this resource later in the chapter and in the Water Resources Management and Protection Plan.

2) Floodplain Soils: These are soils found adjacent to rivers and streams which deposit the soil by flooding of these water courses. Because Brookline has only a few minor water courses, there is little floodplain soil within Town. These soils are often among the finest agricultural soils in the State.

3) Sand and Gravel Soils: These soils are excessively drained and are characterized by their rapid permeability. These are among the most predominant soil types in Brookline. Because of the rapid permeability, they act as a poor filter. These soils may also be stoney, especially the Hinckley soils. They are highly erodible, do not yield groundwater to a great degree, and are the least stable in holding slopes or banks.

4) Seasonal Wet Soils: These soils are moderately well drained and found in upland depressions. Because they generally form a relatively thin soil layer over bedrock, they will have a tendency to have a seasonally high water table, which imposes severe restrictions on their ability to be used for septic systems and home construction. They are found in scattered locations among the hills surrounding the low-lying Town Center and southeast portion of Town.

5) Shallow-to-Bedrock Soils: This category contains several soils types which generally form an extremely thin layer over bedrock (generally 30 to 40 inches deep). They are moderately to well-drained, are generally covered by woodland and have very limited capacity to yield groundwater. Because they are so thin, their use for septic systems is severely limited, although sites with sufficient depth to bedrock can be found.

6) Hardpan Soils: These soils are characterized by a 24 inch layer of well-drained soil underlain by a dense, slowly permeable hardpan layer of up to 60 inches deep. Due to this hardpan layer, these soils have severe limitations for use as septic system leaching areas. They are found in one location in Brookline, just south of Lake Potanipo on the slopes of a drumlin, or glacier-formed hill.

7) Deep-Stoney Soils: Soils in this category represent the predominant soil type in Brookline. They are described as well-drained, often contain stones and boulders at or near the surface, and are found on slopes of the hilly uplands which surround the Main Street area and Route 13. Depth to bedrock is typically in excess of five feet, much of this soil type is covered by

woodland, and the availability of groundwater is moderate. The greatest limitations to development imposed by these soils are the stoniness of the soils and their designation as having severe limitations to development, although relatively flat or moderately sloped parcels of this soil type may have only moderate limitations to development.

#### Soils and Septic Limitations

Our second analysis of soils examines the limitations of each soil type and slope combination imposed on its use for subsurface septic system installation and operation. It is important to remember that this analysis combines information regarding both soil types and slope, and that it does this at a scale which is unsuitable for site-specific analysis and decision making. This analysis will not replace or eliminate the need for site investigation to determine land capability. It is provided to give a broad overview of the potential for development in Brookline and to alert the planning board of potential problems which certain land areas will present. While the soil types are delineated on the Master Plan maps with a reasonable degree of accuracy, specific soil types referred to on the map are those of the predominant soil type within the mapped area. Actual boundaries between soils on the ground are not so easily discernible and will vary from those mapped. Thus, site inspections and more thorough study of the soils of any site cannot be replaced by the maps which accompany this plan. (See Septic Limitations Map in Town Hall.)

The septic limitations analysis by the N.R.C.S. examines the following characteristics or properties of land areas for their capability to support the safe installation and operation of subsurface septic systems:

- 1) permeability of soil
- 2) depth to water table
- 3) depth to bedrock
- 4) steepness of slope
- 5) stoniness or rockiness of soil
- 6) susceptibility to flooding

Land areas have been categorized as possessing either slight, moderate or severe limitations to proper septic system operation due to the combined effect of these six characteristics.

Slight Limitations: Land areas designated as having slight limitations are the most capable of supporting safe operation of septic systems. Any limitations of these areas are considered to be easy and inexpensive to overcome. Unless other site characteristics limit their suitability, they are recommended for active use and development. In fact, because there is so little land of this classification in Town, these parcels should be used as efficiently as possible, perhaps by clustering residential or commercial uses to maximize the efficient use of these most buildable land areas in Brookline.



MAP IV-3  
SOILS MAP

10.

Moderate Limitations: Land areas in this category have moderate limitations or constraints to septic system installation or operation. Their development and use will require planning, careful review, and usually remedial engineering or landscaping work to overcome the limitations imposed. These limitations will not preclude the development of these parcels, but they are identified to alert interested parties that special consideration and potentially expensive remedial work may be required to safely develop such sites. Land areas in this category are scattered among the hilly uplands, and are in more plentiful supply than parcels of slight limitation. Because there is so small a portion of the land in Town within this category, these land areas should be used as efficiently as feasible while recognizing that limitations to their use exist. Moderate-density clustering may be feasible on selected sites which are so designated.

Severe Limitations: Land areas with this designation have the poorest capability to be used for septic system operations due to one or more of the characteristics used to evaluate its potential. This designation should not be interpreted to mean that these land areas are incapable of supporting development. Rather, the "severe" designation alerts the developer and planning board of the need to identify the limitation(s) and make sure that any and all remedial actions to overcome the limitations are made. The importance of site inspections in such cases cannot be over-emphasized.

By applying this classification to Brookline soils, approximately four-fifths of the Town is found to be in the severe category. As previously mentioned, however, these are six different soil characteristics or properties that are considered in classifying a soil. Depending on which specific property warranted the severe rating, this will be reflected in the economical and technological requirements necessary to use the soil for residential septic systems.

Those areas classified as having moderate limitations for septic system operation, when combined, total approximately one-fifth of the Town's total area. The predominant areas of soils classified as such are located in the southeast corner of Brookline, west and southwest of Russell Hill, south of North Mason Road, along portions of Old Milford Road, and south of Rocky Pond Road.

Unfortunately, not much of the Town is underlain by soils falling into the slight limitation class. These 5-20 acre parcels are scattered over much of the Town, but total only 150-200 acres. Since these areas of slight and moderate septic limitations do not constitute a large portion of the Town, where applicable, planning for future growth should allow for their optimum use.

## **Water Resources**

Natural resources within Brookline associated with water include watersheds, floodplains, wetlands and aquifers. A more detailed description and assessment of Brookline's water resources can be found in the Water Resources Management and Protection Plan.

11.

Surface Water

*Watershed Areas*

Brookline can be divided into a number of watershed areas based on the existing stream channel network and topographic divides. The major watersheds include North Stream/Scabbard Mill Brook, Village/Stonehouse Brooks, Talbot Brook, Wallace Brook, and Rocky Pond Brook. Water from each of these watersheds combines to flow into the Nissitissit River, the beginning of which runs through southeast Brookline.

*Floodplains*

Although the Nissitissit River runs through southeastern Brookline, flowing out from Lake Potanipo, only small amounts of floodplain exist within Town. Most of it is located along the banks of the Nissitissit River, Wallace Brook, Stickney Brook, Mill Brook, Spaulding Brook, North Stream, parts of Scabbard Mill Brook and Stonehouse Brook, and Talbot Swamp, Pout Pond, Trout Pond, Pierce Pond and Lake Potanipo. These are shown as Zone A on the Federal Emergency Management Agency (FEMA) maps dated 1987 and shown in the Water Resources Plan.

Picture VI

*Floodplain development is restricted by the Floodplain Ordinance which is part of the Zoning Ordinance.*

*Wetlands*

Existing wetlands include those areas particularly sensitive to development. They perform a unique function within the hydrologic system of each watershed. Wetlands provide the vital link between incoming precipitation and aquifer recharge, flood storage and prevention, erosion control, and water purification of sediment contaminants and problem nutrients. Depending on the type of wetland involved, they also provide important habitat to a variety of vegetation and animal life including aquatic plants, insects, amphibians, fish, and water fowl. In mapping the region's soils, the NRCS has delineated those soils having poor to very poor drainage based on individual soil properties. Wetland soils found in Brookline, shown on Map IV-4, are of the following type:

<b>Very poorly drained</b>	<b>Symbol</b>	<b>Poorly Drained</b>	<b>Symbol</b>
Borohemists (BoA, BpA)	BoA, BpA	Binghamville	Bg
Chocorua (Cu)	Cu	Leicester Variant	LeA, LsA
Greenwood (Gw)	Gw	Leicester-Walpole Complex	LtA, LtB, LvA, LvB
Saco Variet	Sm	Pipestone	PiA, PiB
Scarboro	So, Sr		
Ridgebury	RbA, ReA, ReB		
Saugatuck	Sn		

As shown, major concentrations of these soils are found to exist in the areas of Wallace Brook, Stickney Brook, Rocky Pond Brook, and the Nissitissit River in southern Brookline; Lancy Brook, Lake Potanipo, North Stream, Village Brook, and Stonehouse Brook in central Brookline; and Scabbard Mill Brook and Melendy Pond in northern Brookline. Wetland areas are usually located adjacent to or very near open water as found in the Town's rivers, streams,

MAP IV-4  
WETLANDS MAP

13.

lakes and ponds. This relationship is the result of a localized higher water table and the source of greater quantities of water during periods of high stream flow. There are also some scattered pockets of wetland soils throughout the Town, usually at the bottom of low-lying areas or depressions.

In 1987, the Town passed the Wetland Conservation District as part of the Zoning Ordinance. This article restricts development within wetlands and ensures that each lot in Town has at least 60,000 square feet of non-wetland area to accommodate sewage disposal.

Picture VI

*Wetlands such as this one near Lake Potanipo are protected by the Wetland Conservation District which is part of the Zoning Ordinance.*

Groundwater

*Aquifers*

Existing aquifers presently being used or having potential for future use in Brookline are grouped either as being composed of stratified drift, glacial till, or bedrock materials. Studies and mapping completed by the USGS in 1987 entitled Hydrogeology of Stratified Drift Aquifers and Water Quality in the Nashua Regional Planning Commission Area, better delineates the hydrogeologic characteristics of this resource (see Map III-5).

Stratified drift aquifers provide the best potential for providing adequate supplies of water in Brookline. According to the USGS study, 31 percent of Brookline is underlain by stratified drift. These deposits, laid down in the valleys during periods of glacial retreat, are generally well sorted sands and gravels. These materials have a higher porosity than finer-grained sediments or poorly sorted till deposits and therefore contain larger quantities of water and provide larger well yields. High potential aquifer areas exist north of Lake Potanipo, between Route 13 and Main Street, and in southeast Brookline near the Nissitissit River. These are shown in dark blue on the USGS aquifer map located in Town Hall. Moderate potential aquifer areas are more numerous in Brookline. These mapped areas are found farther north and directly south of Potanipo Pond, along Wallace Brook, and beneath more of the Nissitissit River northwest of the high potential area.

Other mapped areas in this study included low potential yielding aquifers within the glacial till deposits covering much of the remainder of Town. The poorly-sorted nature of these materials and their shallowness contribute sufficient quantities of water for domestic use only.

The USGS study delineates where the till aquifers may be by showing where stratified drift deposits are not found. Because of the type of material involved in till aquifers, this type of aquifer is relatively shallow and directly overlaying bedrock. It is also very likely to be localized in extent. These aquifers can be easily impacted by contaminants from land use practices including septic system operation, agriculture, industry, underground fuel storage tanks, and surface runoff containing road salt. Unfortunately, little else is known about the till aquifers other than where the deposits are. Further site specific study using existing water well and soils information may be helpful in defining them. As these localized, shallow aquifers are tapped for a large percentage of private water supplies, compatible land use siting is of concern here as it is with the stratified drift aquifers.

14.

**Construction Materials (Extractive)**

Construction materials, such as sand and gravel, are usually found in areas with stratified drift deposits. Excessive removal of the materials overlying the saturated drift can increase the potential for groundwater contamination. The soil above the groundwater acts as a filter by removing suspended contaminants as the water percolates down, although this soil type is generally not considered a good filter due to its rapid permeability. Thus, if too much material is removed, the filtering capacity of the soil is diminished and contaminants can reach the groundwater more rapidly and in increased concentration.

Canton and Hinckley soils, which are found throughout most of Brookline, are also good indications of the presence of sand and gravel. Both the Soils Map (Map IV-3) and the Aquifer Map (Map IV-5) show the location of construction materials within Brookline.

In November 1989, the Planning Board adopted Excavation Site Plan Review Regulations. Before 1989, earth removal permits were granted by the Board of Selectmen. Permits which have been granted by the Town and other recent decisions regarding earth removal are listed in Table IV-2.

**TABLE IV-2  
EXCAVATIONS WITHIN BROOKLINE\***

<b>Year Approved</b>	<b>Lot Number</b>	<b>Applicant Name</b>	<b>Description</b>
1984	J-57	Torres	Averill Rd.; to excavate muck from pond and refill
1985	C-10	Bourassa	S. Spaulding Brook Rd.; finished 1987
1986	H-91	Joki	Completed
1986	D-89	Whitcomb	Route 13/Scabbard Mill Brook Rd.; renewed annually; last renewed May 1990
1988	J-9-2	Johnson	Averill Road
1997	J-9-2	Town of Brookline	Averill Road; for town road projects
1997	A-6	Burbee	Spill-over from Milford operation; 35 acres rezoned to I-C

\* Note: These excavations have been granted permits under RSA 155-E or have been approved by the Town since 1984. The extent of these excavations is not known.

Source: Brookline Town records.

MAP IV-5

AQUIFERS

### Available Land for Excavations

The Town is legally required to provide “reasonable opportunity” for excavation operations. Before 1992, excavations were permitted anywhere in Town by special exception granted by the Zoning Board of Adjustment. However, at the 1992 Town Meeting, Brookline residents submitted a petition to limit excavation operations to the Industrial-Commercial District, which was approved.

Map IV-6 shows vacant land with suitable soil for excavation activities. Approximately 65 acres are currently available; however, only four lots totaling 16 acres lie entirely within the district, as shown in Table IV-3 below.

**TABLE IV-3**  
**VACANT LOTS WITH EXCAVATION POTENTIAL**  
**ENTIRELY WITHIN THE I-C DISTRICT**

<b>Lot Number</b>	<b>Location</b>	<b>Acreage</b>
C-36-1	Route 13, south of N. Mason	2.0
H-101	Route 13, west of S. Main	3.5
H-107	S. Main	1.8
K-75	S. Main / Rt. 13	9.2
Remaining Acreage		48.1
Total Vacant Acreage		64.7

It is recommended that the Town and Planning Board seek to ensure that the Town fulfills its legal obligation to provide reasonable opportunity for excavation operations by submitting a zoning amendment at Town meeting to reverse the recently approved voter petition. This amendment would permit excavations where suitable soils are located in Town by special exception granted by the Zoning Board of Adjustment. Clear, strict standards must be adopted which will address resident concerns about the impact of such activity in residential neighborhoods. The Town and Board must educate citizens about the legal necessity of providing reasonable excavation opportunity and the economic benefits of allowing that activity within town. Concerned citizens should be involved in drafting the ordinance.

The Town and Planning Board should also pursue a longer-term goal of identifying and purchasing suitable excavation sites to use for Town projects. This strategy will result in significant cost savings over the long term by reducing the need to obtain and haul materials from out-of-town locations. The Melendy Pond area and Camp Tevya area are examples of potentially attractive locations for this purpose.



MAP IV-6  
LAND AVAILABLE FOR EXCAVATIONS

18.

## **Agricultural Land Use**

As mentioned earlier, there is little floodplain soil within Brookline. Since floodplain soils are usually areas of good agricultural land, Brookline does not have large acreages of good agricultural land. A minimal amount of land in Brookline is currently used for agricultural purposes.

## **Wildlife**

Brookline is endowed with a vast array of plant, fish and animal species. The variety is due to the variations in habitat, such as hills and mountains, rivers, lakes, ponds, and streams, wetlands, open fields and forests found within Town. Variety and quality of habitat are the most important factors in maintaining a diversity of species in quantities healthy enough to ensure their viable continuation. Wildlife habitat areas are important because they meet specific needs of certain species. Wetlands and fresh water marshes provide nursery areas for waterfowl and fish, hunting grounds for predatory birds and general habitat for many species of birds, small mammals, reptiles and amphibians. It should also be noted that many species of endangered and threatened plants and animals can be found in or rely on wetland areas. Change, however, is inevitable, and some species are better adapted to change than others. Those species unable to adapt will move elsewhere and be replaced by a species better suited to the environmental conditions.

Both the Federal and State governments have established inventories of endangered and threatened species. The New Hampshire Natural Heritage Inventory records indicate that endangered and threatened species are found in Brookline, as they are in almost all Nashua region communities. Those species found in Brookline include the great blue heron (rookery), piled-up sedge, and prostrate tick-trefoil.

## **Community Attitudes**

Protecting the natural environment was a top-priority issue identified by those citizens in attendance at the Brookline Community Profile. Some of the diverse and often conflicting opinions on natural resources articulated at the Profile are repeated below. These comments may or may not reflect majority opinion.

Natural resource base: water, energy, minerals:

- **Strengths:** wildlife; forests; large lot size; sand and gravel repositories; good and plentiful drinking water; good water quality; Lake Potanipo (easy access, swimming and boating); Melendy Pond; Nissitissit River; recycling; tree farming; wetlands; easy access for recreational skiing; big chunks of undeveloped land; zoning; lack of natural disasters; orchards; quarries; hunting; air quality; conservation commission conservation land.
- **Concerns:** rapid land development; dumping; recreational vehicles and overzealous usage; lack of respect of the land; quarries are inactive; lack of financial resources to sustain natural resources; irresponsible hunting; two-acre lots as opposed to cluster housing; two-acre is too low; forest reduction; radon gas in household air; loss of "Our Place" newsletter.
- **Key issues for now and vision for the future:**

19.

- Annual survey of natural resources and changes: publish the results
- Purchase more conservation land and make accessible like Beaver Brook
- Environmentally conscious development
- Better job of public relations
- Increase public input into the Conservation Commission planning
- Don't want to see trees destroyed for sake of developments
- Maintain same as it is
- Enhance the natural landscape with controlled development
- More open space left available for recreational and conservation
- Maintain responsible commercial use of resources such as forestry, small farming

Working landscape: village, farm, and forest:

- **Strengths:** not air or noise polluted; several conservation lands; quiet, rural; outdoor activities; gardening; houses not close together; conservative road program; friendly; growth has not destroyed community; horses; downtown architecture attractive; accessibility to Boston; central location; lake; woods; river; recreation; Musket Mountain; beaver lodges.
- **Concerns:** growing too fast; wildlife crunched into small area; growth not managed; need more volunteers on boards; town divided between long-timers and newcomers; isolation between developments; outside developers.
- **Key issues for now and vision for the future:**
  - Balance between protecting water quality and landowners' rights - not excessively restricting use of land
  - Protect forests - limit clear-cutting to sustain forests
  - Maintain same ratio of open land to developed land
  - Increase in volunteerism to maintain conservation and recreation
  - More activities (social) and more people participating in activities
  - Activities that use and increase appreciation for natural resources
  - Conservation Commission working to increase wise use of land
  - Increased awareness of availability

Conservation key issues:

- Educational programs (such as recycling education on cable media, school programs, homeowner programs)
- Public forums: specific topics, growth issues
- Investigate developing a land trust to buy development rights

One of the five citizen volunteer committees formed from the Profile was the "Team Resource for Environmental Education (TREE)". The goal of this group is to "preserve, protect and encourage the responsible use of the Town's natural resources for now and forever, through education, communication and support of the Conservation Commission." This committee is an obvious statement about the importance of natural resources to Town residents, and it should become an active participant in natural resource planning within Town.

## CULTURAL RESOURCES

Cultural resources include the historical aspects of Brookline's development. Brookline is the product of over 200 years of history. Many of the roads in Town follow paths originally beaten through the wilderness. Stone walls, memorials to the enormous labors of early farmers, trail through the woods. Today's Brookliners are privileged to be surrounded by that abundant history. In terms of planning, historic structures and sites should be considered an integral part of the community's environmental resources for, like other resources of this nature, they are non-renewable. Preservation opportunities that are passed by today may never be available again.

Historic sites are found throughout Town, although the main concentration is in the Town Center/Main Street area. Historic sites in this area include, but are not limited to: Daniels Academy Building (Town Hall), Brookline Train Station, churches, old post office, historic homes along Main Street, and one of the four old cemeteries within Town, the locations of which are briefly described below.

### Picture VI

*The Brookline Train Station, built in late 1800s is located at the corner of Bond Street and Route 13.*

Four old cemeteries exist within Town: the Pond Cemetery (west cemetery) on the west side of Lake Potanipo, and shown on page III-17; the South Cemetery on Main Street; the North Cemetery on the west side of Route 13; and the Cemetery-in-the-Woods, located south of Rocky Pond Road, which dates to at least 1752. Even as early as 1914, as documented in the History of Brookline, there was concern over protecting these historic cemeteries.

## Community Attitudes

Both the 1985 Community Attitude Survey and the 1989 Master Plan Survey showed strong community support for addressing historic resource preservation. In 1985, there was response in favor of historic preservation within Brookline. The voter's subsequent rejection of the creation of a formal historic district zone proved that involuntary restrictive regulation was not acceptable at that time. Protection of historic resources is clearly an important priority supported by the Town residents. This was shown again in the 1989 Master Plan survey when two-thirds of the respondents either "strongly agreed" or "agreed" that the Town should take public actions to preserve and protect historic homes, buildings and other sites.

Historic preservation was not an issue identified at the Brookline Community Profile, but that does not necessarily reflect the general sentiment among Town residents.

21.

## **Historic Inventory**

Although a variety of different sites and structures were specified by many respondents of the survey, defining an exhaustive list of what is or is not of historical importance cannot be done until there has been a comprehensive historic inventory conducted throughout the Town. An inventory should ideally document all structures, sites, events, trails, and cemeteries having any cultural or historical significance to the Town. The list should include, but not be limited to: mill dams, "Cemetery in the Woods", the Stone House, Devil's Den, Bear's Den and stone walls and other structural remnants.

### Picture VI

*Stone walls and cemeteries are valuable historic resources that should be preserved.*

Once the inventory has been completed, setting boundaries for an Historic District and the drafting of necessary ordinances and regulations, or protection of individual historic sites within the town can begin. Interpretation of the historic inventory results by the Brookline historical society, Planning Board, and other assisting officials will govern where the District boundaries will be, or what individual sites will be protected. Inventory findings will also have an effect on the type of regulations and ordinances if any, that will be necessary to adequately protect the historical nature of a District.

Brookline is fortunate to have an existing historical society. This group along with other Town Boards and the interested public, can begin to organize the necessary tasks involved in protecting the town's cultural resources while there is still time.

## **National Register of Historic Places**

The National Register of Historic Places is the official list of the Nation's resources worthy of preservation. The Register lists properties of local, state, and/or national significance in the areas of American history, architecture, archaeology, engineering, and culture. Resources may be nominated individually, or in groups, as districts or as multiple resource areas and must generally be older than 50 years. Listing in the register does not interfere with a property owner's right to alter, manage, dispose of or even demolish his property unless for some reason Federal funds are involved. Nor does National Register listing require that an owner open his property to the public. Although eighteen individual buildings or sites and four districts in the Nashua Regional Planning Commission (NRPC) region are listed on the Register, none are in Brookline.

## **Historic Markers**

Originated by the NH Legislature in 1955, the aim of the Historical Marker Program is the erection of appropriate markers designating events, people and places of historical significance to the State of New Hampshire. Communities who would like to be considered for a marker submit a request for consideration by the State Highway Department and Division of Historical Resources. There is generally no cost involved for a marker on a state-maintained road, and a \$900 charge for a marker on a private road. Statewide, there are approximately 150 historical markers, few of these in NRPC communities. There are no markers of this type in Brookline.

## **Scenic Road Designations**

Brookline's country roads constitute an important local resource and to date several have been locally designated as scenic roads. Such designation enables a community to preserve the rural environs around its historic structures and stimulates pride in, and respect for, the existing landscape. Two roads in Town, North Mason and Averill Roads, have been designated as scenic roads. The Transportation Chapter recommends continuing to utilize the N.H. Scenic Road Law to preserve the Town's rural character by identifying and targeting roads, especially those currently classified as Class IV, which possess natural characteristics worth preserving.

## **CONCLUSIONS**

Considerable natural and cultural resources currently exist within the Town of Brookline. Those types of resources considered worthy of additional protection efforts include steep slopes, poorer soils, wetlands, aquifers, any existing agricultural uses, and cultural features. The needed protection of these resources can come from developing and/or updating wetland, aquifer, and historic district ordinances; subdivision regulation amendments to address steep slopes and poorer soils; and seeking additional professional consultation (NRCS, hydrologist, botanist, etc.) when there is a question concerning the impacts of development on a particular resource.

## **GENERAL RECOMMENDATIONS**

### **Slopes**

The Town should:

1. Establish a policy to acquire scenic vista property, or an access easement thereto, as those lands become available.

The Planning Board should:

2. Seek to ensure where possible the preservation of access to scenic vistas in new subdivisions.
3. Ensure that proper safeguards are applied to steep sloped sites to minimize hazards to downslope properties, and these safeguards usually mean costly engineering and landscaping solutions. For these reasons, active use of steep slope sites should be avoided wherever possible, or approached with extreme caution and subjected to a thorough review of the safeguards to be employed. If possible, the Planning Board and Town should consider preserving such areas as open space.
4. Amend the subdivision regulations by including soil erosion and sedimentation control provisions as has already been done in the non-residential site plan review regulations and the excavation site plan review regulations.

## **Soils**

The Planning Board should:

1. Replace the requirement for a High Intensity Soil Survey with the Order 1 mapping standards recommended by the Natural Resource Conservation Service.

## **Wetlands**

The Town should:

1. Encourage the development of school and public environmental education programs that utilize the outdoors as natural classrooms, especially at the elementary school currently being planned.
2. Gain better control of environmentally important areas, through conservation easements, deed restrictions and purchase of development rights of land.

The Conservation Commission should:

3. Re-examine the wetlands ordinance every few years to determine its effectiveness and make improvements, if necessary.

## **Floodplains**

1. Brookline should attempt to use floodplains as recreational land/open space.

## **Aquifers**

The Conservation Commission should:

1. Review the Aquifer Protection Ordinance every few years to determine its effectiveness and make improvements, if necessary.

The Town should:

2. Continue exploring methods to reduce salt on Town roads, especially near watersheds.

## **Open space/Easements**

The Conservation Commission should:

1. Develop maps showing the location of its acquired open space and easement throughout town and publicize its availability. This map should also show future sites which will be targeted for acquisition or easement.
2. Seek to connect greenways and wildlife corridors where possible.

## **Conservation and Preservation**

The Town, Planning Board, and Conservation Commission should:

1. Continue to monitor changes to the N.H. Shoreland Protection Act to ensure the continued protection of its two major lakes--Lake Potanipo and Melendy Pond.
2. Identify and sell small town-owned parcels of land which offer marginal public benefit and use the revenue to purchase land that will meet a top-priority need of the Town and its residents.

The Conservation Commission should:

3. Prepare a Conservation Plan as allowed under RSA 36-A.
4. Consider hosting a public forum such as the Community Profile sponsored by the University of New Hampshire Cooperative Extension to seek public input on and assistance with conservation planning and implementation.

## **Historic Resources**

The Historical Society should:

1. Prepare a historic resources inventory of Brookline.
2. Encourage owners of eligible structures to seek National Register listing.

The Town Boards should:

3. Promote the upgrading, preservation, and protection of the Town cemeteries, and other historical resources.
4. Encourage the establishment of additional scenic roads.

The Planning Board should:

5. Continue the practice of naming new roads with names of significant local natural features or historical significance (such as Conneck, McIntosh, Captain Seaver, Captain Douglass, Shattuck, Parker) approved by the Historical Society.
6. Include historic resource preservation as a priority when possible in ordinance and regulation.