Section 3 - Community Setting

A. Regional Context

1. Location and Physical Context

Hanover is located in the coastal region of southeastern Massachusetts, within the watershed of the North River. The Town is bordered by Norwell on the north and east, Pembroke and Hanson on the south, and Rockland on the west and northwest, and is located approximately 17 miles north of Plymouth and 23 miles southeast of Boston. The Indian Head and North Rivers form the southern town line with the Towns of Hanson and Pembroke, while the Third Herring Brook serves as the eastern boundary between Hanover and Norwell.

Hanover occupies 15.72 square miles, making it one of the smaller towns in Plymouth County. Located within 25 miles of Boston, many residents commute to the city for work. Expansion of metropolitan Boston southeastward along the "South Shore" has been rapid since 1940, when towns consisted of small centers with a business zone along the principal road network. Figure 3-1 illustrates the Hanover region. This trend towards "suburban sprawl" and the resultant increase in population has also increased the demand for water, while the amount of land available for water supply has decreased to the point where many local water agencies are having difficulty in locating and developing additional water supplies.[1]

Four State highways travel through Hanover: Routes 3, 53, 123 and 139. Route 3, a limited access highway traveling north-south, traverses the northeastern corner of town and provides easy access to both Cape Cod and the Boston metropolitan area. Route 53 (also known as Washington and Columbia Streets) intersects with Route 3 in the northeastern section of town, and extends in a southeasterly direction in the eastern quadrant of the Town. The entire length of Route 53 in Hanover is commercially zoned, with the exception of the southerly portion, which is business zoned. Historically, most of the Town's commercial development has occurred in the Route 3 interchange area, including the Hanover Mall. Most of the existing commercial development has been designed and developed as "strip malls," with numerous driveways onto Route 53, buildings set back and the majority of parking located in front of the buildings.

Route 139 (also known as Rockland and Hanover Streets) travels in an east-west direction through the mid-section of Town. Small areas along the roadway in West Hanover are presently business zoned, as is the area in the vicinity of the Route 53/139 intersection. The remainder of the roadway is currently zoned residential.

Route 123 runs in an east-west direction through the northern portion of Hanover. Most of the roadway is residentially zoned except for the areas adjacent to Route 3 and at the junction of Route 53, which are zoned light industrial and commercial, respectively.

[1] Williams, John R. and Gary D. Tasker. 1974. Water Resources of the Coastal Drainage Basins of Southeastern Massachusetts, Weir River, Hingham to Jones River, Kingston. United States Geological Survey.

Figure 3-1: Regional Location

2. Water Supply

Hanover has four existing water supply areas, with nine wells (see Table 3-1 and Figure 3-2). According to Hanover's Department of Public Works, in 1995 the total average flow for these nine wells was 1.2 million gallons per day (gpd), with a total peak flow of 2.6 million gpd.

The Pond Street Well area is situated at the southerly end of Old Pond Meadow Swamp and borders the Third Herring and Silver Brooks. The land is predominately wetland and, during periods of excessive rainfall or rapid thaw, the area is subject to flooding. The Hanover Street Well area is located approximately 4,000 feet south and 30 feet higher in elevation than the Pond Street Well area. Again, the land is characterized as a wetland. Although testing has shown that the bedrock or ledge rises to the west and north, no connection has been found between the groundwater at Hanover Street and Pond Street. The area of surface runoff to the Hanover Street wells is insufficient, however, to provide the amount of groundwater being pumped annually. This discrepancy suggests that there is an intrusion into the small aquifer from a substantial yet unidentified groundwater source. The Broadway Well Area lies approximately 3,600 feet south of the Hanover Street Well area. The land, formerly an active cranberry bog, is characterized by high water yield. The area of surface runoff to these wells is insufficient to provide the amount of water being pumped, indicating an intrusion from another groundwater supply beyond the surficial watershed area.[2] The Riverside Drive well area is located at the southeastern corner of the Town in a wetland area to the north of the intersection of Indian Head and North Rivers, and is believed to be the first bedrock well in Massachusetts.

Table 3-1
Existing Wells in Hanover

LOCATION	WELL	YEAR INSTALLED	CAPACITY (gpd)	CONTAMINATION/ POLLUTION ISSUES?	TREATMENT
Pond Street	1	1943	432,000	Yes	Yes
	2	1973	936,000	Yes	Yes
	3	1973	1,152,000	Yes	Yes
Broadway	1	1964	288,000	No	No
	2	1964	360,000	No	Yes
Hanover Street	1	1960	260,000	No	Yes
	2	1960	317,000	No	Yes
Riverside Drive	1	1995	142,000	No	Yes
	2	1995	682,000	No	Yes

Source: Town of Hanover Department of Public Works (1996).

Three well protection zones are incorporated into the Town zoning. These three zones correspond to the Pond Street, Hanover Street, and Broadway Street well areas and are also located within the Aquifer Protection Zone. The Broadway Street well protection zone is the largest of the three zones with an approximate area of 129 acres. The Hanover and Pond Street

[2] Town of Hanover. 1979. Hanover Open Space Plan. Hanover, Massachusetts.

Figure 3-2: Water Resources

wells are approximately 73 and 90 acres respectively. To date, a well protection zone has not been established for the Riverside Drive well area; however, a new zone may be brought before the 1997 town meeting. Changes to the existing zones may also be brought forward at this meeting in response to the DEP - Zone II delineations.

The Town also has plans to install two additional wells off Center Street in the future. These two proposed bedrock well sites are expected to have a capacity of 0.4 million gallons per day (gpd). Three additional bedrock well sites are also proposed on the Pine Island site located off Plain Street, with an anticipated capacity of 1.4 million gpd. Hanover is fortunate to be rich in water resources. According to the Department of Public Works, there are several additional areas that could be considered for future water supply. Also, wells that are not presently treated, if treated in the future, could yield additional water flows.

3. Scenic Resources

Scenic resources need not be a specific view or location, but may be a combination of features that come together to create an aesthetically pleasing situation, such as a tree lined street, a rolling meadow, a hilltop, or an old farmhouse. The following were identified as treasured scenic resources by the participants in the Open Space public forum *(see also Section 4.(E.) and Figure 4-2)*:

- Four Corners
- Stetson House
- Briggs Stable
- Sylvester Field
- Cervelli's Farm
- Broadway
- Factory Pond with Island
- Luddams Ford and abandoned railroad bed along the River
- North River Stone Bridge

The Scenic Roads Act (M.G.L. chapter 40, section 15C) allows a municipality to designate any non-numbered route or state highway as a "scenic road". Once designated, any proposed repair, maintenance, reconstruction or paving work that involves the cutting of trees or destruction of stone walls needs prior approval of the Planning Board. Designating a road as scenic will allow for the preservation of existing rural and natural aesthetic qualities, and thereby contribute to the overall rural character of a community. The Town of Hanover has designated the following roads as Scenic Roads *(see Figure 4-2)*:

- Main Street
- Silver Street
- Center Street
- Broadway Street
- Whiting Street
- Union Street
- Washington Street *(from the bridge into Pembroke to Route 53)*

4. Regional Cooperation and Alliances

a. Metropolitan Area Planning Council

The Metropolitan Area Planning Council (MAPC),which include 101 cities and towns in and around the Boston area, includes Hanover in its area boundaries. The MAPC is most well known for the publication of MetroPlan 2000, a master plan for Boston and the surrounding metro area. Because the MAPC region is so large, the South Shore sub-region representative, Sally Veccio, was contacted to determine what sort of activities the Council supports within the Hanover area. The most immediate item the council would like to focus on concerns a proposal to identify and inventory sensitive resources, both coastal and inland, including areas which are of special preservation interest. After the inventory, MAPC hopes to continue planning for the region by supporting the creation of a regional plan which will enable the area to access moneys recently made available by the Open Space Bond Bill for the acquisition and preservation of open space.[3] The MAPC regional development plan for the Metropolitan Boston area, adopted in May 1991, listed Land Resources Protection as a major planning area. The concept presented in MetroPlan 2000 was to preserve "Metrogreen"; all of the land area which contributes to the environmental health of the metropolitan region, including supplying the "community with clean water, flood protection, recreation, natural beauty and a sense of place or local character." The concept of Metrogreen is consistent with the Olmsted Brothers Emerald Necklace and the Bay Circuit Program, all of which work towards the same goal of a regional network of open spaces, that are accessible to the regional community. Hanover is coordinating with its neighbors to preserve, protect and maintain the resources of the region. Where possible, open space acquisition will be linked to provide continuous, inter-community land preservation and resource protection.

b. Massachusetts Bay Transportation Authority

Hanover is also part of the 78 member collection of towns and cities within the Massachusetts Bay Transportation Authority (MBTA) Service Area. The MBTA has no direct service in the town of Hanover, and bus service for the area is put out for contract to local bus companies. However, as part of the 78 member service district Hanover still pays an assessment to support MBTA services. The 1996 figures show that Hanover will pay $270,789 for the fiscal year. Representative Frank Hynes recently headed a Special Commission on Financing of the MBTA to investigate financing issues including the continued payment of assessments to the MBTA which do not reflect the degree of service. The Commission's report proposes the revaluation the assessment systems including the elimination of assessments paid by the 21 fringe communities which receive no service. The Commission recognizes the need for a more equitable method of dividing MBTA service costs among local governments ; however, the report does not include a plan outlining the reduction of assessments to communities which do not receive a comparable degree of service.

[3] Telephone conversation with Sally Veccio, representative for the South-Shore sub-region of MAPC, March 26, 1996.

c. Plymouth County Conservation District

The Plymouth County Conservation District (PCCD) is a non-profit organization funded through its own fundraising initiatives. Located in West Wareham, PCCD provides technical assistance to private landowners and communities within Plymouth County. This assistance primarily relates to agricultural issues, especially cranberries due to their predominance in southeastern Massachusetts. PCCD serves as a liaison between private landowners and government agencies such as the US Department of Agriculture and Coastal Zone Management (CZM).

d. South Shore Natural Science Center

The South Shore Natural Science Center (SSNSC) is an independent, non-profit organization, whose primary mission is *"environmental education designed to encourage people of all ages to appreciate and understand the environment and man's historic and continuing interrelationship with it and to educate people to make responsible decisions regarding the conservation, preservation, and use of natural resources."*[4] The SSNSC, which was founded in 1962, is located on 30 acres of conservation, historic and recreation land in the Town of Norwell. It utilizes its land, which it has gained through donations, to offer a variety of educational programs for both children and adults. Programs offered by the Center include Summer Day Camps; Earth Day festivities; and informative trail walks.

The SSNSC owns the following parcels in Hanover:

Melody Woods - A 45 acre parcel divided by Pleasant Street, abutting the Colby-Phillips site. There are two trails, a climax beech forest, white cedar swamps, holly stands and vernal pools.

Tedeschi Sanctuary - A 17 acre parcel of wetlands and upland located within the Well Protection Zone off Twin Fawn Drive.

Hackets Pond - Several wooded acres between Country Way and Hackets Pond.

The Trustees are in the process of developing trails at Melody Woods and evaluating the Tedeschi Sanctuary and Hackets Pond properties.[5]

e. Plymouth County Wildlands Trust

The Plymouth County Wildlands Trust (PCWT) is a non-profit, private land trust organized in 1973 which works to preserve land within southeastern Massachusetts. The Trust which has a 21 member Board of Directors, 18 member Board of Advisors and 4 staff members, has acquired approximately 2,000 acres of land for protection within the southeast region. PCWT, which is proposing to change its name to The Wildlands Trust of Southeastern Massachusetts to better represent the extent of PCWT's influence, has recently undertaken a new initiative called "Saving the Special Places of Southeastern Massachusetts," in order to protect lands before they are marked for development as a result of the Route 44 improvements and the extension of the commuter rail. This plan corresponds with the concepts set forth in the Trust's mission

[4] Information packet from South Shore Natural Science Center received April 30, 1996.

[5] Telephone conversation with Martha Twigg, Director of the North Shore Natural Science Center, May 1, 1996.

statement which include: *"to acquire and protect lands in a natural state...; to educate the public about the importance of land conservation; to advance the study and conservation of native flora and fauna; to promote cooperation with those who share PCWT's goals; and to encourage prudent public policy toward land."*

PCWT owns the 33.4 acre Melzar Hatch Reservation along Bailey's and Longwater Brooks in Hanover, and according to Ken Kirkey, PCWT's Land Protection Specialist, the Trust is in the process of looking at other parcels of land in the town for protection purposes. Recently the Trust approached the Hanover Conservation Commission to discuss the purchase of additional land in Hanover. The Trust is willing to work in conjunction with citizens or local agencies to promote the preservation of land.

f. North South Rivers Watershed Association

The North and South Rivers Watershed Association, Inc. is a non-profit organization that is engaged in the preservation, restoration, maintenance, and conservation of the natural resources of the North and South Rivers. The NSRWA is also involved in organizing educational programs to raise interest and awareness about the local waterways within the North River Watershed. The Town of Hanover works closely with the NSRWA in their various efforts to clean up the river, promote river awareness, promote recreational activities and public access. The organization serves both as a coordinator of activities and an environmental watchdog. Activities undertaken by the Association, through its volunteer members, include coordinating guided tours, recreational trips, and bird watching walks. Watchdog functions include water quality monitoring programs and fish population studies.

Hanover is one of the only towns entirely within the North River Watershed and all three of the Town's drainage areas eventually flow together to form the headwaters of the North River. Due to Hanover's significance to the North River Watershed, the North and South Rivers Watershed Association, Inc. is particularly active in Town. Recently, the Town and the NSRWA jointly received a grant from the State which will allow enhancements of conservation land along the river. Other projects in which the NSRWA is involved includes: coordinating with the Public Access Board for the Commonwealth to improve the Indian Head Canoe Launch, a citizen water quality testing program which includes 25 sites active over the last six years; pursuing a grant to improve the fishways within Hanover which will include building fish ladders, conducting fish population studies in conjunction with the Division of Marine Fisheries; and actively supporting an Indian Head River Greenway Project along the abandoned rail bed near the Indian Head River.[6]

g. Massachusetts Bays Program

The Massachusetts Bays Program (MBP) was launched in 1988 to actively address the mounting environmental threats to the health of Massachusetts and Cape Cod Bays. That same year an amendment to the Clean Water Act was passed which gave priority consideration to Massachusetts and Cape Cod Bays to become part of the National Estuary Program. Hanover is located within the South Shore sub-region of the Massachusetts Bay region. Other towns in this

[6] Telephone conversation with Debbie Lenahan, Executive Director of the North and South Rivers Association, Inc., February 26, 1996.

sub-region are: Plymouth, Kingston, Duxbury, Marshfield, Norwell, Pembroke, Scituate, Cohasset, Hull, Hingham, and Weymouth.[7]

h. *North River Commission*

The North River Commission was established to administer the provision of the Federal Scenic and Recreational River Protection Order for the North River. Among other things, the NRC reviews and regulates activities that take place within the river corridor which extends 300 feet from either side of the River. The NRC is comprised of representatives of all the towns through which the North River flows, including Hanover. The NRC provides an official link between the NSRWA and the Town of Hanover, particularly the Conservation Commission.[8]

B. History of the Community[9]

1. Early Settlement

The land area which comprises the present Town of Hanover is bounded by the North River, extending to the Indian Head and Drinkwater Rivers on the south, and the Third Herring Brook which forms the natural border to the east. Numerous small brooks feed these streams. These natural waterways are among the town's greatest natural resources. Prior to 1649, the area served as hunting and fishing grounds for the local Indians whose permanent villages were located around the ponds in Hanson and Halifax.

In the early 1600s, woodlands comprised 90% of Hanover's land area. Oak, upland and swamp cedar, elm, hornbeam, hickory, birch, sassafras, maple, poplar, beech, hemlock, spruce, cedar, and pine, were commonly found in the woodlands. Wildlife such as deer, wildcat, bear and wolves, as well as smaller woodland animals and birds, were found throughout the woodlands in the days of early settlement. Deer were protected by law in Hanover as early as 1739. Swampland and salt marshes occupied a sizable portion of the natural acreage. A granite boulder in North Hanover, known as Absolum's Rock, is said to be the largest free-standing boulder in Plymouth County.

Hanover's abundance of large oak trees and its proximity to the North River made the Town desirable to the shipbuilding industry. In 1649, William Barstow, the first settler, came to Hanover and built his house in the area now called "Four Corners". He was a carpenter or shipwright by trade, and used the river and natural oak to begin a shipyard on the banks of the North River. He later constructed the first bridge across the river and laid out the way from the river to Hugh's Cross and beyond "towards the bay so as to avoid Rocky Hill and the Swamp" (Colony Records 3 pg. 78). Later he operated an ordinary (tavern) where refreshments were sold to travelers.

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[7] Massachusetts Bays 1995 Comprehensive Conservation and Management Plan (Draft Final Plan). December 1995. Massachusetts Bays Program, U.S. Environmental Protection Agency, Massachusetts Executive Office of Environmental Affairs.

[8] Ibid.

[9] Town of Hanover. 1979. Hanover Open Space Plan. Hanover, Massachusetts.

Other settlers soon followed Mr. Barstow. They cleared the woodlands for their farms and pastures, and built sturdy structures to house their families. Approximately one hundred of these 18th century houses still exist today. These settlers continued the trade of shipbuilding, while others constructed small mills on the streams for grinding corn, sawing wood, and smelting iron nuggets from the town's various bogs.

According to a town historian, the town had a population of approximately 300 people at the time of its incorporation in June 1727. However, nearly 1/6 of these people lived in a part later annexed to Pembroke. The town continued to grow slowly from a population of 958 in 1800 to 1,303 in 1830. Most citizens built homes and operated small farms to accommodate the needs of their families. Tracts of swamp cedar provided wood for post rails and tubs. Several hundred cord of pine was carted annually to Hingham for the use of the coopers to be made into the now famous Hingham buckets. Later, pine was used in the manufacture of boxes in town while both cedar and pine shingles were sawed at the Shingle Mill in North Hanover. By 1850 the population had increased to 1,592 and much of the land was cleared and the large timber gone.

From 1896 to 1904 the Town was served by Firewards. In the event of a fire, the Firewards would ring church bells to alert volunteers, who would then line up in bucket brigades. Hanover's first Fire Department was established in 1904. The Town's library was built in 1906 with $15,000 donated by John Curtis.

2. Industry

Iron works were an early industry in Hanover. One forge was located near the Luddam's Ford site (now conservation land) and another on the Drinkwater site (also near conservation land). Anchors, oven doors, cannon, cannon balls, bells, and machinery were cast in the forges of Hanover. Amongst the items forged in Hanover was the original anchor to the "Old Ironsides," the U.S.S. Constitution. The manufacturing of nails and tacks also flourished in Hanover.

Many of the people in North Hanover were engaged in the cottage industry of shoe manufacturing. Typically, families operated small shops on their property where shoes in various stages were passed to various neighborhood families to be completed. Later, larger factories were established. Studley's on Main Street and Blanchard's at Assinippi were the Town's largest manufacturers of shoes and boots in 1860. From 1860 to 1880, the shoe business flourished, and ultimately there were approximately 10 shoe factories located in Hanover. In 1875 the value of the products manufactured within Hanover was approximately $200,000.

In 1875 the Clapp Rubber Mill, located near the Luddam's Ford site, began its business of grinding and cleaning ground rubber. While such an industry provided employment for many in town, it most likely also contributed towards the pollution of the river. Other industries included: The E. Phillips & Sons, The Waterman Tack Factories, The Goodrich Shoe Factory, Clark's National Fireworks Factory and The Lot Philips Box Mill.

In 1900 the population of Hanover was 2,152 and most households in Hanover still consisted of small subsistence farms. Most still heated with wood cut from their property or purchased locally, but coal was also being used.

3. Transportation

From 1864 to 1938, the Hanover Branch Railroad, which followed the river bank, provided convenient transportation from the Four Corners area through South Hanover to West Hanover and on to Rockland, Abington, and Boston. Presently, freight service is still available from Four Corners to West Hanover, but farther south the tracks have been taken up and the railroad bed has become a quiet woodland path, some of it conservation land.

From 1893 to 1921, a trolley ran through North Hanover with a spur to Assinippi. The trolley provided transportation for many workers, as well as for vacationers heading to Nantasket in the summer. From 1927 to 1958, land was cleared for an airport in West Hanover (on the present site of the Indian Head Housing Development). The first paved road in Hanover went from the North River to the end of Rockland Street. In 1930, construction of Route 53 began.

4. Cultural

There are many historical and cultural opportunities in Hanover. The Civil War Monument, a granite obelisk, designed by J. Williams Beal in 1878 at the age of 23 just after his graduation from Massachusetts Technological Institute, is located in the Town's Center. The Hanover Cemetery, with earliest burials from 1727, contains a large number of early slate markers concentrated behind the church, and provides a back drop to the historic center along the north side of the district. Nearby Quincy features the homes, birthplaces and tombs of Presidents John Adams and John Quincy Adams.[10] Plymouth Rock, a replica of the ship Mayflower and Plimouth Village are a half hour away.

Religious organizations and events often contribute to a community's cultural fabric. The first church in Hanover was Episcopalian, and the second was the First Congregational Church, known then as the Orthodox Church. The first catholic church was built in 1897, and the church's priest also served the towns of Hanson, Pembroke, Holbrook, Halifax and Plympton. Today there are five religious denominations with churches in Hanover.

5. Historic Resources

a. Historic Buildings

Samuel "Drummer" Stetson built the Stetson House, near Hanover Town Hall, in the early 1700's. Town Meetings and religious services were held in the house during its early years, and since 1979 the house has been listed on the National Register of Historic Places. The house is now owned by the town and is open for public tours under the direction of the Town appointed overseers. A citizens group, Friends of Stetson House Inc., and others aid in the preservation and upkeep of the property.[11]

The historic "Line House" in the Assinippi section of Hanover which straddles the Hanover and Norwell town line. The house originally served as the Post Office and Selectmen's Office for Hanover, but since these offices were in the Norwell section of the building it was deemed to be illegal to conduct Hanover town business in another town. Renaming the area where the house was

[10] 1996 Street Map and Guide. Hanover Chamber of Commerce.
[11] Ibid.

located as "neutral territory" with the name Assinippi solved the dilemma. This Indian name translates to "rushing clear water" or "rocks over water" and commemorates a nearby Indian Meeting Ground on Third Herring Brook. This same are was also the crossroads of two Indian Trails: Plymouth Path and Bay Path.[12] A complete list of historic structures in Hanover is located in Section 4.

b. Historic District

In late 1995, Massachusetts Historical Commission voted to nominate Hanover Center to the National Register of Historic Places (NRHP). On May 9, 1996, the district was approved by the NRHP and became a National Register District. The district is comprised of twenty properties in Hanover's town center *(see Figure 4-2).* The district contains a well preserved grouping of buildings and sites, reflecting the historical and developmental core of the community. These buildings range in date from the Stetson House, circa 1716 to the Sylvester School, circa 1927. Other buildings within the proposed district include the First Congregational Church, the founding body of the town; the parsonage of the church, circa 1855, from the Greek Revival period; the Town Hall designed by architect Luther Briggs II in 1863, and expanded in 1893 by well-known local architect J. Williams Beal; and the John Curtis Library designed by another Hanover architect, Edmund Q. Sylvester.

The Civil War Monument, a granite obelisk, designed by J. Williams Beal in 1878 at the age of 23 just after his graduation from Massachusetts Technological Institute, is located in the center of the cluster of buildings. The Hanover Cemetery, with earliest burials from 1727, contains a large number of early slate markers concentrated behind the church, and provides a back drop to the historic center along the north side of the district.

Listing of the Hanover Center Historic District provides recognition of the community's historic importance and assures protective review of projects that might adversely affect the character of the district. Listing in the National Register does not mean that limitations will be placed on the properties by the Federal government. In Massachusetts, properties nominated to the National Register are automatically listed in the State Register of Historical Places. State Register properties owned by municipalities and nonprofit organizations may compete for state restoration

C. Population Characteristics

Hanover's population began to increase rapidly after World War II, and businesses flourished along Route 53. In 1948, zoning laws were instituted. In 1950, the Town's population was 3,389 and several large farms and woodland areas were targeted for development. Three large housing developments were built in West Hanover, in the Walnut Hill area, and the Indian Head development on the former airport site. By 1960, the population had nearly doubled to 5,923.

[12] 1996 Street Map and Guide. Hanover Chamber of Commerce.

The period from 1950 to 1970 was a time of significant population, residential, and business growth. By 1950, many of the cleared fields which had reverted to woodlands were cleared once more for housing and business development. Route 3 was constructed across the northeast corner of the town, making Hanover more accessible to Boston by automobile. Many town citizens chose to commute to the metropolitan area. Between 1950 and 1970, Hanover's population grew dramatically, from 3,389 to 10,107 people.[13] Hanover's population trends since 1930 are detailed in Table 3-2.

Table 3-2
Historic Population Trends
1930 - 1996

Year	Population	Percent Change
1996	12,608	5.84%
1990	11,912	4.88%
1980	11,358	12.38%
1970	10,107	70.64%
1960	5,923	74.77%
1950	3,389	17.88%
1940	2,875	2.39%
1930	2,808	----

Source: Metropolitan Area Planning Council, Data Center; Hanover Town Clerk - 1996 Annual Census

According to the 1990 US Census, Hanover's population was comprised of 11,912 people living in 3,742 households. Average household size was 3.14 people, with a median (household) income of $54,759. Approximately 32% of Hanover's population was between the age of 25-44 years, with approximately 27% of the population under 18 years of age. The median age was 34.06 years.

A Population Study prepared by the Hanover Planning Board in 1993 projected growth over the next three decades. The following excerpt from this report offers a sense of the likely implications of growth:

> Currently, a large segment of those moving into Hanover are young families in the 30-39 age group, bringing with them pre-school or primary school age children . . . This has significant implications for Hanover's tax base. The average assessed valuation in Hanover is approximately $200,000 and the tax rate is $13.79 per $1,000 valuation (note: 1996 tax rate is $14.66 per $1,000 valuation) . . . Thus, the average residential tax bill is $2,758. Many of the new homes in Hanover, however, are in the $250,000 to $300,000 range. The $300,000 home[owner will] pay $4,137 in taxes annually. In contrast, the average annual cost to school a pupil in Hanover is close [to] $5,000 . . .

While growth has been more incremental last two decades than in previous years, and only moderate growth is projected over the next 30 years, overall impact to the community will be great. It is projected that the population will increase by 30% by the year 2020, which will dramatically

[13] Town of Hanover. 1993. Population Study Town of Hanover Analysis and Projections 1970 to 2020. Hanover Planning Board, Hanover, Massachusetts.

increase the need for town services and reduce the amount of open land available for passive and active recreation. More specifically, water, solid waste, fire/police protection, roads and schools are the community services that are most likely to be strained by future growth. Additionally, it is projected that the average age of Hanover's residents will increase, resulting in the need for additional elder services.

D. Growth and Development Patterns

1. Population Density

Due to Hanover's desirable location on the "South Shore" and its proximity to Boston, large numbers of up-scale professional people who work in Boston or along Route 128 have moved to Hanover. As a result, there has been a significant in increase in property values and population. A majority of Hanover's growth actually occurred between 1950 and 1970, when Hanover's population increased by almost 200%. This dramatic increase was due in part to the construction of Route 3 in 1959-60, which resulted in convenient vehicular access to Boston, Cape Cod and other popular destinations. Another factor was the trend towards suburbanization. Although development has slowed since the 1970's, new construction continues to result in the loss of valuable open space and recreation land.

Table 3-3
Population Density Trends

Year	People Per Square Mile	Percent Change
1990	763.1	4.88%
1980	727.6	12.37%
1970	647.5	70.66%
1960	379.4	74.76%
1950	217.1	17.86%
1940	184.2	----

Source: Metropolitan Area Planning Council, Data Center

2. Residential Development

Residential development is widely distributed through Hanover, with a majority occurring in the southern half of town. This is expected due to the fact that Hanover Center is located in the lower half of town. Historically, residences around a town center are older and therefore, in keeping with the times, occur at a higher density than those built today.

According to the 1996 Buildout Analysis, over 1,700 acres of land is classified as vacant residential (developable or potentially developable) in Hanover. This translates to a potential for approximately 1,350 residential lots, given existing zoning, at some time in the future. "Non-developable" land represents a potential for 139 additional lots, if buildable. Smaller improved residential parcels (less than 3 acres) are not critical to the analysis since it is unlikely that many these parcels will support either subdivisions or Approval Not Required (ANR) lots.

Larger improved residential parcels of greater than three acres totals just over 1,000 acres in Hanover. These parcels are distributed generally in the north part of town. It is estimated that the development of these lots could add approximately 950 additional housing units within the Town in the future.

3. Commercial Development

Hanover's commercial development has occurred primarily along Route 53, with the highest density occurring in the vicinity of the Route 3 interchange. Commercial development has also occurred on Rockland Street (Route 139) near the Route 139/Route 53 intersection. Small clusters of commercial development are also found in the Four Corners area and in West Hanover.

Vacant commercial properties are located primarily along Hanover Street (Route 139) and Washington Street (Route 53). In all, there are approximately 270 acres of vacant commercial land. Given one-acre lots, this land could be expected to yield another 160 or so lots. The Buildout Analysis applied an estimate of 5,800 gross square feet per acre (13.3%) for commercial land in Hanover, therefore the Town has the potential to attract an additional 928,000 sf of commercial space. These numbers can be directly applied to determine the tax benefit to Hanover by utilizing comparable per square foot values.

4. Industrial Development

Industrial zones are generally located within the southwest quadrant of town in the Fireworks District between King and Winter Streets, as well as along the rail spur just south of Route 139. There are also several scattered small industrial parcels located throughout town.

Approximately 144 acres of vacant industrial land remains in Hanover with an estimated buildout of 79 one-acre lots. However, this figure may be high as many industrial users require greater than one acre. Much of the available vacant land is located in the recently subdivided Factory Pond Road subdivision (17 lots totaling 62.4 acres with lots ranging from one to 11 acres). Brockton Edison owns other parcels that may never be developed (7 parcels totaling 28.2 acres and ranging from 0.1 to 18 acres). If these factors are applied, a total of only 28 new lots are possible. This assumes that Brockton Edison controls land that might otherwise support 17 potential lots and that the Factory Pond Road subdivision which contains 19 existing vacant lots will not be re-subdivided to larger lots. At 12,000 sf per buildable acre it is estimated that an additional million sf of industrial space could be anticipated in Hanover, as follows.

Potential in Factory Pond subdivision	675,000 sf
Potential on other vacant lots	280,000 sf

It should be noted that a significantly larger buildout could occur if all industrial properties were improved or expanded to the maximum allowed by regulation. Note that in the 1994 *Hanover Industrial Area Revitalization Study* the estimated industrial buildout was 3.5 million square feet.

E. Limitations to Development

1. Wetlands

The total surface area of Hanover is approximately 10,060 acres. Of this, approximately 70 acres are made up of open water, and another 2,000 acres are wetlands [Hanover soil study indicates 3,500 acres of land in town are wetlands, based on soil/drainage conditions], leaving approximately 7,390 acres of upland area (see Figure 3-3). Many acres of wetland are protected within town and private conservation lands. That wetland acreage not protected within conservation land is severely limited in its development potential. Wetlands contain soils and drainage conditions that are unsuitable to support development without major disturbance and filling of wetlands. Wetland areas are vital for protection of both surface and ground water quality, fisheries and wildlife habitat, and provide flood storage as well. The Wetlands Protection Act and regulations set forth in 310 CMR 10.00 pursuant to the Act protect these swamps, bogs, and wet meadows from development. Major wetland systems in Hanover include areas adjacent to the many brooks and streams found in Hanover and are scattered through the town. Significant systems are associated with Benn Mann Brook, Shingle Mill Brook, Drinkwater River, Cushing Brook, Longwater Brook, and Torrey Brook located in the western part of the Town. Of these systems, some of the larger wetland areas in the western part of town include Pine Island Swamp, Peg Swamp, Wampum Swamp and Beech Hill Swamp (the majority of which is located in the adjacent town of Rockland). Additional wetland areas are associated with Forge Pond, Factory Pond, Hackett Pond and Shingle Mill Pond located within the western part of the town. Within the eastern side of town, significant wetland areas are associated with Iron Mine Brook, Third Herring Brook, Silver Brook, as well as Mill Pond and Peterson Ponds. Significant wetlands within this portion of town include Hell Swamp, that portion of Old Pond Meadows within town limits, and a large, unnamed wetland located northeast of Twin Fawn Drive. Along the southern border of Hanover, there are wetlands associated with the Indian Head River.

Additional land that may be subject to the Wetlands Protection Act and more difficult, if not unsuitable, for development include historic gravel pits and the agricultural land utilized for cranberry bogs. There are at least three gravel pit areas and a sand pit with excavated low lying areas that collect water that may be subject to the act after mining activities are abandoned. Cranberry Bogs are located in several areas throughout the town which are also excavated wet areas that may be protected from development upon abandonment of agricultural use.

2. Land Adjacent to Rivers and Streams

The recently enacted Rivers Protection Act further restricts the development potential of land adjacent to rivers and streams, regardless of whether the land is upland or wetland. This Act will be of major importance to the Town of Hanover due to the number and distribution of rivers and streams throughout the town, but the degree of impact will not be realized until the Department of Environmental Protection implements regulations pursuant to the Act.

3. Ground Water Quality Protection

The locations of public water supplies and the need to protect the quality of the water supply also should restrict the development of certain areas in Hanover. Well Districts have been delineated by the Town and include districts 1, 2, and 3 all located along the eastern side of the Town.

Figure 3-3: Surface Water

Almost 25% of the town is within the Aquifer Protection Zone surrounding these wells. Potential development within this region of town should not include heavy industrial or manufacturing uses in order to protect water quality. Town regulations for the Water Resource Protection Districts reflect this by restricting uses to primarily open space, agriculture, and residential.

4. Topography

Although the majority of the Town is generally flat or gently sloping, the several areas of steeper slopes have restricted development potential, due to the expense of site preparation required for development. In general, these areas are found within the southern portion of the town. These areas include a hill located east of Columbia Road, west of River Road and South of East Street on the east-central side of town with 10-15% slopes, a hilly area in the center of the town between Main Street, Silver Street and Larchmont Lane with 10% slopes, a sloping area south of Hanover Street, north of Circuit Street and east of Plain Street that runs roughly parallel with Circuit Street with slopes of 15-20%, an area located east of Hillside Drive at Heritage Way with up to 30% slopes, and an area bounded roughly by Hanover, Washington, Rockland Street and extending south of Rockland Street in the southeast corner of town with slopes ranging from 15-25%.

5. Soils

Soils can also restrict the potential for development. Some soil types are not suitable for development. For example, because they are very poorly drained and have a high water table, some soils restrict the future development options for these parcels. This restriction often results from an inability to provide sewage disposal due to poor drainage and/or high water table. Other types occur on steep slopes (greater than 15%) or where bedrock is close to or at the surface. Based on "Soils and their Interpretations for Various Uses" prepared for the Town of Hanover under the direction of the USDA Soil Conservation Service, we can describe the general soil areas of the town and summarize the broad soil interpretations for a variety of uses, by grouping soil types into associations *(see Figure 4-1)*.

Almost 3,500 acres of the approximately 10,000 acres in Hanover have severe limitation for development due to poor drainage conditions. Widely distributed wetlands comprise a total of 2,000± acres of muck and peat swamps, poorly and very poorly drained soils. These conditions make development difficult and expensive due to drainage problems. Further, development is severely restricted by state and federal regulations design to protect these natural resources. An additional 15-20% of the town's acreage is made up of soils that may restrict uses due to slopes, and the presence of boulders and rocky conditions. In general, approximately 50-60% of the total acreage in the Town of Hanover has limitations for development that may prohibit development or increase the costs of development substantially. It should be noted, however, it is possible that lots which contain development constraints may also contain soils suitable for development (see Figure 4-1).

The Peat-Muck association of soils is the most restrictive of the general areas used to describe the soils in Hanover, and is located within the wetland areas. According to the USDA SCS Soils Interpretation, this soil association occupies 22± % of the town. This soil developed in organic materials and is underlain by mineral soils. The water table in these soils is at or near the surface

for most of the year, and as a result, areas with these soils have severe limitation for residential, commercial, and industrial uses because of drainage problems. In addition, this soil association cannot support foundations or footings.

Areas with Scarboro-Whitman-Ridgebury soil associations are poorly and very poorly drained soils in low-lying areas. This association is found in 15±% of the town's total acreage. The dominant soils are the very poorly drained Scarboro and Whitman and the poorly drained Ridgebury soils, all found in low lying areas adjacent to waterbodies and waterways and often adjacent to areas containing Peat-Muck soils, and/or receive runoff and seepage from adjacent sloping areas. The water table is at or near the surface most of the year in the Scarboro and Whitman Soils and approximately 7-9 months out of the year in the Ridgebury soils.

The Scarboro-Whitman-Ridgebury soils association is also restrictive to development planning due to the difficulty in draining the saturated soils. These areas are best suited to conservation and open space uses, as they are suitable for wetland wildlife habitat. Poorly drained soils (i.e. Ridgebury) can be used for pasture.

The Scituate-Essex association of soils is much less widely scattered throughout the town, and comprises about 6% of the total acreage. In general, this association is found in the south-western portion of town in the general area of the intersection of Myrtle and Center Streets; in several areas in the northern portion of the town-- near Walnut Hill, again near the intersections of Main and Webster Streets, and a third area between the Longmeadow and Shinglemill Rivers, north of Route 123.

The Scituate and Essex soils that comprise this association developed on glacial till. Hardpan occurs 18-30 inches below the surface, which is so compact that drainage is restricted. These soils occur on slopes with grades of 3-15%.

This association is the third most limiting of the general groups in Hanover. Due to the hardpan underlying surface soils, there is very slow permeability restricting all uses that use individual effluent disposal systems. The upper soils become saturated during periods of high rainfall, and flows laterally along hardpan, resulting in seepage into cellars, early failure of paved road surfaces.

The remaining soil associations in general will support residential, commercial, and industrial uses, individual septic systems, and roadways, agriculture and forestry. Slopes may occur throughout, creating a greater expense for site preparation, and availability of water varies greatly in terms of capacity.

F. Infrastructure

Hanover's existing infrastructure consists of four bridges, approximately 86 miles of roadway and a number of Town facilities. Of the roadways, there are approximately 6.14 miles maintained by the State; approximately 78.86 miles of accepted local roads are maintained by the town and approximately two to three miles of private roads are maintained by private entities. Many culverts exist throughout the town, 98% of which are maintained by the local Department of Public Works. Other Town owned and operated facilities include the water treatment plant, the highway department garage, the Town cemetery, the local transfer station, and the 40± town vehicles. Also, the DPW is responsible for minimal park maintenance.

Although the infrastructure within Hanover is, for the most part, created by a combination of State and local actions, some ambiguity exists over the continued maintenance of local infrastructure. The Massachusetts Highway Department is currently funding the reconstruction of bridges crossing the Pembroke and Hanson town lines, and has jurisdiction over all State Highways. Inspection of the bridges is done by the State which send inspection notices to the locals. Unfortunately, the local authorities rarely have the funds to comply with these notices, and maintenance must be prioritized.

Hanover does not keep an inventory of sidewalks within the town; however, the Department of Public Works (DPW) estimated the total length of sidewalks in the town to be 9 miles. Telephone conversations with the Planning Department and the DPW indicates that most of the major roads, including Broadway, Whiting, Union, and Main Streets, in Hanover are without sidewalks. Route 139, and a portion of Cedar street are the exception. All new subdivisions in town are required to provide a sidewalk on at least one side of any new road. The planning department was unsure as to the exact date subdivision regulation requiring a sidewalk in all new subdivisions came into effect; however, it was estimated to be sometime in the late 1970's or the middle 1980's.[14]

1. Transportation System[15]

Hanover's traffic circulation system is dominated State Routes 3, 53, 123 and 139. The Bay Colony Railroad provides freight service to West Hanover, and the Marshfield Airport is located approximately two miles to the east. Presently, a private busing company is contracted by the MBTA to provide busing services to the Town. Buses run to the Braintree "T" station, and to Boston. Commuter rail service to South Station in Boston will be available in December 1996 on the Plymouth line. According to the 1990 U.S. Census, the average commuting time to work for Hanover residents was 27.8 minutes. Following is a breakdown of the modes of transportation used for these residents to travel to work:

[14] Telephone conversation with Cynthia Sanford from the Planning Department, and Department of Public Works, March 26, 1996.

[15] Town of Hanover Community Profile. 1993. Executive Office Of Communities and Development (EOCD).

Table 3-4 Modes of Transportation to Work	
Mode	**Percent**
Automobile - drive alone	83.5
Carpools	9.4
Public Transportation	4.1
Walk or Work at Home	2.6
Other Means	0.4

Source: 1990 Census.

2. Water Supply Systems

Hanover's public water supply is fed by four well areas with nine active wells located in the eastern portion of the Town. These wells provide water for approximately 98-99% of the town. An estimated 10-20 houses rely on private wells; however, these residences are located within the service area of the public water supply and have never switched.[16]

3. Sewer Service

All waste water treatment in Hanover is private, with independent sewage disposal (septic) systems. According to the Hanover Department of Public Works, there are no plans at this time to provide municipal sewer service in Hanover. As part of the Comprehensive Plan preparation process, which is occurring concurrently with preparation of this Plan, a survey was randomly distributed to 500 households in Hanover and had an approximate response rate of 20%. Forty-nine percent of the survey respondents would like Hanover to be serviced by municipal sewer. Table 3-5 indicates the respondents' preference for land use types to be serviced by sewer.

Table 3-5 Desired Land Uses to be Serviced by Future Municipal Sewer Service	
Land Use Category	**Percent of Survey Respondents***
Residential	50
Commercial	31
Industrial	19

Source: Comprehensive Plan Survey (1996).
**This percentage is out of the 49% of the respondents who indicated a desire to have Hanover serviced by municipal sewer.*

Approximately 70% of the homes in Town were built prior to 1976, when less stringent septic regulations existed. In 1976, Title 5 was first established, and more stringent regulations were recently promulgated on March 31, 1995. These new regulations require that all septic systems be inspected prior to a home being sold. Also, most cesspools are required to be upgraded to a leaching

[16] Telephone conversation with Doug Billings of the Department of Public Works and Hanover Board of Public Works' Plan of Water Distribution System Improvements, dated May, 1979.

system prior to or upon the sale of a home. Many homeowners had their systems inspected soon after the regulations became effective to determine whether their system could satisfy the new requirements. The results of these inspections, whether positive or negative, had to be reported to the Department of Environmental Protection (DEP). Unfortunately, many Hanover residents learned that their systems did not meet the more stringent requirements, which resulted in an inability to sell their home or expensive repairs/upgrades to the system. The new regulations also stipulate stringent regulations for new construction in an effort to reduce/eliminate groundwater contamination from independent sewage disposal systems.

According to the Board of Health, there are five areas most in need of wastewater treatment (see Figure 3-4):

1. Brookwood/Cedarwood - due to high groundwater and highly constrained soils.
2. Presidential Estates - due to high groundwater.
3. Candlewood Drive/Reed Drive - due to high groundwater and clay-like soils.
4. Route 53 - due to the intensity of development and volume of flows. Also, this area of commercial development is located within the Town's Aquifer Protection District.
5. Fireworks Industrial District - due to minimal lot sizes and the types of uses.

Following is a table indicating the septic system failure rates for the first eight months of the new Title 5 regulations:

Table 3-6
Hanover Septic System Failure Rates
April - November, 1995

Month (1995)	Number of Inspections	Failures	Percent Failure Rate
April	22	14	64
May	38	18	47
June	49	22	45
July	58	23	40
August	71	25	35
September	73	25	34
October	89	27	30
November	93	28	30

Source: Hanover Mariner Article entitled "Septic System Failure Rates Declines". January 3, 1996. Quoted source in article - Health Agent Jeanmarie Kent Joyce.

Figure 3-4: Areas with Environmental Problems

The revised Title 5 has provided for several innovative/alternative technologies for use in Massachusetts for residential septic treatment. These technologies, when implemented, can provide for upgrade of existing systems, as well as increase the capacity of a given septic system. These techniques are relevant in that their implementation may make previously undevelopable land developable and may also lessen the amount of groundwater pollution from failed septic systems or cesspools.

The available technologies are broken down into three categories: (1) General use; (2) Provisional use; and (3) Remedial use.

(1) *General Use*

Recirculating Sand Filters	Certified for general use in accordance with DEP guidance for use in nitrogen sensitive areas and private well areas. For systems less than 2,000 gpd, in areas subject to nitrogen loading limitations, the allowable loading is 550 gpd per acre.
Composting Toilets	Certified for general use for new construction. The installed leaching facility may be reduced by 40% where a system in full compliance with Title 5 could otherwise be installed.
AWT Bioclere System	An enhanced treatment system and is certified for general use with a complete Title 5 system. If used for denitrification the system is provisionally approved.
Eljec In-drain System	Certified for general use as an alternative leaching filed.
Infiltrates	Certified for general use as an alternative leaching field without stone.
The Ruck System	Certified for residential flows under 2,000 gpd, in areas subject to nitrogen loading.
Saneco Intermittent Sand Filter	An enhanced treatment system and is certified for general use when installed with a complete Title 5 system.

(2) *Approved for Provisional Use*

AWT Bioclere System	Approved for provisional use with a complete Title 5 system as an equivalent to a Recirculating Sand filter for systems 2,000 to 10,000 gpd in nitrogen sensitive areas. For systems less than 2,000 gpd, in areas subject to nitrogen loading limitations, the allowable loading is increased to 660 gpd per acre.

Single Home Fast System	An enhanced treatment system and is approved for provisional use with a complete Title 5 system with flows up to 550 gpd. In areas subject to nitrogen loading limitations the allowable loading is increased to 660 gpd per acre.
Modular Fast System	An enhanced treatment system and is approved for provisional use with a complete Title 5 system, as an equivalent to a Recirculating Sand filter for systems with flows between 2,000 and 10,000 gpd. For systems less than 2,000 gpd in areas subject to nitrogen loading limitations the allowable loading is increased to 660 gpd per acre.

(3) *Approved for Remedial Use*

Composting Toilets	Approved for remedial use. The leaching system can be reduced by 40%.
The Recirculating Sand Filter AWT Bioclere System Snaeco Intermittent Sand Filter Single Home System Modular Fast System	Approved for remedial use with a complete Title 5 system. The following design standards can be used: • 50% reduction of the leaching filed, or • reduction of the groundwater separation by two feet or • reduction of the requirement for naturally occurring soil by two feet

G. Long-term development patterns

The Town of Hanover faces development pressures prevalent in the region. Unguided, this added development of single family residences and strip-malls will negatively affect the character and natural resources of the community, as well as the economic stability of the town. Without provisions for the protection of open spaces, conventional, grid-like residential development patterns will slowly result in the loss of significant parcels that are presently under or undeveloped. Additionally, under a total buildout scenario, it is likely that the cost of providing community services to Hanover residents will far exceed revenues generated by the additional residential development. Therefore, it is necessary for the Town to plan now to protect its significant open space and natural resources, as well as to begin planning for the economic stability of the future.

1. Regulatory Control-Environmental Protection: The Town of Hanover has established two zoning districts that pertain to environmental protection, the Floodplain, Wetland, and Watershed District, and the Water Resource Protection District. The Floodplain, Wetland and Watershed District includes two overlay districts, the Wetlands Overlay District and the Floodplain Overlay District. The Water Resource Protection District includes the Well Protection Zones and the Aquifer Protection Zone.

a. Figure 3-5: Zoning

b. Figure 3-6: Flood Hazard Areas

In addition to district establishment, the Water Resource Protection By-Law also establishes performance standards to guide work within the Water Resource Protection District. An additional zoning by-law was created requiring a mandatory setback from wetlands to add greater protection to these resource areas. The Conservation Commission has also established a town Wetlands Bylaw to support the Massachusetts Wetlands Protection Act

The Board of Health is active in their role of protecting the quality of the Town's groundwater and surface waters, establishing the Local Rules and Regulations for the Disposal of Wastewater. The Zoning By-law for the Town of Hanover establishes the following zoning districts within the Town (see Figure 3-5):

1. Floodplain, Wetland, and Watershed Protection District
2. Residence A District
3. Business District
4. Commercial District
5. Limited Industrial District
6. Water Resource Protection District
7. Planned Shopping Center District

The Floodplain, Wetland, and Watershed Protection District and the Water Resource Protection District were created to provide protection for wetlands, surface and groundwater through the control of land uses in sensitive areas.

The Floodplain, Wetland, and Watershed Protection District provides that land subject to seasonal or periodic flooding shall not be used for residence or other purposes when such use will endanger the health and safety of the occupants thereof, or of the public generally; to assure the continuation of the natural flow pattern of water courses necessary to provide adequate and safe flood water storage capacity to protect persons and property against the hazards of flood inundation; to protect, preserve and maintain the water table and water recharge areas so as to preserve present and potential water supplies; and to preserve present and potential water supplies; and to preserve the natural character of land within the District. Land uses are restricted in these areas, and work proposed requires a permit from the Planning Board, and review by the Board of Health and Conservation Commission.

This district includes:

c. The Wetlands Overlay District as depicted by "Wetlands, Hanover, Massachusetts" prepared by Perkins Engineering, Inc., Rockland, Mass. and dated April 5, 1976, as amended.

d. The Floodplain overlay districts, includes all special flood hazard areas designated as Zone A, A1-30 depicted on the "Flood Insurance Rate Map, Town of Hanover, Massachusetts" prepared by the U.S. Federal Emergency Management Agency, consisting of six sheets, #250266-0001A to #250266-0006A dated December 15, 1982, and "Flood Boundary and Floodway Map, Town of Hanover, Massachusetts" prepared

by the U.S. Federal Emergency Management Agency, consisting of six sheets #250266-0001 to #250266-0006 dated December 15, 1982. The floodplain overlay district also includes all water bodies encircled by the Floodplain, wetland and watershed protection district.

In addition to requirements and restrictions set forth within the District by-laws, an additional restriction is provided to protect wetlands. VI.G. 7 of the General Provisions in the Zoning By-Law requires that all construction including but not limited to buildings, parking lots, swimming pools, storage tanks, stormwater facilities such as detention/retention basins, leaching structures, pipes, swales, and rip-rapped pads shall be set back a minimum of thirty-five (35) feet from wetlands. This bylaw is presently undergoing a review process by the Planning Board and Conservation Commission, which may result in revisions. A stormwater facility may be exempted from this requirement through a Special Permit granted by the Planning Board.

The purpose of the Water Resource Protection District and By-law is to provide protection for the water supply of the Town of Hanover from harmful and hazardous pollutants and contaminants by preventing within the district the degradation of surface and groundwater supplies. This district serves as an overlay district to other zoning districts, and includes several well protection zones and an aquifer protection zone.

The superimposed cones of influence of the wells define the well protection zones after seven continuous pumping at the rated capacity of each well within the Town. The aquifer protection zone is defined as that area in which the permeability, saturated thickness and direction of surface or ground water flow indicate a direct supply of water to the Town of Hanover wells. There are three well protection districts in Hanover: the Pond Street well field, the Hanover Street well field, and the Broadway well field.

The by law allows by right certain and by special permit uses such as agriculture, forestry, and residential, and prohibits other uses such as motor vehicle repair and body shops, car washing facilities, gasoline stations, and commercial laundries, which might discharge contaminants.

The water resource protection by-law (VI.H.) also establishes performance standards that govern activities potentially affecting groundwater in the Water Resource Protection District. The Board of Public Works must issue a Certificate of Water Quality Compliance, and the Board of Health also requires compliance for any change in use, or new construction, prior to issuance of a building permit.

Section VII.B.9. of the Zoning By-law creates the requirement for a buffer area.

The Town of Hanover Wetlands Protection Bylaw is consistent with the Massachusetts Wetlands Protection Act, M.G.L. Ch. 131, section 40 (and associated regulations at 310 CMR 10.00), and applies to the Conservation Commission's review of the projects in and within 100 feet of specified resource areas.

The Board of Health is active in their role of protecting the quality of the Town's groundwater and surface waters. Local Rules and Regulations for the Disposal of Wastewater, adopted on April 25, 1988 govern the disposal of subsurface disposal of wastewater in the Town of Hanover.

2. Regulatory Control: Hanover faces the pressure of continued residential growth as do neighboring towns. Given this pressure, Hanover residents recognize the need to diversify the tax base as well as to acquire and/or protect open space and recreation areas in an effort to maintain a desirable community character. Hanover's Zoning By-law currently does not contain any provisions that allow or promote development that preserves open spaces. The Town should consider an Open Space Protection By-law (a.k.a. cluster development), which will ensure the protection of open spaces in the face of continued residential development.

Table 3-7 lists the subdivisions approved over the past two decades. These subdivisions, all of which are laid out in a conventional, grid-like pattern, are indicative of the continued growth occurring in Hanover.

Table 3-7
Residential Subdivisions

Subdivision Name	Approval Date	Lots Released
Jessica Estates		
Sellon Place	Nov 7,1994	
Tumble Down Hill	Sept 28,1994	
Priscilla Way	Aug 31,1994	
Pleasant Woods	July 18,1994	15
Homestead	June 8,1994	13
Holly Farms IV	May 3,1994	
Holly Farms III	Oct 23,1991	4
Holly Farms II	June 2,1987	14
Holly Farms/Ledgewood		12
Beckford Farms	April 8,1994	
Josiah's Lane	Jan 31,1994	10
Cobblestone/Hearthstone	Aug 24,1993	69
Meeting Hill Lane	March 17,1993	
Walnut Hill	July 15,1991	
Milbery Farms/Cranberry Ln	Nov 26,1991	2
Whilting Village/Mill Brook	April 25,1990	7
Whiting Village/Anderson Ln	May 21,1986	
Victorian Heights	July 27,1992	
Green Leaf Circle	Nov 20,1989	3
Webster St/M&M Realty	May 22,1989	1
Simmons Farm/Buena Vista	June 5,1989	6
First Parish Lane Estates	Jan 12,1989	12
Holly Ridge	Dec 12,1988	12

Subdivision Name	**Approval Date**	**Lots Released**
Town Line Estates	Sept 13,1988	11
Robinsonwood Glen	Sept 2,1988	6
Cornet Stetson	March 14,1988	9
North River Partnership	March 7,1988	8
Curtis Village	Feb 11,1988	45
Oak Ridge-of Silver St	Feb 25,1988	8
Heritage Estates	Dec 14,1987	9
Setterland Farms	June 4,1987	23
Pinewood Acres V/Virginia Dr	May 4,1987	2
Pinewood IV/Roberts Rd		13
Pinewood III	July 19,1966	14
King Hanover/Olde Forge	May 9,1986	36
Summer House/Buttercup	Sept. 29, 1996	9
Factory Pond	Sept 29,1986	17
Maple Ave Ext	Sept 16,1985	2
Ancestor's Way	Sept 19,1985	
Franks Lane	March 8,1985	4
Brisco's Plain	June 3,1985	4
Maplewood\Birchwood	1985	
Briarwood II	Jan 19,1985	
Briarwood	Aug 4,1984	10
Old Icehouse Lane	Sept 9,1984	3
Dana Dr/Pine Tree Dr	Aug 20,1984	9
Twin Fawn Drive	Nov 30,1984	
Hammers Settlement	Jan 30,1984	9
Ann Marie Lane	Jan 9,1984	2
Follly Hills Estates	May 18,1981	20
Saltwind Acres	April 28,1980	14
Green Hill Estates	Feb 27,1978	27
Birch Bottom Woods	May 28,1977	
Longwater at Hanover	Jan 5,1976	23
Colonial Village/Butterfield	April 28,1975	
Brookbend Road	June 30,1975	
Cushing Hill II		
Cushing Hill		
Brookwood/Cedarwood	1974 &1976	
Pondbrook II	March 30,1970	72
		589

Source: Hanover Planning Board. 1996.