NEWBURY PLANNING PROGRAM

SECTION II - PLANNING STUDIES

INTRODUCTION

The development of planning policies, plans and action programs must be based on a fairly extensive study of existing conditions and trends. Most of the consultant's work during the first six months of the project consisted of planning studies in a number of important areas. Work methods included:

- Review and analysis of existing plans, studies, reports and other documents - primarily material by or for Newbury programs and departments and material from the Merrimack Valley Planning Commission (MVPC).
- Field work and field maps by the planning consultant.
- Informal discussions with various town officials, boards and department personnel.
- Detailed planning maps, primarily at a scale of 1 inch = 1,000 feet.
- Regular monthly worksessions with the Long-Range Planning Committee.

Section II of the Newbury Planning Report documents important facts, statistics, and findings from the planning studies.

The planning studies are described in the following pages in 10 categories:

A. Land and Water Resources
B. Land Use and Public Lands
C. Population
D. Housing Conditions
E. Historical Resources
F. Transportation
G. Town Facilities
H. Economics and Town Finances
I. Plum Island
J. Town Administration

Some of these studies were more extensive than others. Throughout this part of the planning program, however, the consultants sought to concentrate on major trends and problem areas.

A. LAND AND WATER RESOURCES

Newbury is a rural town of 16,224 acres, or about 25.35 square miles. Newbury's natural resources - streams, rivers, marshes, beaches, woodland, soils - are the town's most important assets. To a very large extent, Newbury's natural resources and landscape form determined the town's early settlement patterns. Today, the natural and rural (farmland) landscape is the primary ingredient in Newbury's "image" - for residents, neighbors and visitors alike. Natural resources - especially soils and water systems - must also be considered in terms of constraints for location and density of future land development.

Thus, for a number of reasons, a good understanding of land and water resources is an essential part of the town planning process.

Topography and Landforms

An overview look at Newbury's landscape reveals a system of strongly defined landforms. These landforms are clearly shown on the Map entitled "Landform-Elevation." The map has a color-coded gradient for each 20 feet of elevation change. Eight major land forms or landscape types can be identified. Moving generally from east to west across the town, these landforms are as follows:

1. Plum Island barrier island - dunes and sand beaches fronting the Atlantic Ocean.

2. Plum Island River marshes - a broad expanse of salt marshes nearly 2 miles wide lying between Plum Island and the High Road uplands.

3. High Road uplands - a "plateau" of higher land bordered by marshland to east and west. These uplands consist of glacial sands and gravels and two small glacial hills - Old Town Hill and Little Old Town Hill. These hills are the highest points in the town (150'+ and 130'+ respectively).

4. Little River marshes - a somewhat loosely defined zone of low-lying marshland, generally associated with the southward-flowing Little River.

5. Parker River marshes - a broad zone of marshland associated with the eastward-flowing Parker River.

6. The Downfall Area - a large area of somewhat higher land, covering about 2,000 acres and roughly bounded by Scotland Road to the north, Middle Road to the east, Orchard Street to the south, and a small tributary stream to the west. This area is characterized by an intricate pattern of low-lying swamps and small bedrock hills.

7. Byfield Uplands - an area of about 3,000 acres occupying the northwest corner of Newbury, including the Interstate 95 corridor and all of the Byfield area. These uplands are similar in nature to the central uplands in general form, but have scatterings of moderately well-drained soils and several heights of land up to 130 feet in elevation.

8. Southwestern Uplands - higher lands in the southwestern area of Newbury, dominated by a large bedrock hill in the area of Governor Dummer Academy.

Even at this broad level of landscape analysis, several important land characteristics and planning criteria can be identified. We can generally conclude that:

1. Prominent heights of land are few. The dominant landforms - both visually and geographically - are the two large tidal streams and their associated marshlands.

2. With the noteable exception of Plum Island, existing development is concentrated in the three primary "buildable" upland areas - High Road, Byfield and southwestern.

3. The High Road uplands constitute the only "ideal" development area in Newbury - in terms of good soils, gentle topography, and large expanses of open land. Since this area also contains many of the major active farms in the town, these favorable characteristics suggest that future land use conflicts will occur.

Soils

Soils data for Newbury were developed from a report and related maps provided by the U.S. Soil Conservation Service (SCS). The SCS performed this work in 1969.

For the purposes of our planning project, we enlarged SCS soils maps from 1" = 2,000 ' to 1" = 1,000' and transferred the soils data to a base map that also shows all town roads and topography at 10 foot contour intervals. The resulting SOILS MAP should be a valuable tool for on-going planning for Newbury.

The SCS soils report for Newbury, entitled "Soils and their Interpretations for various Land Uses," is a document of about 50 pages. The report contains extensive technical details on soil types, soil properties and suitabilities. The companion soils map delineates different soil areas at a fairly fine grain: the smallest soil areas are several acres in size.

There is no point in repeating the SCS's technical material here. The reader is referred to the 1969 report, on file with the Newbury

Planning Board, for technical details. Some of the highlights of the soils data are:

1. The soils map identifies a total of 63 different soil types occurring in the town of Newbury.

2. Many of these soils are relatively unimportant in terms of total acreage. 31 of the 63 soil types totaled less than 50 acres for all occurrences throughout the town (not including occurrences in the area excluded by SCS from their acreage analysis - 5,180 acres including Plum Island and the Plum Island River salt marshes.

3. SCS acreage totals for each soil type also show that there are only 12 soil types that occur over more than 200 acres in Newbury. These major soils, and their respective acreages, are:

Tidal Marsh -	1,467
Charlton-Hollis very rocky fine sandy loam -	1,225
Biddeford silt loam -	827
Scantic silt loam -	671
Charlton-Hollis extremely rocky fine sandy loam -	585
Canton extremely stony fine sandy loam -	552
Buxton extremely rocky silt loam -	525
Buxton silt loam	520
Belgrade very fine sandy loam -	272
Buxton very rocky silt loam -	259
Hartland very fine sandy loam -	219
Agawam fine sandy loam -	212
Total:	7,334 acres

4. These 12 soils constitute about 73% of the total of 10,071 acres of soils counted in the SCS study.

5. Of these 12 dominant soils, all but two soils - Canton and Agawam - are designated by the SCS as having "severe limitations" for most uses (including septic tank systems) because of bedrock or wetness. Also note that about half of the Canton soil areas, as well as a small portion of the

Agawam soils are considered to have severe limitations for most uses because of excessively steep slopes of 15% to 35%.

6. Of the 10,071 acres of soils counted by SCS, a total of only 1,060 acres (10.5%) were designated as having only "slight or moderate" limitations for septic tank systems.

The general conclusion of the soils studies - and one that will come as no surprise to Newbury residents - is that the great majority of soils in the town are extremely poor for most kinds of development - especially those requiring septic tank systems.

This does not mean, however, that some of the poor soil areas cannot be developed for residential and other uses. It does mean, however, that:

a. Development of poor soil areas will be relatively costly - in terms of excavation, muck removal, road fill, drainage systems, preparation of septic tank leach fields, etc.

b. Development of poor soil areas increases the risk of groundwater and surface water pollution from malfunctioning septic tank systems.

c. The absorptive capacity of poor soils for nitrates produced by septic tank effluents is relatively low.

The issue of absorptive capacity and nitrate pollution is perhaps not as problematical in Newbury as compared to other communities - Cape Cod towns, for example - where groundwater pollution would have extreme consequences because of dependence on town wells. Nevertheless, the Byfield Water District does depend entirely on well water. Also, pollution of groundwater could endanger the water quality of the Parker River.

SCS criteria for recommended minimum lot sizes, when applied to Newbury's soils characteristics, show that over 80% of the land in Newbury should not be developed at any density because of very poor soil conditions - even if town water is provided.

The criteria also show that 1,077 acres should have a minimum lot size of 40,000 square feet, and 633 acres should have a minimum of 60,000 square feet if both on-site water and sewer systems are to be used.

Clearly, then, soils data must be a key part of future plans and growth control ordinances.

A reduced copy of the SOILS MAP is included in this section. A colored copy of this map, coded for on-site sewage disposal suitability, is on file with the Newbury Planning Board. That map clearly shows that there are only two significant concentrations of good soils: in the Byfield area (already largely developed) and along High Road (some residential development, mostly active farms).

Hydrology

Water resources are a dominant part of the landscape in the eastern and southern sections of Newbury.

The town is bounded to the east by the Atlantic Ocean, which provides excellent recreational opportunities during the warm weather - and occasional harsh winter storms - along a shoreline of about 4 1/2 miles. The other major water features in this area are Plum Island River, a meandering tidal stream that flows southward to join the Parker River at Plum Island Sound, and the Plum Island Basin, an arm of the Merrimack River Estuary.

The Parker River is, of course, the major water feature in the southern part of Newbury. The main channel of the Parker River lies completely within the town of Newbury. However, the river's drainage area of 72,420 acres (about 113 square miles) includes parts of 9 towns: Newbury, Newburyport, West Newbury, Ipswich, Rowley, Georgetown, Groveland, Boxford and North Andover. Tidal effects are evident on the main channel to the Central Street dam in Byfield. The Parker River meanders through Newbury for a distance of about 10 river miles. The Parker River has generally excellent water quality. The River and its tributaries are important spawning grounds for smelt and white perch.

Other smaller streams in Newbury are: the Little River, the Mill River (both tributaries of Parker River) and Great (Mud) Creek. There are no significant lakes or ponds in the town.

The surface water drainage pattern in Newbury is relatively coarse and, in geologic parlance, "deranged." That is - other than the aforementioned major streams - there are very few well defined small streams and brooks. Small drainage channels are scattered here and there, typically starting in the uplands and disappearing into lowland marshes and swamps.

There are, for example, no identifiable streams in the entire 3,000 acre Byfield Uplands area. Storm water runoff in this area basically flows in an unchannelized pattern down to swampy swales.

Groundwater resources in Newbury have not yet been extensively researched or documented. Given the geologic and soils characteristics of the town - primarily rocky higher lands and marshy low lands - it is probable that there are no major groundwater aquifers. Low-lying floodplain areas can, however, provide some water for town wells. The Byfield water supply is drawn from a wellfield adjacent to the upper reach of the Parker River. The Byfield well has an estimated yield of 162,000 gallons per day. Well exploration work in 1975 also found a site in the Oldtown area, off Parker Street, which had a potential yield of 2 to 3 million gallons per day. This well has not yet been developed for actual use. See "Town Facilities" for more information on water supply systems.

Our planning studies did not include in-depth research and analysis of water resources. Based on our rather general studies, however, we can conclude that:

1. The Parker River and its tributaries constitute a major natural and recreational resource for the town. Continued maintenance of high water quality must be a primary concern.

2. Significant groundwater supplies for town water systems are available. Groundwater areas suitable for well development are, however, closely associated with streams and floodplain areas. Concerns for stream water quality are thus directly linked to groundwater quality.

Floodplains and Wetlands

Floodplains and wetlands are important features of Newbury's landscape and are, of course, closely related to the other natural features and natural systems that we have already discussed: landform and topography, soils, and hydrology. This section of the report reviews basic characteristics of the town's floodplain and wetland areas. Related floodplain and wetland protection programs will be discussed in Section III of this report.

Floodplains are natural features of all rivers and streams of any significant size. A floodplain may be generally described as low-lying, relatively level lands adjacent to a river or stream that are inundated from time to time when flood flows exceed the capacity of the normal stream banks.

Typically, floodplain areas have silty soils with fair to poor drainage and relatively high watertable. Floodplains are best suited to agriculture, forestry, or other low intensity uses. Serious problems occur when such areas are developed for residential, commercial and industrial uses.

Newbury has extensive floodplain areas associated with the Parker River, Little River and Plum Island River. The accompanying FLOODPLAIN MAP shows the major floodplain areas, which total approximately 7,800 acres or 48% of the total land area of the town. This map is based on studies done by the U.S. Army Corps of Engineers in 1976. The map delineates two distinct types of flood zone:

Special Hazard Flood Zone - areas within the "100 year floodplain." The 100 year flood is the flood that has a one percent chance of being equaled or exceeded in any given year. In Newbury, the 100 year floodplain is generally defined by the 10 foot contour line.

Coastal High Hazard Area - An additional flood hazard area of about 200 acres along the Atlantic Ocean shoreline.

In the fall of 1978, the Federal Insurance Administration (FIA) commissioned an engineering firm to develop updated, more accurate maps of flood hazard areas in Newbury and other coastal towns. These maps should be completed and available for town use by mid-1980.

Newbury has extensive wetland areas, both in coastal areas and inland areas. Wetlands perform many vital functions in the ecology of the natural landscape; they regulate groundwater recharge, slow stormwater runoff and thus reduce stream flooding, and provide important habitats for many plants and animals. Newbury's coastal wetlands were once extensively used for harvesting salt marsh grass. Limited quantities of "salt hay" are still harvested today. The town's extensive salt marshes are also an important part of the visual quality of the landscape.

The WETLANDS MAP delineates major tidal marsh and freshwater wetland areas in Newbury. There are approximately 2,700 acres of freshwater wetlands and 5,900 acres of tidal marsh wetlands. The map was derived directly from SCS data and is not based on field surveys of actual vegetation and soils conditions. SCS soil types that were mapped as wetlands included all soils with a watertable at or near the surface at least 7 months a year. These soils were:

1. Au Gres loamy sand
2. Biddeford silt loam
3. Birdsall silt loam
4. Fresh water marsh
5. Limerick silt loam
6. Muck, shallow
7. Muck, deep
8. Rayham silt loam
9. Scantic silt loam
10. Scarboro fine sandy loam
11. Tidal marsh
12. Walpole fine sandy loam
13. Walpole fsl, silty subsoil variant
14. Wareham loamy sand
15. Windsor loamy sand

The WETLANDS MAP can be used as a general planning guide. The map is, however, approximate only, in as much as the SCS soils map is itself approximate only in its delineation of different soils areas.

The Massachusetts Department of Environmental Management (DEM) is currently undertaking a special wetlands mapping program that may be of use to Newbury. The work process consists of the delineation of wetland areas by airphoto interpretation experts. Special high resolution photos, adjusted to remove horizontal distortions, are used. We understand, however, that the airphotos for Newbury were taken in May, 1979. Deciduous tree foliage was already fairly dense at this time. The resulting photos may therefore prove to be difficult to use for wetlands delineation purposes. In any case, DEM representatives will be contacting Newbury officials in the near future to discuss their wetlands mapping work.

The WETLANDS MAP, even though it has limited accuracy, clearly shows the extensiveness of wetland areas in Newbury. These wetland areas are generally not suitable for most kinds of development, and disturbance of these areas through excavation, fill, draining or other means should be strictly controlled through Wetland Zoning provisions. Such provisions will be part of the new Zoning Ordinance that is being developed as part of this planning program.

Basic Conclusions

Our studies of Newbury's land and water resources were clearly limited in scope. We were not able to do any significant research and analysis for other important resources such as woodlands, fish and game, or visual resources and visual quality.

The basic studies that were performed, however, constitute a reasonably sound base for the development of natural resources-related policies, planning criteria, and plans for guiding future growth.

The general conclusions from this part of our planning studies are:

1. Newbury's natural resources are of primary importance for the town's citizens. The quality of Newbury's natural environment provides a key element in the town's self-image and sense of community purpose and pride.

2. The town's natural resources are fairly diverse and still relatively unspoiled.

3. Soil and water conditions are such that many areas of Newbury are not suitable for development. Well thought out plans, programs and controls will therefore be needed if the quality of the natural environment is to be maintained.

B. LAND USE AND PUBLIC LANDS

Land Use Mapping and analysis of existing land uses is a basic part of any comprehensive planning program. Maps recording present land uses are a valuable record for a specific point in time. Such maps are also important working tools to be used for the development of planning criteria and plans for guiding future growth.

A map of existing land uses was developed for the town in 1977 by the firm that was commissioned to develop a new set of property maps. We had hoped to use this map as a base for our own work. Unfortunately, intense field studies showed that much of the information contained on this map was inaccurate. We therefore developed a map of EXISTING LAND COVER to serve as a base for further planning work. A black and white reduced copy of this map is included here.

The EXISTING LAND COVER MAP was developed from 1975 airphotos of the town (scale of 1" = 1,000') and several field checks to verify specific conditions and identify new residential and non-residential development. The map shows all significant roads, rivers and streams, topography, and existing homes and other buildings. Six major Land Cover types were delineated:

1.	Developed Land - approx.	1,500 acres, 9% of total
2.	Active Agriculture - approx.	1,600 acres, 10% of total
3.	Oldfields and Open Land - approx.	900 acres, 6% of total
4.	Marshland - approx.	6,200 acres, 38% of total
5.	Woodland - approx.	5,300 acres, 34% of total
6.	Barrier Island - approx.	524 acres, 3% of total

A colored version of this map is on file with the Newbury Planning Board.

The EXISTING LAND COVER MAP clearly illustrates the present pattern of land development in Newbury. The major developed areas and agricultural areas are:

1. Plum Island
2. The Oldtown "Upper Green" area
3. High Road - homes along the road and large farm fields on both sides
4. The "Lower Green" area

5. The Newbury Neck area

6. Large farm fields in the vicinity of Scotland Road

7. A scattering of homes and farms along Orchard Street and Middle Road

8. The Governor Dummer Academy area

9. Byfield Center

10. South Byfield and the Triton Regional School area

The map and the related acreage statistics clearly show that Newbury was, in 1978, a largely undeveloped town. The map also clearly shows the extensiveness of active agricultural lands - especially along High Road. These characteristics of relatively low development density and relatively extensive agricultural lands are, together with the landscape pattern of coastal dunes, rivers and marshes and woodlands, the essential ingredients that combine to form the town's rural character.

Despite the fact that Newbury's landscape is still predominantly rural, however, current land use trends are definitely in the direction of more suburban development. Overall changes in land use can be seen in statistics compiled by recent University of Massachusetts land use studies for cities and towns:

NEWBURY, MA.
Land Use Changes - 1952 to 1972

Land Use Category	1952 acres	1972 acres	% change
Forest	5464	5624	+ 2.9%
Agriculture/Open	3614	2720	- 24.7%
Wetland	6540	6192	- 5.3%
Urban	606	1362	+124.7%

The most significant land use change for the period 1952 to 1972 was thus the increase in urban land and the decrease in agriculture/open land. The 1362 acres of urban land in 1972 constituted 8.4% of Newbury's 16,224 acres. This percentage is now about 9%. Currently, three subdivisions totaling close to 100 lots are being developed, and scattered new homes continue to be built along existing town roads. These trends, if they continue, will slowly but surely change Newbury's rural landscape.

In addition to the EXISTING LAND COVER MAP, we prepared large scale (1" = 200') working land use maps for the three main town centers -

Oldtown, Byfield and Plum Island. These maps show all individual land parcels, and identify commercial uses, public and semi-public uses and homes with possible historic value.

The Plum Island map also includes an inventory of housing conditions and vacant lots. More details on Plum Island are provided in a later section.

Public Lands

The location and extent of public and other tax exempt lands in Newbury is an important factor in the planning process. Most Newbury residents realize that large areas of the town are owned by the state and federal governments. Few people realize, however, that approximately 6,670 acres - or 41% of the total land area of the town is under some form of public ownership.

Boundaries for all major public lands were taken from the recently completed town property maps, and were transferred to our planning base map along with data on roads, streams, and topography. The PUBLIC LANDS MAP shows these boundaries. Governor Dummer Academy lands are also shown on this map. The Academy is not a public facility, but much of the Academy's land is tax exempt.

Data from Newbury's recent Tax Revaluation program show that there are five major owners of public or tax-exempt land in Newbury who own more than 100 acres. (Note: the figures that appear in the Tax Revaluation summary do not appear to include about 2,500 acres of salt marsh area owned by the Wildlife Refuge and about 1,250 acres of salt marsh area owned by the Department of Fish and Game.)

1.	Mass. Department of Fish and Game:	1,435 acres
2.	Parker River National Wildlife Refuge:	479 acres
3.	Governor Dummer Academy:	467 acres
4.	Trustees of the Reservation:	272 acres
5.	Town of Newbury: (not including streets)	130 acres
	Total:	2,783 acres

It is significant that the major public land areas are comprised of lands that are ecologically sensitive and more or less unsuitable for development. In this sense, then, the extent and pattern of public lands in Newbury constitute a natural resources protection system of great importance.

On the other hand, and over and above any loss of tax dollars that such extensive public lands may mean, one negative result of this

ownership situation is that proportionately greater development pressures may be expected for the 59% of land that is in private ownership.

Density statistics are a good illustration of this problem. Newbury's estimated 1979 population was about 4,600 people. If we consider the entire acreage of the town (16,224 acres), the 1978 population density was about 1 person for each 3.6 acres. If, however, we consider population density for privately-owned lands (9,554 acres), the density figure jumps to 1 person for each 2.08 acres. If Newbury's population increases to, say, 6,000 people by the year 2,000, the "effective density" will be 1 person per 1.59 acres.

Land Use Conflicts

Newbury is still a rural town, and is relatively free from the kinds of land use conflicts that often characterize more densely developed communities. Nevertheless, there are a number of existing and potential land use conflicts that may require future corrective town action. These conflicts include:

1. Apparently uncontrolled, small junk yards on private property in at least two locations.

2. A contractor's yard - including garaging of large trucks in a residential area in the Oldtown district.

3. A number of abandoned, derelict structures - both on Plum Island and on several of the town's back roads.

4. The proximity of the Newburyport Industrial Park - and Newbury's only large area of industrially zoned land - to a potentially large groundwater well off Parker Street.

5. A continuing trend toward the development of back roads and marginal land for house lots and subdivisions.

Some of these land use conflicts are relatively minor in scale, and appropriate code enforcement action could conceivably correct them with relative ease. Problems #4 and #5 above, however, are of considerable concern. Land Use Plans, Zoning Bylaw changes and other tools must be considered to respond to these conflicts.

C. POPULATION

The population of almost all of the rural towns in eastern Massachusetts has been growing during the post-World War II period of suburbanization, and Newbury is no exception. Continued population growth for Newbury is virtually assured for the foreseeable future.

Population growth *per se* is not necessarily harmful to the social, economic and ecological well-being of a rural town. However, it is clear that population growth - especially rapid unguided growth - can cause a multitude of problems in terms of land use conflicts, run-away demands for schools and town services and environmental pollution.

During the past few years, the "growth control" issue has become a sometimes explosive issue in once rural and now rapidly suburbanizing towns. Many people feel that population growth *inevitably* leads to higher taxes and harmful environmental impacts. While this is often true, the town growth process is, as are many contemporary problems, a complex process that cannot be adequately assessed by generalizations. Factors relating to *where*, *under what controls*, and what *kinds of people* are as important as the actual rate of population growth.

This section of the Newbury Planning report provides some basic facts and figures on Newbury's population.

Regional Context

Our reference here is data compiled by the Merrimack Valley Planning Commission (MVPC).

There are 15 cities and towns within the region served by MVPC. On an *overall* regional basis, population growth since 1960 has been moderate. Between 1960 and 1970, the region's population increased from 220,849 people to 247,891 - an increase of 12%. Between 1970 and 1975, the population increased by another 6,749 people (3% increase) to a total of 254,640.

The smaller communities, including Newbury, have been growing at a much faster rate than the larger cities and towns. Here are some basic population figures, with cities and towns listed from largest to smallest:

	1960	1970	1975	% change 1960-70	% change 1970-75
1. Lawrence	70,933	66,915	67,515	-6	1
2. Haverhill	46,346	46,120	44,399	-.5	-4
3. Methuen	28,114	35,456	35,500	26	.1
4. Andover	17,134	23,695	26,050	38	10

		1960	1970	1975	% change 1960-70	% change 1970-75
5.	Newburyport	14,004	15,807	16,341	13	3
6.	N. Andover	10,908	16,284	15,864	49	3
7.	Amesbury	10,787	11,388	13,752	6	21
8.	Georgetown	3,755	5,290	5,912	41	12
9.	Groveland	3,297	5,382	5,253	63	-2
10.	Merrimac	3,261	4,245	4,202	30	1
11.	Salisbury	3,154	4,179	4,967	32	19
12.	Rowley	2,783	3,040	3,455	9	14
13.	Newbury	2,519	3,804	4,239	51	11
14.	Boxford	2,010	4,032	4,565	101	13
15.	W. Newbury	1,844	2,254	2,626	22	17

Population growth in the region may be generally ascribed to at least four factors:

1. The continued outward movement of suburban development related to the Boston employment area.
2. Economic growth in the Lawrence/Haverhill/Methuen area.
3. Economic growth in the Newburyport/Amesbury area.
4. Natural increase.

Analysis of the figures presented above shows that Newbury's position in terms of total population relative to the other 14 communities has not changed very much - Newbury ranked #13 in 1960 and 1970, and #12 in 1975. In terms of percent change, however, Newbury ranked #3 for the period 1960-1970 (behind Boxford and Groveland) and #7 for 1970-1975 (behind Amesbury, Salisbury, W. Newbury, Rowley, Boxford, and Georgetown).

Given these figures, then, it seems that Newbury's rate of growth was relatively high during the 60's, but that the growth rate moderated during the first half of the 70's. At present, many people fear that the rate of growth may begin to accelerate again.

Newbury's Current Population

The most recent detailed data for Newbury's population characteristics are 1970 census data. Census data for 1970 comparing Newbury with Essex County as a whole shows that:

- Median age for Newbury's population was younger than median age for the county - 28.4 years vs. 30.6 years.

- Educational attainment in Newbury was higher than the county average - median number of school years completed for Newbury people was 12.3; 16.4% of Newbury adults had completed college vs. 11.3% for the county.

The reader is referred to MVPC reports for statistical details derived from 1970 census data.

We do not have any precise, up-to-date figures on Newbury's current population. In-depth population surveys and studies were beyond the scope of our planning studies. We do have some approximate figures:

- The 1977 Annual Reports for Newbury state that: "Our population continues to increase slowly and as of January 1, 1977 we had reached 4,302. We lost 7 in the Oldtown Section but gained 20 in Byfield and 10 on Plum Is. The dog population still remains over 1,000."

- The 1978 List of Persons for Newbury shows a total of 1,543 families in Newbury, and a total of 3,211 residents, not including children under 18 years of age. Assuming that average family size was 3.2 persons (slightly less than the 1970 average family size of 3.28), the 1978 population would have been about 4,938. At an average family size of only 3 people, the 1978 population would still have been 4,629.

- We can therefore reasonably assume that Newbury's current (fall of 1979) population is in excess of 4,500 people, and could be as high as about 5,000 people.

The most important variable in estimating the town's population (and population growth rate) is the rapidly growing year-round population on Plum Island. The recent trend of converting seasonal homes to year-round dwellings, and the apparent trend of more seasonal dwellings being rented for winter use have meant that Plum Island's population is growing much faster than the rest of the town. In addition, it is probable that many of the winter-time renters are not included in the List of Persons.

There are a number of population characteristics that are more important than the usual dry statistics much favored by planners. The mobility factor, for example, has many unquantifiable but important implications for town planning and town government. Several members of the Long-Range Planning Committee reviewed town records and grouped families according to length of residency in Newbury. The results of this research were:

1978 Newbury Families
Length of Residency in Newbury

Length of Residency	No. Families	% Total
0 to 4 years	656	42%
5 to 9 years	272	18%
10 to 14 years	173	11%
15 or more years	442	29%
	1,543	100%

There were thus a large number of families who had lived in Newbury for only 4 years or less. This indication of a high rate of mobility is fairly typical of suburban towns. Interestingly, however, a relatively large number of families had resided in Newbury for 15 years or more.

Population characteristics and changes were discussed informally at a number of Planning Committee meetings. The consensus seemed to be that the character of the population had changed significantly during the past 10 to 20 years. "Less diversity" was a frequent comment. That is, it was felt that the population had changed in character from that of a socially and economically diverse community of farmers, tradesmen and professionals to that of a relatively typical suburban, commuter, "bedroom" community. The residency data seem to support this general perception of change. However, Newbury does have a sizeable percentage of relatively long-time residents.

Population Projections

There is no simple way of predicting future population levels for Newbury. At best we must be satisfied with defining a possible range of future growth, based on available statistics and some common-sense assumptions.

Population projections for Newbury are provided in the 1965 Comprehensive

Plan and in MVPC reports. These projections are:

Other Population Projections

Source	1980 Pop.	1990 Pop.
1965 Comp. Plan	5,200-5,900	6,800-7,200
MVPC	4,502	4,721

Recent census data shows the actual increase to have been:

Census Population Data

Year	Population	Increase	% Increase
1960	2,519	1,285	
1970	3,804	1,285	51%
1975	4,239	435	10%

If we assume that Newbury's population increased another 435 people during the second half of the 1970's, we would have a 1980 population of about 4,674 people - a total increase for the decade of 870 people, and a rate of increase of 20.5%. The estimated 1980 total of 4,674 people correlates fairly well with our earlier estimate of 4,629 to 4,938 people for 1979.

If we assume further that Newbury's population will continue to increase during the 1980's and 1990's, say at a rate of about 800 people per decade, we would have the following projections:

Newbury's Population

Possible Increase 1980-2000
(Assume 1980 population of 4,700)

Period	Possible Increase	Total
1980-1990	800	5,500 (1990)
1990-2000	800	6,300 (2000)

Interestingly, these projections are lower than the estimates from the 1965 Plan (6,800 to 7,200 by 1990) and higher than the estimates from MVPC (4,721 by 1990).

The actual population increase that Newbury will experience during the next 20 years will depend on a variety of factors, including:

1. The national economy.
2. The regional economy.
3. Home-building costs.
4. Energy costs.
5. The effectiveness of planning programs and related environmental management ordinances and regulations.

A certain amount of growth is, however, inevitable, and town boards and officials must plan accordingly.

D. HOUSING CONDITIONS

With the noteable exception of the Plum Island section of Newbury, our planning studies did not include a detailed inventory and analysis of houses and housing conditions. Housing (and other) data for Plum Island are presented in a later section.

In-depth housing studies were deemed unnecessary for most of Newbury because: (a) with a few exceptions, housing conditions in Newbury are good to excellent, (b) Newbury is a rural, suburban middle-class community which generally does not have the kinds of housing problems that are found in dense urban areas or remote rural communities.

Basic Data

Some basic facts and figures on Newbury's housing stock are summarized below.

1. 1970 Census Data - shows Newbury's housing stock for year-round housing units to have been:

Single-Family Units:	1,071
Duplex Units:	82
Multi-Family Units:	25
Total Year-Round Units:	1,178

This total does not include mobile homes or seasonal homes on Plum Island. The 1970 census also provided these basic statistics:

- Number of mobile homes:	27
- Number of seasonal homes:	599
- Owner-occupied units:	84.6%
- Renter-occupied units:	15.4%
- Units built 1939 or earlier:	46.7%
- Units built 1960-1970:	218
- Median persons per unit:	3
- Median rent:	$113
- Median value single-family home:	$19,700

2. MVPC Data for 1970 to 1975 shows building permits for single-family homes as follows:

1970:	10 new units
1971:	17
1972:	9
1973:	24
1974:	19
1975:	13
Total:	92

Note that these figures do not include conversion of Plum Island summer homes to year-round residences. Figures also do not include mobile homes.

3. Building Inspector's Reports for 1975 to 1978 show building permits for single-family homes as follows:

1976:	25 new units
1977:	21
1978:	18
Total:	64

These reports also show building permits for 13 mobile homes and 70 units of housing for the elderly. The Building Inspector's records for 1979 show that 44 building permits had been granted for single-family homes and 2 for mobile homes. Note also that the Building Inspector's reports for the period 1970-1975 list a total of 41 permits for mobile homes and "trailer hook-ups".

4. Housing Stock - Basic Summary - We may thus summarize housing stock for Newbury as follows:

- Total year-round units, 1970:	1,178
- Plus mobile homes, 1970:	27
- Est. total year-round units, 1970:	1,205
- Est. new single-family homes 1970-1979:	200
- Est. new mobile homes 1970-1979:	56
- Elderly housing, 1977-1978:	70
- Est. additions, 1970-1978:	282
- Est. Plum I. conversions, 1970-1979:	100
- Est. total increase in units, 1970-1979:	426
- Est. total year-round units, 1979: (Assuming no loss of pre-1970 units)	1,631

Some discussion of these summary figures is in order.

First, it should be noted that the estimate for Plum Island conversions - that is, summer cottages converted to year-round residences - is a general estimate only. There are no accurate records of conversions on Plum Island. However, residents of the Island estimate that there have been at least 200 conversions during the last decade, and that about half of these conversions have occurred in the Newbury part of Plum Island.

The estimated increase of 426 year-round units during the 1970's represents an increase of 35% over the 1970 figure of 1,205 units. During that same period, population grew by at least 700 people. The average household size in 1970 was about 3.16 persons per household (or per unit). The average household size in 1979, assuming a population of about 4,600 people, was about 2.82 persons per household. Smaller households, and relatively larger numbers of new units as compared to actual population growth is an important trend in Newbury and many other suburban towns.

Field Surveys

General field surveys of housing conditions in Newbury revealed the following:

1. The quality of the existing housing stock is generally good to excellent. Most homes seem to be structurally sound and well-maintained.
2. There are some homes of poor to fair quality on Plum Island, and in the Cottage Rd. and Marsh Ave. areas near the Parker River. There are also a few dilapidated mobile homes located on sparsely settled back roads.
3. The housing stock is fairly varied, ranging from large mansions on High Road to moderate-sized homes in subdivision areas to small but generally well-maintained homes and cottages on Plum Island.
4. There are no large apartment buildings or apartment complexes in Newbury and, with the noteable exception of the Highfields

and Scott subdivisions (approved in 1978), there are no major "recent" subdivisions in the town.

5. The two recently completed elderly housing projects seem to be generally well-built.

Future Issues

Generally, then, it would appear that private home-building activity of about 20 new homes per year, plus the recent successful efforts to provide housing for the elderly have adequately satisfied the natural demand for new housing resources in Newbury. The only significant problems seem to be Plum Island conversions and proper environmental regulation of the larger subdivisions. However there are a number of trends at work that may make Newbury's housing situation more complicated in the near future. These trends include:

1. Inflation - The average price of a new or existing home in Newbury has more than doubled since 1970 - from the U.S. Census estimate of $19,700 to a 1979 estimate of at least $50,000, not including Plum Island. As in many other towns, young families and families with moderate incomes are being rapidly priced out of the market.

2. Energy Costs - Rapidly rising energy costs - especially for home heating oil - will mean that some of Newbury's grand old houses will become more and more difficult to maintain.

3. Low Income Housing - studies by the MVPC suggest that Newbury's "fair share" of subsidized housing for low and moderate income families would amount to about 171 units. Clearly, there are some citizens who would be strongly opposed to the development of this kind of housing. At present, however, Plum Island is the only area of Newbury that provides a significant inventory of less expensive dwellings. However, house prices are rising rapidly on Plum Island too. Sooner or later, town leaders will have to face the problem of how and where housing for low and moderate income people should be provided.

E. HISTORICAL RESOURCES

Newbury has a considerable number of historical houses, sites, bridges and roads that are an important part of the town's heritage and character. The reader is referred to the booklet entitled "Newbury, Massachusetts - 1635 - 1776," developed by the Bicentennial Commission, for details on Newbury's colonial past. The Newbury Historic Commission and the Newbury Historic District Committee have also developed a wealth of material on the town's historic resources.

In brief, the major historic resources are:

1. The Lower Green Settlement area, the original settlement area of Newbury. Historic structures here include the restored school house, the Jackman-Willett House (1676), the Samuel Seddon Tavern (1728), and the Dole Little House (1670). There is also a very early burial ground, the First Burying Ground.

2. The Upper Green Settlement area, where the First Parish was formed in 1646. The core of the historic village area, including 40 properties facing High Road on the green, has been designated an Historic District and is listed in the National Register of Historic Places. Key historic structures here include the Swett-Ilsley House (1670), the Coffin House (1647), Short House (1717) and Toppan House (1697).

3. Byfield - Established as a separate parish in 1706, this area's most noteworthy historical feature was (and is) its watermills. Byfield once boasted at least ten mills - grist, wood, woolen and snuff. Today, only the snuff mills remain. Historic houses include the J. Woodman House (1658-1660), Pearson Homestead (1690), Pearson Tavern (1694), John Moody House (1700), Peter Cheney House (1690), Enoch Rogers House (1710), and Riverview Farm House (1778).

4. Governor Dummer Academy area, the site of the first incorporated academy in Massachusetts. Historic structures include an historic school house, the Governor Dummer mansion (1715) and the Hale-Boynton house (1764).

In addition to these major concentrations of historic places and structures, Newbury has a number of important historic sites, bridges and roads, including: a section of the original Massachusetts Bay Road (now Middle Road), Thurlow's Bridge, several burial grounds and marker stones, salt marsh areas, and the dunes and beaches of Plum Island.

F. TRANSPORTATION

Highways constitute the primary transportation systems for the town of Newbury. The major routes, all running more or less in a north-south direction, are Interstate 95, U.S. Route 1 and U.S. Route 1A. Growth pressures in Newbury during the 1970's may be at least partially ascribed to the completion of Interstate 95. This major, limited access highway brought Newbury to within about one hour's driving distance from the major employment centers of Route 128/Boston.

Public transportation systems do not seem to be a major concern in Newbury. Recent studies by the Merrimack Valley Planning Commission recommend the development of bus routes that would link the north-eastern parts of the town - specifically Plum Island and the Oldtown center area - to Newburyport center. In general, however, Newbury's residents depend primarily on the private automobile for both local and commuter transportation. Despite recent sharp increases in the cost of gasoline, it is probable that this dependence on the private automobile will continue for the foreseeable future. Newbury's relatively low density and rural development pattern are simply not suited to the development of significant public transportation systems.

Our planning studies focused primarily on street improvement needs within the town itself. Field work performed in 1978 included detailed notes on pavement conditions of town roads. Generally, it was found that road pavement conditions in Newbury range from good to very poor. Here are some salient facts:

1. The major highways - I95, Route 1, Route 1A - are all in excellent condition.

2. Recent road repaving projects - sponsored primarily by the Massachusetts Department of Public Works - have resulted in significant improvement of a number of important streets, especially in the Byfield area.

3. Some members of the Long-Range Planning Committee felt that several other town roads should be repaved in the near future, especially Hay St., Larkin St., Coleman Rd., Orchard St., Middle Rd., part of Boston Rd., Scotland Rd., Highfield Rd., Old Point Rd., and Sunset Drive.

4. Some members also felt that several roads should be officially designated as scenic roads, including: Coleman Rd., Orchard St., Middle Rd., Hay St., Newman Rd., Main Street in Byfield, Low St.

5. Newbury's Highway Department has only limited funds for road pavement improvement projects. During the past few years, the Highway Department has been given an average budget of $40,000 per year for such projects; enough to repave only about 2 to 3 miles of road per year. Road improvement projects identified by the Committee as priority projects total about 11 miles of road.

Substantial road improvements - especially improvements involving widening and regrading - may, of course, provide further incentive for the development of heretofore undeveloped or sparsely developed sections of the town. The consensus of the Long-Range Planning Committee was that improvements should generally be limited to new pavement only, and that existing roads should not be redesigned and realigned. Thus, existing roads should continue to be treated as quiet rural roads, and should not be turned into urban or suburban speedways.

G. TOWN FACILITIES

Our planning studies did not include a detailed inventory and analysis of all town facilities. Our main focus in this area of concern was Newbury's public water supply system. We have, however, included some basic facts and remarks on other facilities in this section.

Town Buildings

Newbury is not a rapidly growing town. Existing town-owned buildings used for various town government functions are relatively few and modest in size, but should be adequate for the next 10 to 20 years. Major existing town buildings include:

1. Oldtown Town Hall - including Newbury town offices and Police Department.
2. Byfield Town Hall
3. Oldtown Fire Station
4. Byfield Fire Station
5. Byfield Library
6. Highway Department Garage
7. Historic Old School House (Lower Green)

Plum Island is the only section of Newbury that seems to be lacking in terms of basic town buildings and office space. The only public meeting place on Plum Island is the Plum Island Taxpayers Association building on Plum Island Boulevard. Given the rapidly growing year-round population of the Island, it may be necessary to provide facilities such as a Fire Substation and branch library in the near future.

Schools

Newbury's school facilities consist of three elementary school buildings - Woodbridge, Byfield, and the "Round School" - and Triton Regional High School, a relatively new facility that provides classrooms for grades 7 to 12 for several towns, including Newbury. The three elementary schools have a total of 26 classrooms, and an optimum physical capacity of 650 children, assuming 25 children per classroom. The September 1978 enrollment was 514 children for grades K - 8. School officials estimate that existing classrooms could accomodate an additional 100 children without difficulty - provided that the age mix was fairly well balanced. Newbury is also a member of the Whittier Regional Vocational School District.

Elementary school enrollment has increased slowly in recent years, from 494 in 1976 to 511 in 1977, and 514 in 1978. Given Newbury's relatively slow population growth and a strong trend toward smaller families - especially among middle and upper income families - it is reasonable to assume that Newbury's existing school facilities will be adequate for at least the next 10 years.

Future expansion of physical facilities, if needed, can best be accomplished by adding two or more classrooms to the Round School. This modern school building has adequate site space for future expansion. Thus, for the foreseeable future, Newbury will not be faced with the need to build an entirely new school facility.

Parks and Recreation

Triton regional high school has a complete complement of tennis courts and playing fields. The Round School has a large open field for field sports, a track and a gymnasium. There is a ballfield on the Upper Green in Old Town, and another in Byfield. The Old Newbury Golf Club on Route 1 is open to the public Monday - Friday, and the Old Town Country Club has a salt water swimming pool and three tennis courts.

The general attitude of the Long-Range Planning Committee has been that Newbury does not need a program for the development of active recreational facilities. This attitude is understandable when one considers the wealth of natural recreational opportunities in Newbury - including boating, fishing, swimming, hiking, birdwatching and many other "passive" recreational activities that people may enjoy in the thousands of acres of public lands in the town.

Solid Waste

Newbury has had some problems in the past with its solid waste disposal site. In 1976, under orders from state officials, the town developed a new program for proper operation and maintenance of the sanitary landfill site off Boston Road. It was estimated at that time that the landfill site had adequate capacity for a number of years.

It should be pointed out, however, that the location of the sanitary landfill is not ideal. The site is less than 1000 feet from the channel of the Little River. The landfill is used almost entirely for domestic solid wastes, and there are no known instances of disposal of toxic or otherwise dangerous chemicals or industrial wastes. Nevertheless, the proximity of the landfill to the Little River will inevitably lead to a certain degree of reduced water quality - primarily from leachate from

the landfill affecting groundwater which will in turn eventually become part of the flow of the Little River - and thence part of the Parker River estuary. This environmental concern, coupled with the finite capacity of the sanitary landfill, suggests that Newbury will have to develop new solid waste disposal systems within the next decade. At this point, it would seem best for the town to pursue the possibility of eventually using a regional landfill/waste recycling facility.

Wastewater Treatment

With the exception of a few homes in the Oldtown area that are connected to the Newburyport public sewer system, all residential and non-residential buildings in Newbury use on-site systems for the treatment of wastewater.

The use of on-site wastewater systems *per se* is not necessarily a problem. Indeed, the current policy of the U.S. Environmental Protection Agency (EPA) is to encourage the use of "land application" wastewater treatment systems - including individual septic tank/leach field systems. However, on-site systems *do* create problems when soil conditions are unsuitable and when lot sizes are so small that yard areas cannot naturally absorb normal domestic wastewater flows.

The Merrimack Valley Planning Commission completed a "208" comprehensive Water Quality Study for the region in 1979. The final report contains a section on Newbury, including a map that identifies four areas in Newbury where septic system failures have been reported: Moody/Main St. area in Byfield, Middle Rd. near Rt. 1, Riverview Dr. off Rt. 1A, and Plum Island. (The 208 Study makes a number of specific recommendations relating to health codes, inspections and enforcement. Some of these recommendations have been incorporated into later sections of this report. The reader is referred to the 208 report for details.)

We can reasonably assume that public wastewater collection and treatment systems will *not* be developed in Newbury any time in the foreseeable future. Town policies as well as EPA policies are such that a public sewer system would be neither desireable nor feasible. However, continued use of on-site wastewater disposal systems may cause increasingly severe problems - especially since future residential development will tend to be located on more marginal soils. Town boards and officials will be obliged to develop more stringent programs for inspection of new systems, maintenance of existing systems and disposal of sewage sludge.

Water Supply

There are two public water supply systems in Newbury, one for Oldtown and one for Byfield.

At present, the Oldtown Water District Commissioners do not play a very active role. Water for Oldtown comes from the Newburyport water system. Newburyport is expanding its supply of raw water, so supply is not expected to be a problem. The previously mentioned well off Parker St., tested in 1975 and estimated capable of producing 2 to 3 million gallons per day, is also a major potential water supply resource. The water distribution system in Oldtown is, however, a very real problem. The system includes a 6 inch water "main" in High Road (Rt. 1A) that was installed in 1904. Other parts of the system are also old and under-sized. Water pressure throughout most of the system is consequently very low. This is particularly dangerous in terms of fire protection.

The Byfield Water District basically has the opposite problem. The water distribution system is adequately sized, with lines ranging from 8 to 12 inches in diameter. However, the raw water source is a single 8 inch well off Larkin St., adjacent to the upper reach of the Parker River. This well yields 225 gallons per minute, and 162,000 gallons for the maximum pumping period of 12 hours per 24 hour day. The system presently serves about 460 homes. At present, the system has little or no excess capacity. For peak demand periods, the Byfield Water District is sometimes obliged to import water from Georgetown. The Water District has been conducting intensive field explorations in an attempt to locate a new source of good quality raw water. Thus far, however, no new source has been found.

The third major settled area of the town, Plum Island, has no public water supply system. This is a critical problem, and it will be discussed in some detail in the next subsection of this report.

Homes and businesses in the more rural areas of Newbury depend on on-site individual wells for their water supply.

We may conclude that, of all of the basic town facilities, water systems are the priority concern for Newbury. Section III of this report provides details on how Newbury's boards and officials can proceed with solutions to the water distribution and water supply problems.

H. ECONOMICS & TOWN FINANCES

An in-depth economic and financial analysis of Newbury's people, businesses and Town Government was beyond the scope of this planning program. This section of the report summarizes a number of economic factors and trends that were important criteria for the formulation of plans and strategies. Economic and financial factors of special importance were as follows:

1. Fiscal Conservatism - Newbury voters - or at least those who regularly participate in Town Meeting sessions - are relatively conservative in their attitudes toward town expenditures. There appears to be a strong tradition of Yankee frugality - an attitude that many "progressive" towns in the Commonwealth have only recently rediscovered. Fiscal conservatism is certainly necessary in these times of high inflation. On the other hand, Newbury's voters must understand that the town is growing, and that the demand for town services will continue to increase. New actions, programs and expenditures will therefore be necessary from time to time.

2. Moderate Tax Rate - Newbury's tax rate compares favorably with rates for nearby communities. The current tax rate (Fiscal Year 1980) is $24 per $1,000 of valuation. The equalized tax rate for Newbury for Fiscal Year 1978 was $35 per $1,000. Rates for neighboring communities in 1978 were:

Newburyport:	44.80
Georgetown:	41.16
Ipswich:	39.76
Groveland:	35.25
Rowley:	35.04
W. Newbury:	28.70

For that year, the average tax rate for the state was $47.02.

3. Limited Tax Base - Newbury's tax base consists almost entirely of residential properties and farmland. There are few commercial or industrial establishments in the town. Some expansion of the non-residential/agricultural tax base will be necessary if Newbury's moderate tax rate is to remain relatively stable during the 1980's.

4. Lack of Funding Resources - As is the case for most smaller towns, Newbury does not receive major special funds from state and federal sources. The primary supplements to local tax revenues are state "Cherry Sheet" receipts and state and federal highway funds for specific road projects. Some of Newbury's citizens and officials are wary of seeking special

project funds from agencies such as the U.S. Department of Housing and Urban Development (HUD) and the Economic Development Administration (EDA). This reluctance to becoming entangled in federal bureaucratic red tape is sensible. However, certain outside resources could be of value to the town, and could help to stabilize the tax rate.

5. Concentrations of Lower-Income People - Most of Newbury's residents are middle-income or upper middle income people, and average annual family incomes are on a par with the rest of the county. The Plum Island section of Newbury, however, has a relatively large percentage of moderate and low income people. Average annual family income for Plum Islanders was only about $11,000 in 1980 - only about 70% of the median income for the region.

6. Increasing Housing Prices - Prices of new and existing homes have risen sharply throughout the region during the past decade, and Newbury has certainly not been immune to this trend. With the exception of Plum Island, there are few homes in Newbury which could be purchased today for less than $50,000, and prices of $60,000 or more are becoming common for relatively modest properties. As the traditional single-family home becomes less and less affordable, Newbury may see a decline in residential construction and population growth. On the other hand, the town may experience an increasing influx of upper income families and/or increasing pressures to allow the construction of multi-family housing.

I. PLUM ISLAND

Plum Island is a special part of the town of Newbury, an area with unique problems. We have therefore reserved a separate part of this report for a discussion of the major problems and issues that relate specifically to the Island.

General Description

Plum Island is an eight mile barrier bar of dunes and sand beaches. The northern third of the island, divided between Newbury and Newburyport, is densely populated. The remainder of the island lying in the towns of Newbury, Rowley and Ipswich, is a federally owned wildlife refuge, a natural and recreational resource of great importance to the region.

Most of the developed section of Plum Island is in the town of Newbury. The land area here totals about 180 acres. Field surveys conducted by the planning consultants in 1978 found that there were a total of about 675 dwelling structures on the Newbury portion of Plum Island. Most of these dwelling structures were small to medium-sized vacation cottages and single-family homes. There were also a few larger structures with apartments or rooms for rent, and a number of small commercial establishments, mostly clustered along Plum Island Boulevard, the major east-west street that roughly bisects the island and that leads to the bridge over Plum Island River and thence to Plum Island Turnpike and the main areas of Newbury and Newburyport. The bridge provides the sole means of access to Plum Island.

Including the few multi-unit structures, there are at least 700 dwelling units on Plum Island. Thus, the 180 acre area of Newbury/Plum Island has a gross residential density of 3.88 units per acre. In fact, many of the lots on Plum Island, platted in the 1920's, are less than 5,000 square feet in size.

In addition to Plum Island Boulevard, there are 4 main roads, all running north-south: Old Point Rd. and Sunset Blvd. on the west (salt marsh) side of the island and Northern Blvd. and Southern Blvd. on the east (ocean) side of the island. Access to many properties consists of narrow, unpaved private ways.

Non-residential uses include: 16 commercial establishments (groceries, restaurants, beverages, convenience stores), 9 parking lots, 33 town-owned lots and one church.

Housing & Population

Our field surveys in 1978 identified about 700 dwelling units on Newbury/ Plum Island. We also identified about 150 empty lots, not including

town-owned lots. Of the 675 dwelling structures (as distinct from estimated number of units), and contrary to the image that some local people have of Plum Island as being "run-down", we identified only 12 structures that seemed in need of significant repairs, and only 6 structures that should probably be demolished. During the 1970's, there has been a strong trend toward substantial improvements of Plum Island homes and cottages, as well as some new construction. The results of this trend can be readily seen today: the great majority of Plum Island residential structures are, in fact, in good to excellent condition.

Our field surveys also counted a total of 75 homes that were obviously boarded up for the winter. Residents estimate that there are another 200 or more homes and cottages that are only used during the summer. We may thus estimate that about 400 of Plum Island's 700 dwelling units are now being used year-round - either by the owners or by off-season renters.

The Town Clerk's records show that there were close to 700 year-round residents on Plum Island in 1978. If our estimate of 400 units occupied year-round is accurate, and if we assume an average of about three people per unit, a winter-time population of about 1,200 people would result. Some of these people would be transient renters, and would presumably not be counted in the Clerk's annual population survey.

We have no accurate records of the year-round population of Plum Island in past years. Residents say that there were only "a few hundred" people living here year-round in the 1960's. In any case, the conversion of summer homes to year-round residences and a growing year-round population are clearly important recent trends.

During the summer season, Plum Island's 700 dwelling units are occupied at close to 100%. If we assume that summer-time residents average 4 or 5 persons per unit, we would have a summer-time population in excess of 3,000 people - three times the winter population. The winter population of 1,200 people gives us a population density figure of 6.66 people per acre - roughly 20 times the average density for the town of Newbury overall. The summer population of about 3,000 people gives us a density of 16.66 people per acre, a density comparable to that of some urban neighborhoods.

The Wildlife Refuge

The lower two thirds of Plum Island are part of the federally-owned Parker River National Wildlife Refuge. The primary purpose of the Refuge is to provide natural habitats for migratory birds and a variety of other native animal species. The Refuge is also, however, a major recreational resource for people from many towns. The primary recreational activities are swimming, sunbathing, fishing, birdwatching and nature walks.

The Refuge is thus a magnet for recreation-minded visitors, especially in the summertime. These visitors add more traffic and crowds to an already congested, over-crowded area. The Refuge has, at present, parking spaces for 350 cars. Park personnel estimated that 1978 visitation totaled about 500,000 people, and that visitation will continue to increase by about 50,000 visits per year until a future peak visitation level of about 1,000,000 visitors per year has been reached.

Significantly, the U.S. Fish and Wildlife Service, the agency that staffs and maintains the Wildlife Refuge, has developed a fairly ambitious long-range Master Plan for new and improved facilities for the Refuge. The plans include improved and paved roads (partly completed in 1979) and a new Administration Building/Visitors Center. Many people, including Plum Island residents, have voiced concern that these improvements will attract even more people to the Refuge, with related negative effects on the developed section of Plum Island. A new Master Plan will be undertaken in the near future, and bears careful scrutiny.

Problems & Issues

We have already discussed some of Plum Island's problems in the preceding few pages. In summary, the major problems and issues are:

1. Water & Sewer - There are no public water supply or sewage collection and treatment systems on Plum Island. Islanders depend on shallow wells for domestic water - or on bottled water brought in from the outside. Wastewater is disposed of via on-site systems, many of which do not function properly because of small lot sizes and highly porous soils. At present, the lack of both adequate water systems and proper wastewater disposal systems presents a serious health hazard - especially during the crowded summer months. This problem will only grow worse as the year-round population continues to grow.

2. Dense Development - By any reasonable contemporary building standards, there are simply too many houses and cottages on Plum Island. The small lots and dense development pattern create health hazards relating to sewer and water. These high densities also create a serious fire hazard.

3. Conversions - Many summer cottages have been converted to year-round homes - often with little or no attention to building codes or health code requirements. The growing year-round population is creating demands for town services that are difficult to fulfill.

4. Storm Damage - Every year, some homes on Plum Island are damaged

by winter storms. Homes built on the primary dunes that front the ocean are damaged or destroyed. Other homes, especially those on low sites near the Plum Island salt marshes, are damaged by flood waters. Substantial amounts of public and private funds are needed to repair each year's storm damages.

5. Summer Crowds - Thousands of people crowd onto Plum Island on a peak summer day. In addition to the usual problems of traffic jams and litter, these crowds cause severe wear and tear of fragile dune areas and thus contribute to erosion and the island's vulnerability to future storm damage.

6. The Wildlife Refuge - The Fish and Wildlife Service has proceeded with its improvement program with only token consultation with town officials and Plum Island residents. A dialogue must be established so that residents will have a meaningful role in deciding how the Refuge will be used in the future.

7. Community Facilities - Plum Island is a growing residential area, yet there are no basic community facilities. We have already mentioned the possible need for a fire substation and branch library. One or two small parks or playgrounds are also needed.

8. Management Program - The overall problem is that there is at present no coordinated management program that can guide both town officials and Plum Island leaders in the step by step solution of major problems. There exists a certain amount of distrust between Plum Islanders and other Newbury residents. To date, neither "side" has been able to develop a coherent, action -oriented management program. A study of Plum Island developed by MVPC in 1977 summarized some of the major problems and recommended the development of a comprehensive management program. There has been no significant coordinated progress since that time.

Section III of this report includes some specific recommendations for projects that will improve living conditions on Plum Island without encouraging expanded development.

J. TOWN GOVERNMENT ADMINISTRATION

Newbury's town government is managed and administered entirely by part-time people - including the 3-member Board of Selectmen, the Planning Board, the Tax Assessors, the Conservation Commission and the Board of Appeals. The Highway Department is the only town department with a full-time supervisor and significant full-time staff. The positions of Building Inspector and Town Clerk are also part-time positions.

This predominance of part-time positions is not uncommon for smaller New England towns. Given the value of the work performed by part-time boards and officials, their cost to the Newbury taxpayer is very small indeed.

In recent years, however, some citizens have begun to question the adequacy of this part-time form of town government. There are, of course, some elements of local politics involved in these questions. However, the over-riding issue is one that goes beyond politics or personalities. The issue is: Can a part-time town government administration adequately meet the needs of a no longer small and steadily growing New England community? If not, what kinds of new positions and personnel are needed? How much will it cost to fund these new positions?

The Work-load & the Need

Our planning studies indicate that Newbury's part-time boards and officials are already having difficulty keeping up with the administrative workload, and that this problem will only increase in severity during the 1980's. Factors that will inevitably increase the administrative (and problem-solving) workload include:

1. A slow but steady increase in the town's population.

2. State and Federal programs and requirements will continue to swell in both numbers and pounds of required paperwork.

3. New and more stringent town ordinances for guiding growth will require strong enforcement if they are to be effective.

4. The various part-time boards, committees and commissions will need strong coordination as their numbers and functions increase.

5. Newbury's new comprehensive plan should be conscientiously implemented according to a logical, phased sequence.

6. Special grant funds will have to be sought, and grant funds must be carefully managed once they are obtained.

Given the inevitable increase in the administrative workload, we feel that the town's elected officials and community leaders must begin to take positive action toward improving the effectiveness of Newbury's town government - primarily through the creation and filling of one or more full-time professional positions.

Some Options

During our worksessions with the Long-Range Planning Committee, we discussed the need for a number of new functions and positions, including the following:

1. Full-time Building Inspector.
2. Full-time Tax Assessor.
3. Full-time Town Engineer.
4. Planning Board Secretary.
5. Full-time Project Development Officer.
6. Design Review Board.
7. Full-time Town Administrator.

Clearly, not all of these new functions or positions can or should be created at this point in time. Much of the Committee's discussion centered on the need for a full-time town administrator. There are, of course, many other Massachusetts towns that have struggled with this issue. The basic options here are usually:

1. Town Manager.
2. Executive Secretary to the Board of Selectmen.
3. One of the three (or five) selectmen serves as full-time administrator.

There are important pros and cons for each of these 3 alternatives. Selectmen are usually especially sensitive to the implications of full-time administrative positions. We can expect that considerable debate will be needed among Newbury's various boards and elected officials before a definite course of action is resolved. Politics and personalities will inevitably color the debate. However, we strongly urge that the discussion focus on the crux of the matter: What are the key administrative functions that must be performed by Newbury's town government during the 1980's - and how can these functions be carried out with maximum efficiency and effectiveness.