

# CHAPTER 3

## POPULATION STUDY AND FORECASTS 1995-2015

(RESEARCH CHAPTER – NO ACTION NEEDED)  
- PRESENTED APRIL 3, 1997 -

April 3, 1997

## **CHAPTER 3**

# **POPULATION STUDY AND FORECASTS**

**1995 - 2015**

## **POPULATION STUDY EXECUTIVE SUMMARY**

The Population Study points out the critical need to know how many and what kind of people are being planned for here in Yarmouth. - The Population Study is an attempt to do just that. The importance of regional impact, state and national trends, and available land is also pointed out.

\*In 1992 the U.S. Census designated a new metropolitan area here made up of 10 Cape towns. Barnstable-Yarmouth as a combination made up its "central city".

\*Also in 1990 for the first time Cape Cod was "traced". These census tracts are statistical areas which have fixed boundaries and populations between 4,000 and 8,000 persons. Yarmouth was divided into 3 tracts covering the three well recognized villages.

\*Even now the need to "split" two of the three tracts, those for South Yarmouth and West Yarmouth, is being discussed. The Population Study makes suggestions as to how these divisions should be made.

\*Yarmouth's population density increased to 871.4 persons per acre or almost a person and a half per square mile in 1990. This was a 76% increase in density in 20 years.

\*Between 1970 and 1990 Yarmouth population percentage contribution to the Barnstable County population dropped slowly from 12.4% to 11.4% as its growth slowed somewhat.

\*The two largest ethnic groups on Cape Cod are those of Irish extraction (22%), and English (Yankees) (20%), other ethnic groups cover a wide range of backgrounds.

\*Estimates of seasonal population need to be improved and up-dated. In general terms the peak week in July has a population about 2 and 1/2 times that of the permanent population or 52,900.

\*Between 1980 and 1990 Yarmouth's minority population increased from 264 to 721, or by 172.1%. Still Yarmouth's minority population constituted only 34% of the total in 1990.

\*1990 was the first census year that detailed educational data was available. Yarmouth was the fourth lowest town in Barnstable County in percentage of persons over 25 with bachelors degree, 22.5%

\*Yarmouth's median age is much higher than that of most suburban towns because of its large retirement population. In 1990 it was 45.3 years, while the South Yarmouth census tract was even higher at 55.3 years.

Also as a result of its large retirement population the "age tree" for Yarmouth has an unusual mushroom shape, with the largest 5 year age groups being over 60. Still there are very few men over 85, it can be pointed out. The population over age 65, percentage wise, is not as large as had been thought, 30.6% in 1990 and increasing only slowly. It appears the percentage will top out at about 40%. Between 1960 and 1978 birth rates dropped steadily, but they have risen slowly since then. Death rates dropped sharply from 1960 to 1966 but have levelled off since and now have increased slowly.

As a result of the birth and death statistics, implied annual in-migration rate figures have been calculated and then projected. In-migration was at its peak from 1960 to 1979 between 650 and 750 per year. It is projected to drop to 370 - 410 between 2010 and 2015.

The report points out that there are a number of remaining unfilled demographic needs. These include:-

- Projections of population change for the 35 Traffic Analysis Zones that have been developed.
- Projections of population and use changes for the dozen planning neighborhoods in Yarmouth.
- Projections of population growth in the 3 census tracts and their proposed splits.
- Development of a building trend forecast based on on-going building permit records.
- Development of a "survivorship" population forecast,
- Forecasts of change in size of the various 5-year age groups, by sex.
- After the year 2000 census, it will be necessary to up-date the precinct boundaries in Yarmouth.
- And finally, and probably most importantly, holding capacity studies for population, based both on the existing zoning and the future land use plan, is badly needed for planning purposes.

The most interesting of the data coming out of the Population Study related to two forecasts for population change to the year 2015.

- The first was a ratio step-down forecast, based on percentage contribution of Massachusetts, Barnstable County, and Yarmouth, to the larger governmental units of which they were a member. This was a very conservative method and yielded a low forecast for Yarmouth of 23,492 in 2015.
- A second, more sensitive technique, was the so-called inferred migration rate

method, which analyzed past birth and death rates and projected them forward 20 years to 2015, while also projecting an annual migration rate. That method yielded a 2015, forecast of 29,058, up from 21,174 in 1990. This is the high forecast that is being used.

## **THE DEVELOPMENT AND PROCESS OF PREPARING THE YARMOUTH COMPREHENSIVE PLAN**

In the period between September of 1989 and July 1991 some basic work on a Yarmouth Master Plan had been done by the Planning staff, outlines were prepared, a questionnaire was sent to departments, and a "sketch plan" was prepared.

When the Cape Cod Commission came into being in April 1991, that agency's staff started work on guidelines for Local Comprehensive Plans. By July of 1991 contacts between towns and the Cape Cod Commission had progressed far enough so that several of them were interested in undertaking the program. Yarmouth adjusted its Master Plan work outline to match the Commission's and a preliminary proposal was prepared.

There then followed a long period of negotiations over the extent, detail, timing, and financial support for the Comprehensive Plan Program, a hiatus that was further compounded by the absence of the Town Planner due to illness.

It was finally decided to divide the work program into two 2-year phases using the standard guidelines of the Cape Cod Commission. The Commission provided a standard formula amount of \$66,212 for financial assistance for the first phase. The Memorandum of Agreement was signed by the Yarmouth Board of Selectmen on October 20, 1992. At approximately the same time Yarmouth was named a "pilot community" representing its own particular size and character of community on Cape.

The Board of Selectmen then adopted, with formal votes, support for the program and naming the Planning Board as the official "Local Planning Committee."

Our program was unusual in that a large portion of the first phase was to be prepared by the existing planning staff, with consulting services for outreach, coastal resources, recreation, and transportation planning. The first new staff member, a contractual planning aide, was hired on December 8, 1992.

### **CRITICAL NEED FOR GOOD COMMUNICATIONS AND PUBLIC RELATIONS**

It was immediately recognized that a complex program such as the comprehensive plan needed a very good communications process. In 1965 the Planning Board had undertaken a master plan program under the old Urban Planning Assistance Program

(701). A consultant prepared the plan, and it was presented to Town Meeting, although the usual process would have been to have the Planning Board hold a hearing, and adopt it as an "advisory" document. The result was an overwhelming rejection and the resignation of the Planning Board on the stage of Dennis-Yarmouth Regional High School! As a result, the need for good communications and outstanding public relations has reverberated across the years!

Now we must present the final plan documents to Town Meeting for their approval! We have had an active outreach program, using an outreach consultant, and have used radio, TV, handouts, summary reports, and numerous graphics and cartography. The presentation program has been described in the previous Chapter.

## CHAPTER 3 - POPULATION STUDY AND FORECASTS

### A. GOALS AND POLICIES

#### DEVELOPMENT OF GOALS AND POLICIES FOR DEMOGRAPHIC SERVICES

Concern about the rate of population growth and land use changes has been one of the factors in establishing on-going comprehensive planning programs both in Yarmouth and in the majority of other Cape-Cod towns. The goals and policies of each of the local plans are designed to provide a framework for the development of these plans. Though the demographic section of the Yarmouth Comprehensive Plan is essentially an inventory and analysis tool, it nevertheless has certain goals and policies which have guided it.

**GOAL 1 - To provide a regularly updated document to measure demographic and socio-economic change in the community which is in sufficient detail to be a useful tool for the local government and general public.**

#### POLICY

1. To undertake regular updates, and expansions if necessary, of the various subjects of the population study, so that its data and analyses remain current and useful to all local citizens and the local government.
2. It shall be our policy for this document, to prepare summary documents for wide-spread public dissemination, and also more detailed research work for use of various permit applicants, potential developers, and concerned technical persons.
3. In order to ascertain if the "population study" is adequately up to date to be of use to the general public, the following up-dating schedule should be followed:
  - \* U.S. Census Data - 3 years after completion of the decennial census, to have an updated population study and forecasts completed.
  - \* Census Tract Data - To have an analysis of Census Tract data ready 3 years after publication; to make decennial suggestions for tract "splits" for Census Bureau consideration.
  - \* Business, Service, Manufacturing Censuses - Analysis of data published, 2 years after release.
  - \* Other Reviews - To examine our demographic forecasts, analyses, publications, on a five year basis for additions, deletions, and improvements to the "population study"...
4. Summary reports should be written in layman's language so that they will provide for the maximum usage to the general public. Technical documentation shall be kept current and be available for consultation on request.

## **B. POPULATION STUDY**

### **HOW MANY PEOPLE AND WHO ARE WE PLANNING FOR?**

Any town is made up of a concentration of people who are referred to as "the population". Obviously they are also part of a complicated system of physical facilities and social and economic activities which are the result of that population's existence and which are needed by this group of people to maintain everyday community organization. In order to adequately plan for the various facilities, activities, and services, we need to know how many people are expected in the future, say 20 years hence, what kind of people, how old they may be, what their educational attainment might be, and what their needs may be.

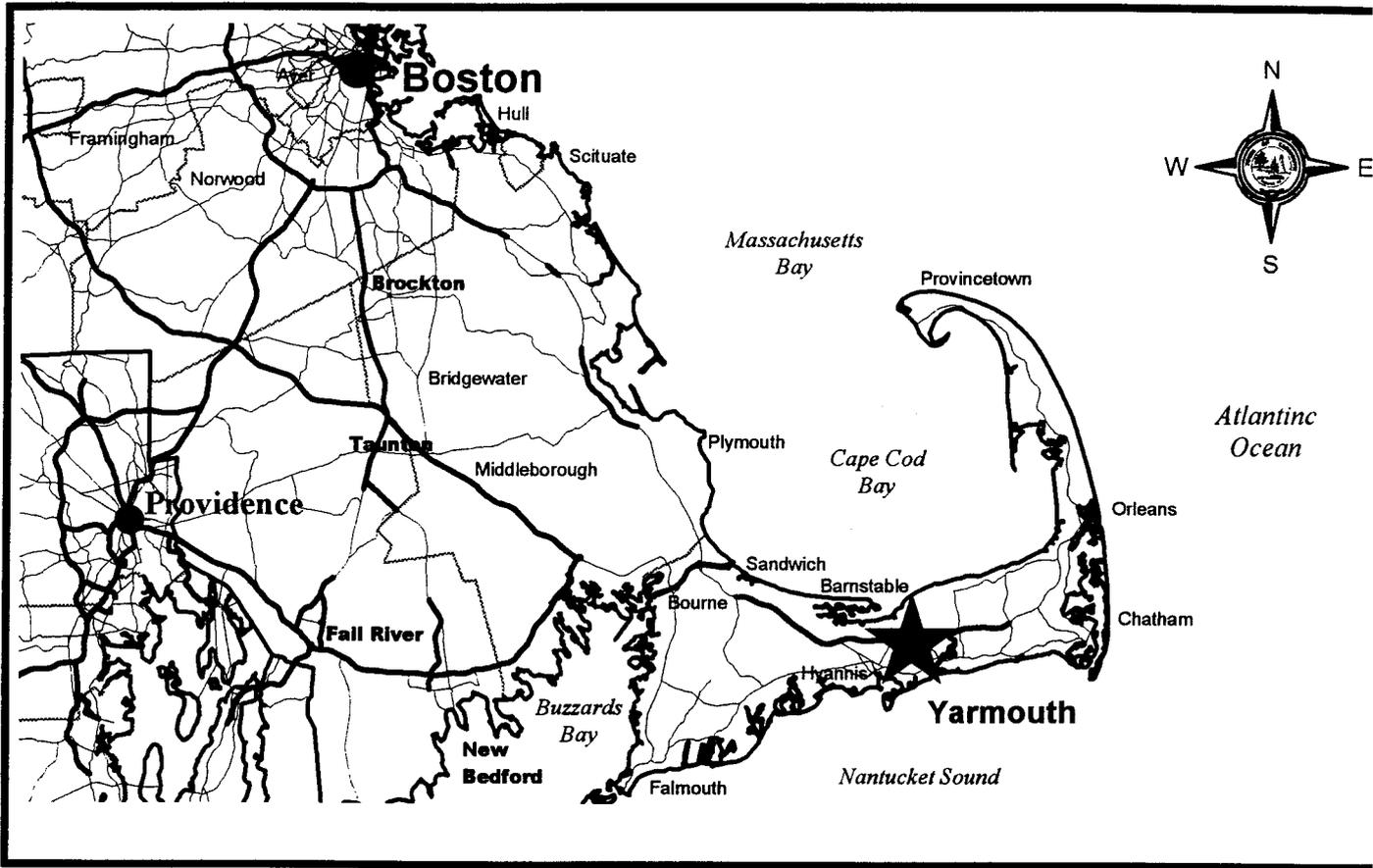
### **REGIONAL IMPACT- FACTORS AFFECTING GROWTH**

Overall probably the two most important factors affecting growth are location and economic conditions. Cape Cod has an eccentric location, not located in the center of U.S. population, but easily accessible to the large metropolitan areas of the east coast, basically connected by a good highway network. But the Cape also has a very cyclical seasonal economy as a resort area. That cycle has an important impact on how we plan. (see Regional Location Map, Map 1-1)

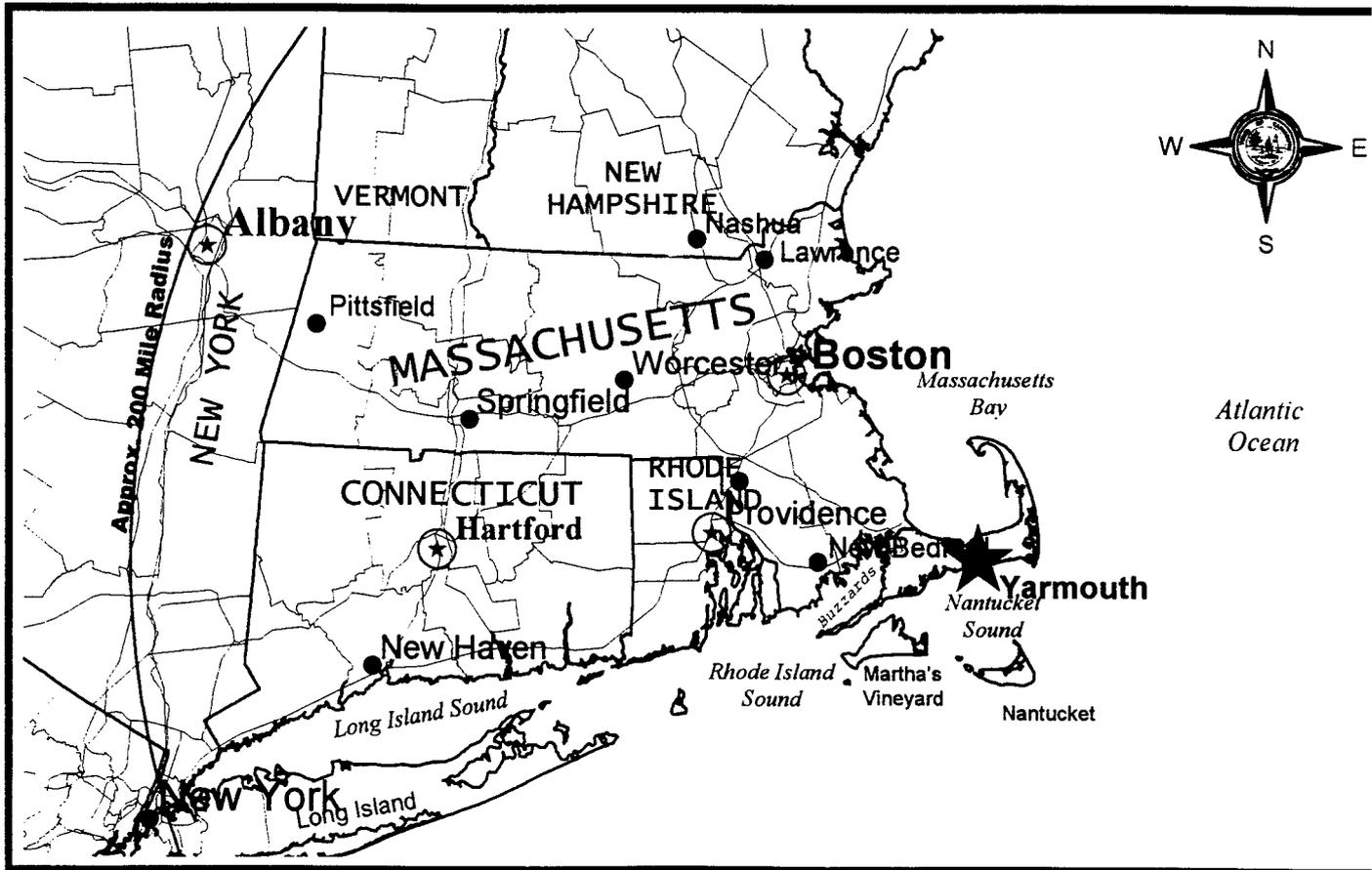
Plus, at the local level there are some characteristics of our particular community that are also very critical. Yarmouth's population is essentially a retirement age one. We are planning for their services and their needs, on the one hand, and a service-based, recreational economy population on the other. And last, but certainly not least, is the unique environmental character of this spit of sand projecting miles out into the Atlantic Ocean.

### **NATIONAL AND STATE-WIDE TRENDS, 1960 - 1990**

A glance at the table following shows that the nation as a whole has been growing at a fairly steady rate of about 25 million persons per decade since 1960. However, Massachusetts has been growing at a much slower rate both numerically and percentage wise, with the 1970-1980 increase being less than 1%. Generally, the older northeastern industrial states are not, and they are not expected to be, growth areas in the near future. (see Table 3-1)



Regional Location Map 3-2



Regional Location Map 3-1

## NATIONAL, STATE, AREA, AND LOCAL GROWTH TRENDS - 1960-1990

	1960	1970	1980	1990
United States	179,323,175	203,302,031	226,542,560	248,709,873
	+18.5%	+13.37%	+11.43%	+9.79%
Massachusetts	5,148,578	5,689,170	5,737,037	6,016,425
	+9.8%	+10.5%	+0.8%	+4.9%
Barnstable County	70,286	96,656	147,925	186,605
	+50.2%	+37.5%	+53.0%	+26.2%
Barnstable-Yarmouth	Not	Not	113,582	146,556
Metropolitan Area	Designated	Designated	—	+29.3%
Barnstable Town	13,465	19,842	30,838	40,949
	+28.5%	+47.4%	+55.7%	0.33
Dennis	3,727	6,954	12,360	13,864
	+49.1%	+74.2%	+91.5%	+12.2%
Yarmouth	5,504	12,033	18,449	21,174
	+32.5%	+118.6%	+53.3%	+14.8%

Source: U.S. Census of Population

NOTE: The percentage figure shown is that of the increases from the previous 10 year period.

Table 3-1

## **C. ANALYSIS OF TOWN POPULATION**

### **INCREASE IN NUMBERS OF PERMANENT RESIDENTS IN YARMOUTH**

A common way of looking at population trends is the increase in actual numbers of people. The suddenness and abruptness of Yarmouth's population growth can also be brought home. (see Table 3-1) Between 1960 and 1970 there were 6529 new permanent residents added, and between 1970 and 1980, 6,416 more. This is an increase that has had a profound physical and social impact on the Town. Basically, we are a town of relative newcomers! (see Chart 3-1)

### **COMPARISONS WITH ADJOINING TOWNS**

The two adjoining towns of Barnstable and Dennis have had very different growth patterns. Barnstable, with a larger buildable area, and base population, shows a much steadier increase percentage-wise, though with a peak in the '80's, but then dropped off substantially later in that decade, as both they, and Yarmouth used up much of their available buildable land. (see Chart 3-1)

### **COMPARISONS WITH BARNSTABLE COUNTY AND NATIONAL TRENDS**

Throughout the 40 year period, 1950-1990, Barnstable County, with a much larger overall population than its constituent towns, grew rapidly. The Cape has regularly seen increases each decade of between 25% and 50%. The existence of a better road network, an attractive retirement area, milder climate, and an aging population have attracted 25,000 to 40,000 more permanent residents each decade. When dealing with a larger area such as the County, input from the national economy is also reflected, especially in the decade of the 1970's.

As more and more of the land resource on the Cape is used up, the rates, if not the numbers will continue to drop. (see Table 3-1)

### **THE NEW METROPOLITAN AREA**

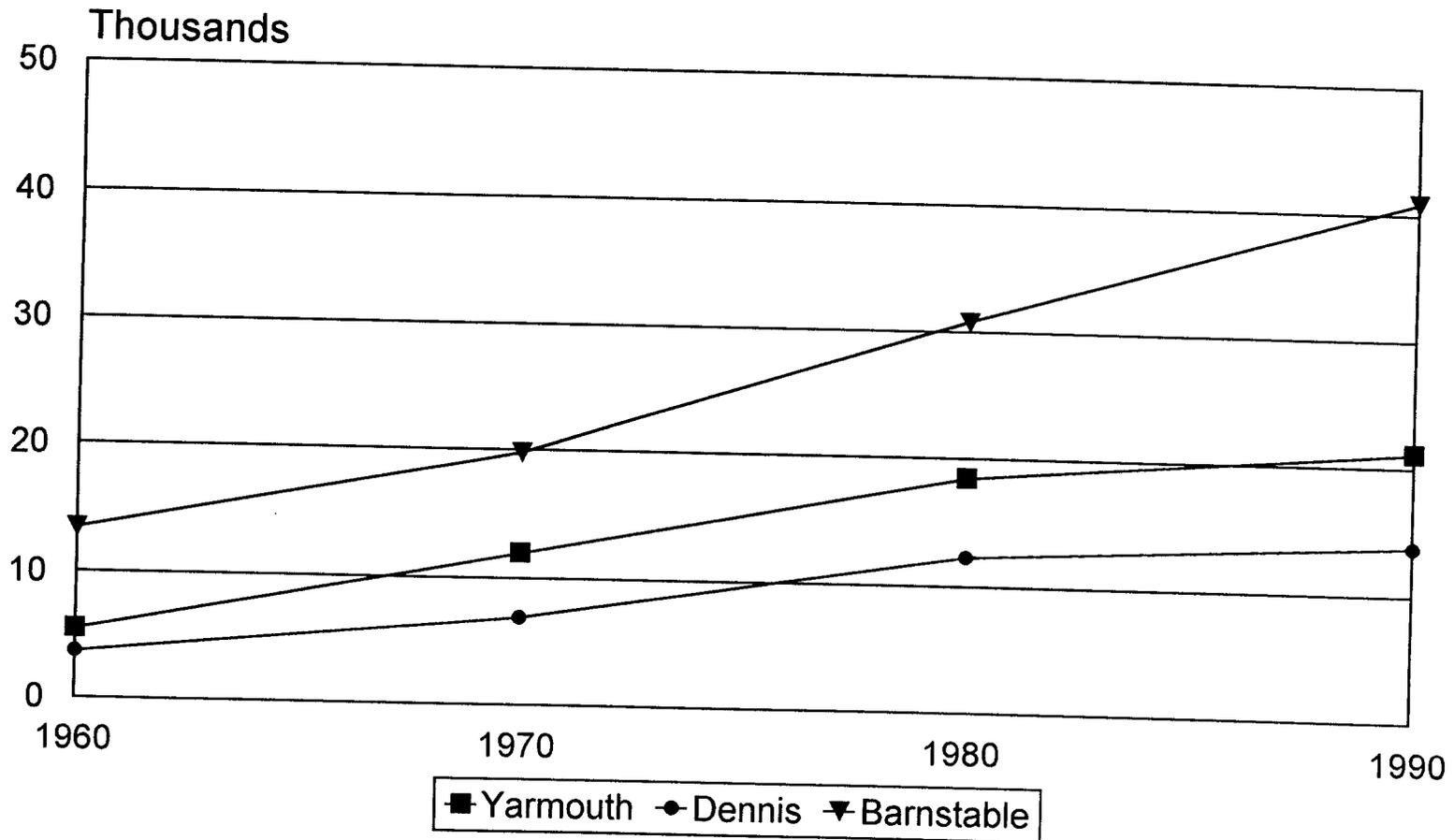
Immediately following the 1990 Census, 2/3 of the Cape's towns were defined into a new metropolitan area, the Barnstable-Yarmouth Metropolitan Area, by the U.S. Bureau of Census. These 10 towns grew by 29% between 1980 and 1990. And like it or not Yarmouth is a part of the Hyannis - West Yarmouth central city! (see Map 3-2)

### **CENSUS TRACTS COME TO CAPE COD**

For the first time in 1990 the Census Bureau divided Cape Cod into "Census Tracts." These are areas with populations between 4,000 and 8,000 persons that are fairly uniform in character. Their boundaries will remain the same overall from census to census, with so called "splits" taking place within the original tract boundaries. This is done so that comparable trend data can be obtained, decade after decade. (see Map 3-3)

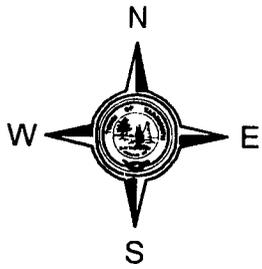
# Population Trends

## 1960 - 1990

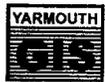
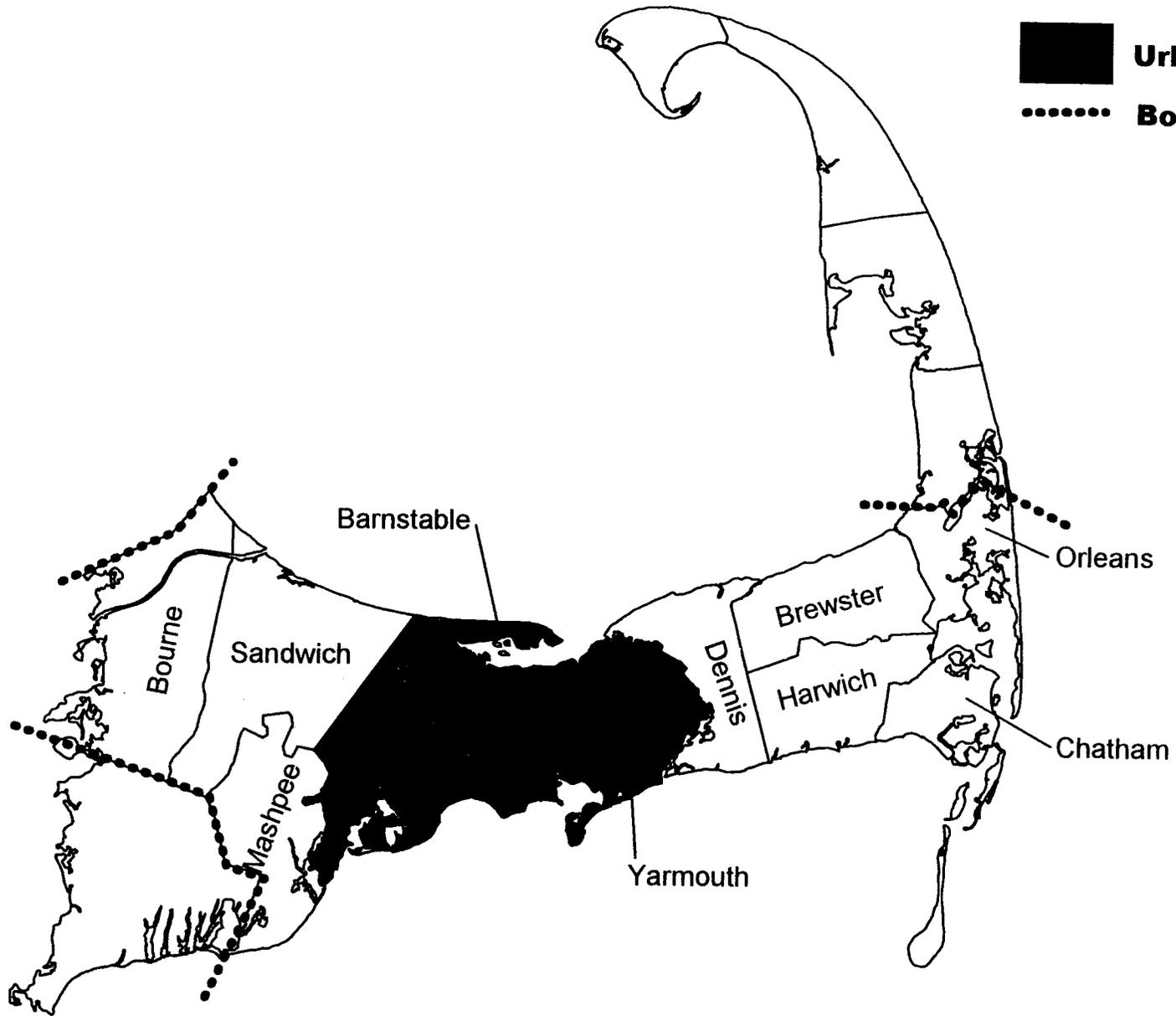


Source: U.S. Census

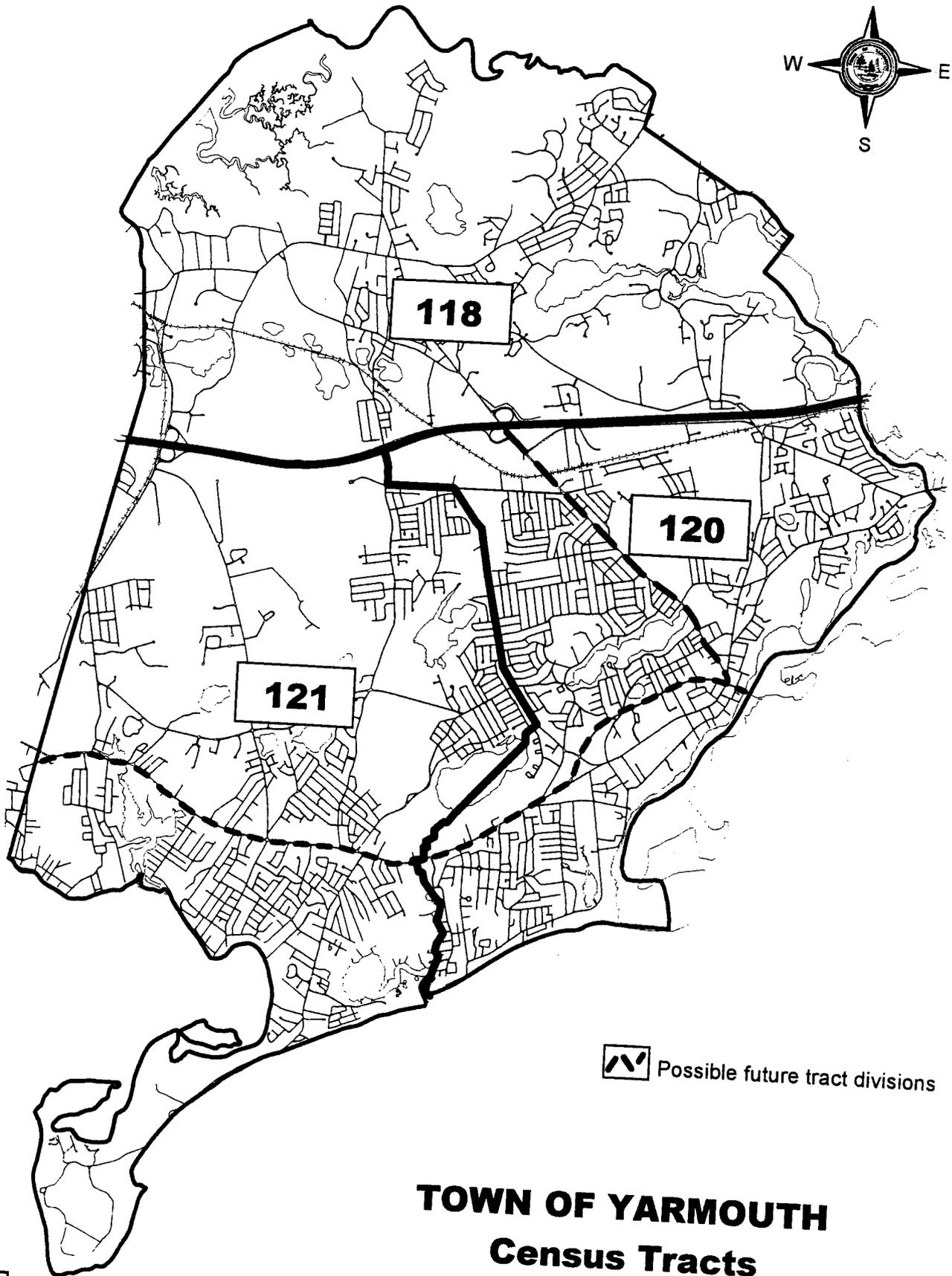
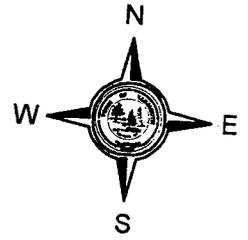
Chart 3-1



**Urban Core**  
**Boundary**



# CAPE COD STANDARD METROPOLITAN AREA 1990



**TOWN OF YARMOUTH  
Census Tracts  
1990**

### **WHERE ARE THE CENSUS TRACTS IN YARMOUTH?**

When the division of Yarmouth into three census tracts was agreed to, one was designed for the South Yarmouth, Bass River area, another was drawn to cover West Yarmouth and the remaining one, north of the Mid Cape Highway, included Yarmouth Port and Yarmouth. The populations and boundaries for the 1990 tracts are noted in the associated sketch map. (Map 3-3) A very considerable amount of socio-economic and housing data are also published for tracts, and that is summarized in the associated table. (see Table 3-2)

### **FUTURE "SPLITS" OF TRACTS**

Before the year 2000 census, two of the three tracts, #120 and #121, should be split in order to keep them within the population size parameters of the bureau of the Census. Staff has already prepared a draft suggestion as to how and where that splitting might be done. The proposal would not change the existing overall tract boundaries, but would better define neighborhoods using easily discerned boundaries. Tract No 118, north of U.S. Route 6 would not need to be split because of its smaller population. (see Map 3-3)

**POPULATION DATA - 1990**  
**TOWN OF YARMOUTH CENSUS TRACTS**

	<b>TRACT #118</b>		<b>TRACT #120</b>		<b>TRACT #121</b>		<b>TOTAL</b>	
<b>TOTAL POPULATION</b>	5,375	100.00%	8,106	100.00%	7,693	100.00%	21,174	100.00%
Male	2,498	0.4647	3,565	43.98%	3,542	46.04%	9,605	45.36%
Female	2877	53.53%	4,541	56.02%	4,151	53.96%	11,569	54.64%
<b>AGE</b>								
Median Age	45	---	55.3	---	39.2	---	45.3	---
Under 5 years	285	5.3%	382	4.71%	475	6.17%	1,142	5.39%
5-17 Years	713	13.27%	862	10.63%	1,011	13.14%	2,586	12.21%
18-24 Years	312		508		695		1,515	
25-44 Years	1377	25.62%	1,683	20.76%	2,225	28.92%	5,785	24.96%
45-54 Years	475		534		687		1,756	
55-64 Years	648	12.06%	971	11.98%	783	10.18%	2,402	11.34%
65 Years & Over	1565	29.1 %	3,106	38.3 %	1,817	23.6%	6,488	30.64%
<b>Households By Type</b>								
Total Households	2317	100.00%	3,835	100.00%	3,442	100.00%	9,594	100.00%
Family Households	1643	70.91%	2,491	63.65%	2,141	62.20%	6,225	64.88%
Non-Family Households	674	29.09%	1,394	36.35%	1,301	37.80%	3,369	35.12%
Householder living alone	581		1,266		1,064		2,911	
Persons Living in Households	5375	2.32%	7,991	2.08%	7,623	2.21%	20,983	2.19%

	TRACT #118		TRACT # 120		TRACT # 121		TOTAL	PERCENTAGE
<b>GROUP QUARTERS</b>								
Number of Persons	0		115		70			
Institutionalized Persons	0		110		63			
Other	0		5		7			
<b>RACE</b>								
White	5302	98.64%	7,958	98.17%	7,414	96.37%	20,674	97.64%
Black	35	0.65%	60	0.74%	135	1.75%	230	1.09%
American Indian	5		10		35		50	
Asian or Pacific Islander	16		25		43		84	
Other	17		53		66		136	
Hispanic origin of any race	59		126		112			

Source - U.S. Census

Table 3-2  
PAGE 2

## **D. PAST TRENDS IN YARMOUTH**

### **POPULATION GROWTH RATES AND PERCENTAGES**

#### **TOWN GROWTH RATE CHANGES**

The rate of change for a municipality as indicated by the percent increase of population is interesting mainly as long as populations are of a similar size and are compared over a fixed time period. The smaller the permanent population the greater the mathematical opportunity there is for a radical percentage change. A look at the chart associated with this section (see Chart 3-2) shows Yarmouth's percentage change to have been by far the greatest for the decade of the 60's when fewer people lived here.

#### **CHANGES IN POPULATION DENSITY**

No longer is Yarmouth a community with a scattered population at rural density, but this is a community that has developed a typical suburban density. The most rapidity increasing density in the Mid-Cape area occurred in Dennis over the last 20 years, however. Dennis' density of population increased 112.7% to 673 persons per acre slightly more than Barnstable's, between 1970 and 1990. Over the same 20 year period Yarmouth increased in density by 76.4%. Yarmouth had been, however, developing rapidly since 1960. (see Table 3-3)

When you consider that there are 640 acres in a square mile and note that the three Mid-Cape towns now all have densities of over 640 persons per acre, that is over 1 person per acre (43,560 sq.ft.). you can see that our land is becoming ever more dear... and crowded on Cape Cod.

#### **CHANGES IN PERCENTAGE CONTRIBUTION**

Yarmouth's population has been making up a rather stable percentage of the Cape's population over the last 20 years. (see Chart 3-3) It is however now dropping slowly as its numerical increase slows. This same type of percentage contribution stability can be noted for the Town of Chatham as well. It is interesting to note, in comparison, that Sandwich has been gaining an ever-increasing proportional share as their population has been growing more rapidly than the other two towns because of the population pressures of the Boston metropolitan area. Bourne, with the contraction of use at Otis AFB has dropped its population share of the Cape's population substantially, from 13.0% to 8.6%.

What does all this mean? Probably that there will be other towns becoming more important than previously on the Cape because of their size, such as Sandwich, while the three largest towns, Barnstable, Falmouth, and Yarmouth will remain proportionally large and will remain important, sizewise, for the near future.

# Population Percentage Change 1960 - 1990

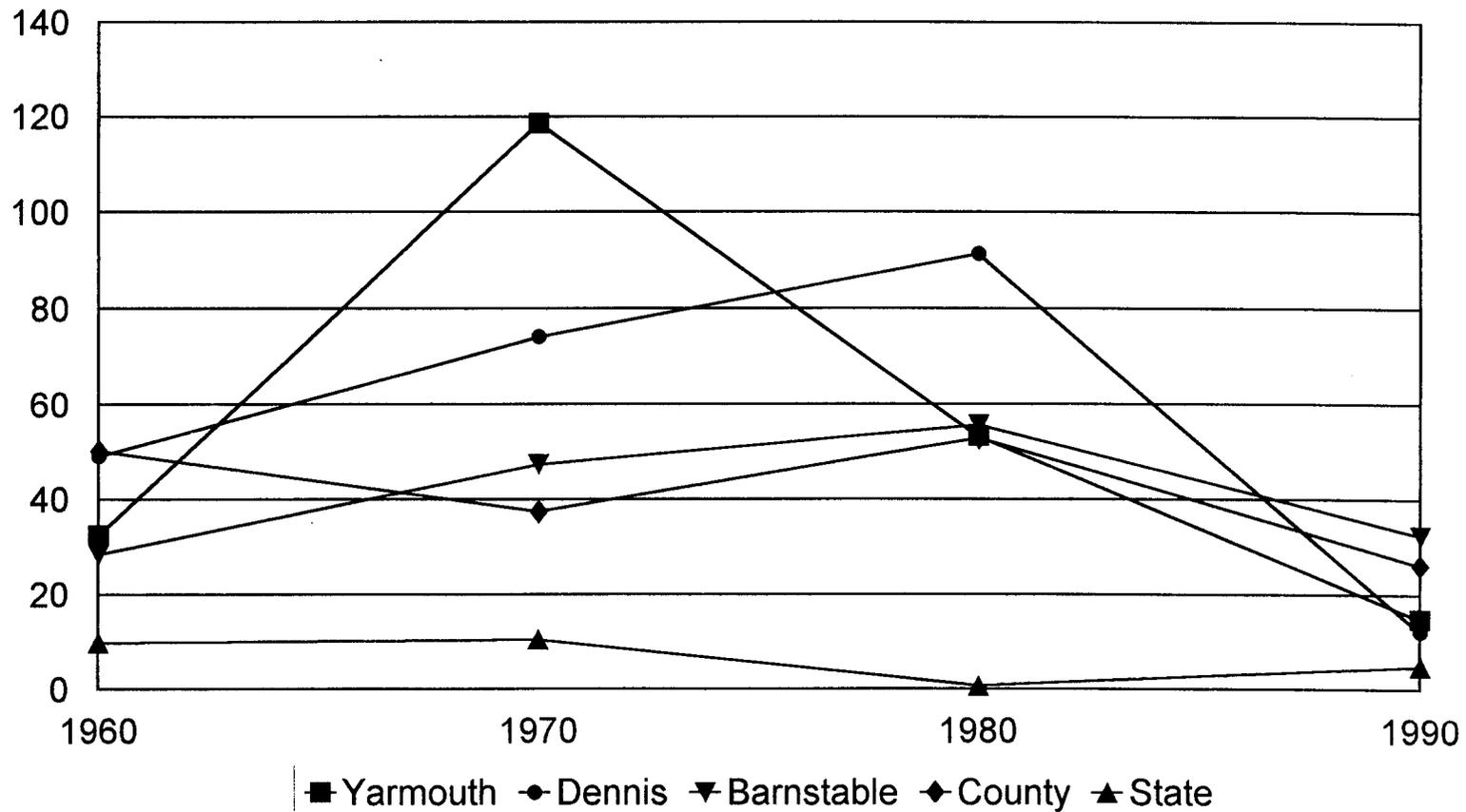


Chart 3-2

**POPULATION DENSITY TRENDS 1970 - 1990**

	MASSACHUSETTS	BARNSTABLE COUNTY	YARMOUTH	DENNIS	BARNSTABLE TOWN
Land Area/sq.mi.	7,838	395.8	24.3	20.6	60.1
1970 Population	5,689,170	96,656	12,003	6,454	19,842
Persons/sq.mj.	715.8	244.2	494	316.4	330.1
1980 Population	5,737,037	147,925	18,449	12,360	30,898
Persons/sq.mj.	732	373.7	759.2	600	514.1
1990 Population	6,016,425	186,605	21,174	13,864	40,949
Persons sq.mil.	767.6	471.5	871.4	873	681.3
increase in density 1970-1990	+5.76%	+93.08%	+76.40%	+112.71%	+106.39%

Sources: U.S. Census

Table 3-3

# Cape Cod Population 1970 - 1990

## Changes in Percent Contributions

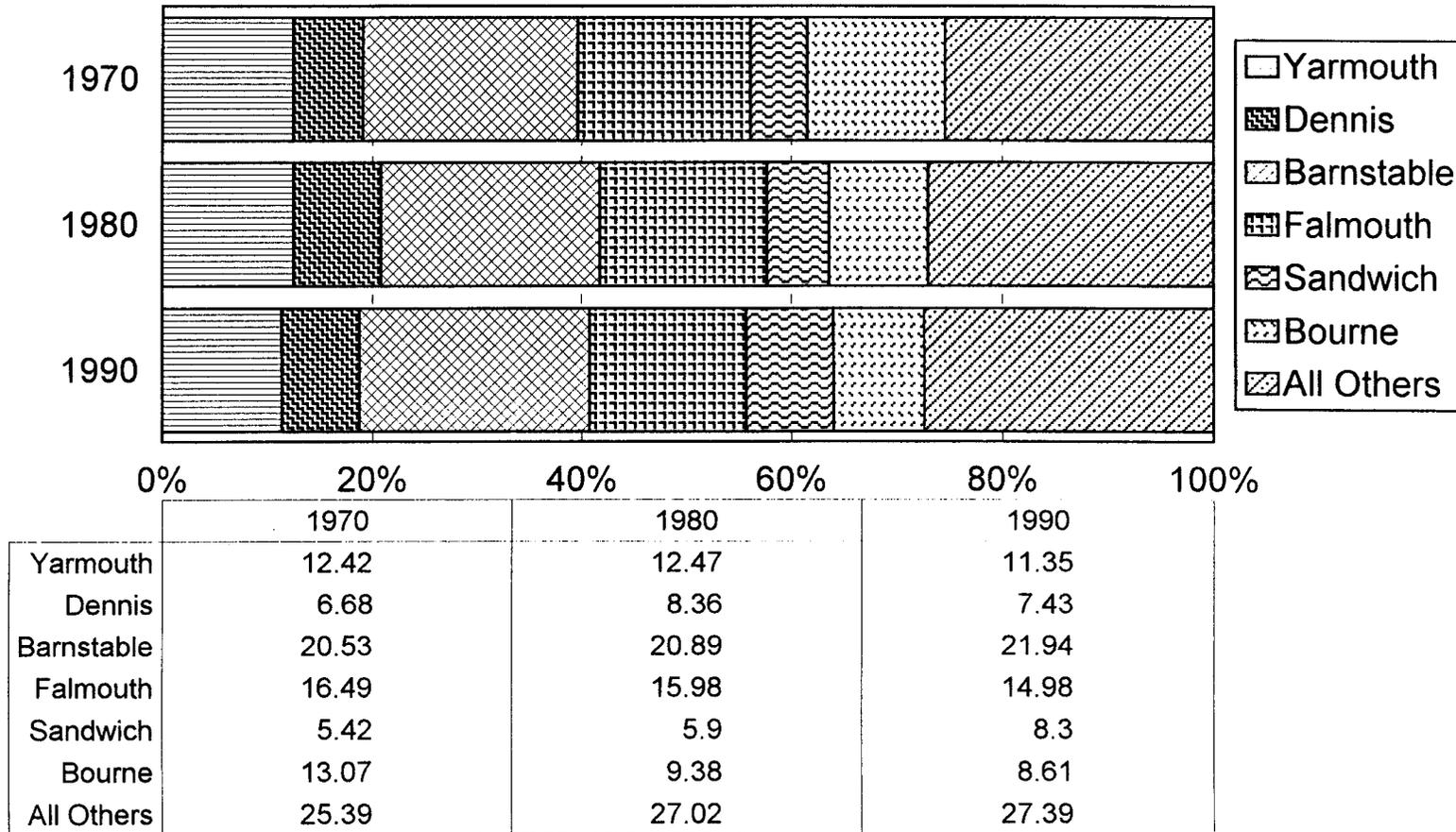
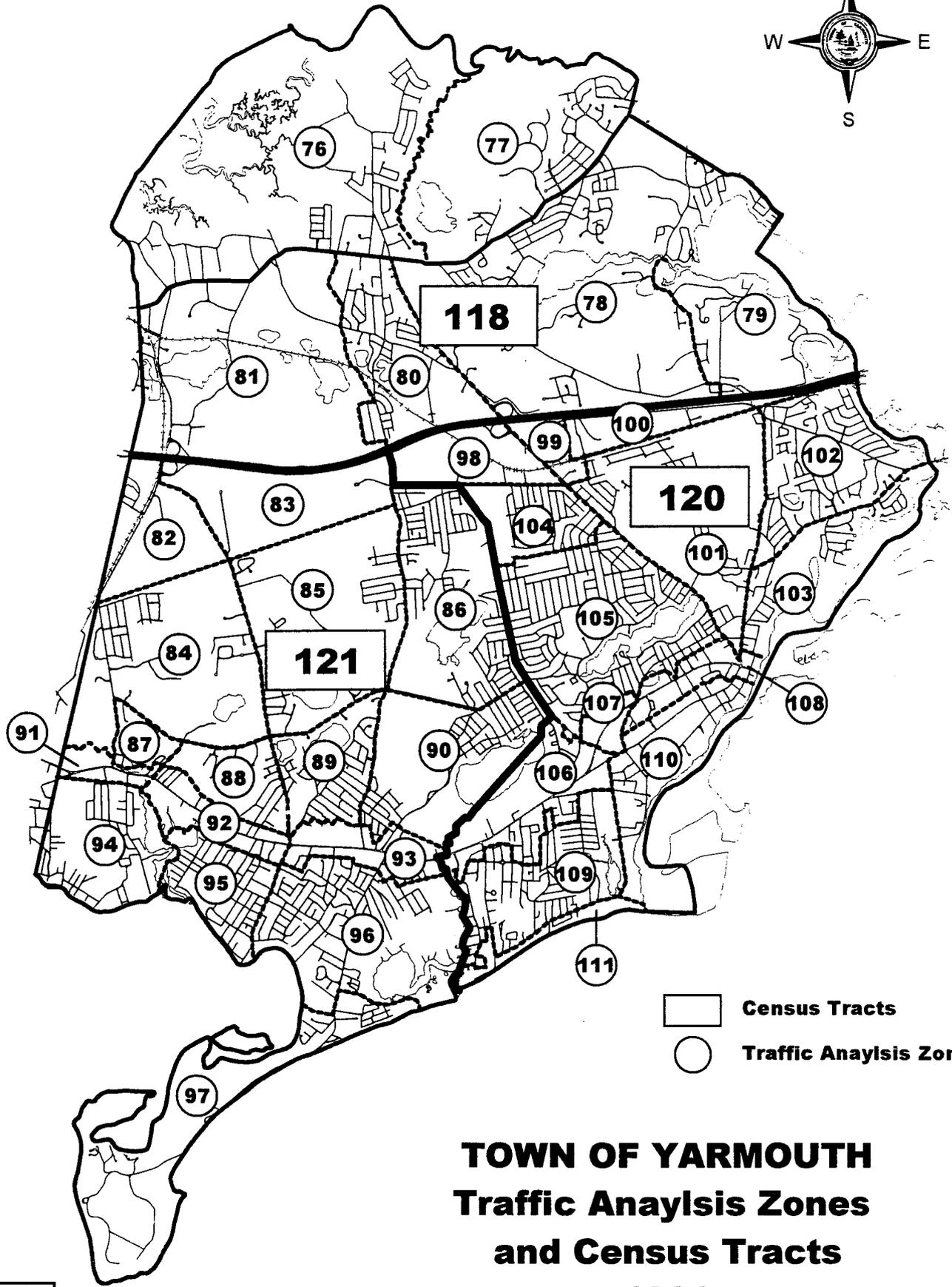
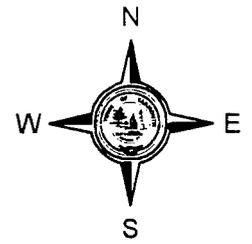


Chart 3-3

### **SMALL AREA/UNIT SIZE GROUPINGS**

There are several types of small area units for which data will ultimately be available in Yarmouth. Block statistics were gathered in 1990 and have been used in some part with TAZ's (traffic analysis zones.) Blocks are generally too small in size to be useful in general overall planning however.

There are "planning neighborhoods", 12 in number, but at this stage no analysis has been made. Finally there are TAZ's, 35 in number, that have been extensively used in the Transportation Study. (see Map 3-4) Existing land use has been mapped and projected, and population estimated and projected for TAZ's. For further details the reader should consult the Barnstable/Yarmouth Transportation Study technical data report in Chapter 9 of the Plan.



- Census Tracts
- Traffic Analysis Zones

**TOWN OF YARMOUTH**  
**Traffic Analysis Zones**  
**and Census Tracts**  
**1990**



## **E. POPULATION AND SOCIO-ECONOMIC CHARACTERISTICS**

### **PERMANENT AND SEASONAL POPULATION FLUCTUATIONS**

In any analysis of the existing population the following socio-economic characteristics are insightful. Over the last 20 years one of the questions that is often received by staff is about the size and make-up of our summer population. As a rule of thumb, 2 and 1/2 times the current permanent population can be used here in Yarmouth. That means 2.5 X 21,174 or 52,900. Estimates for the peak week of July 4 range as high as 58,000, although that seems too high. It is clear more definite data is needed on this subject. (see Charts 3-4 and 3-5)

### **MINORITY POPULATION**

Cape Cod has substantially less of a minority population than the state as a whole as can be seen from the attached table. (see Table 3-4) In addition there are well recognized Native American groups such as the Wampanoag Tribe, and specific non-white groups such as Cape Verdeans. Between 1980 and 1990 Barnstable County's minority population grew by 53.1%, although this represented a numerical increase of just 3,001 persons. In the same 10 year time frame Yarmouth's minority population increased from 264 to 721, or by 457 persons. This represented a 173.11% increase. Still in 1990 Yarmouth's minority population was less than 4% of the total population, 3.41% of the total. Barnstable County reported 4.63% of its population as "minority."

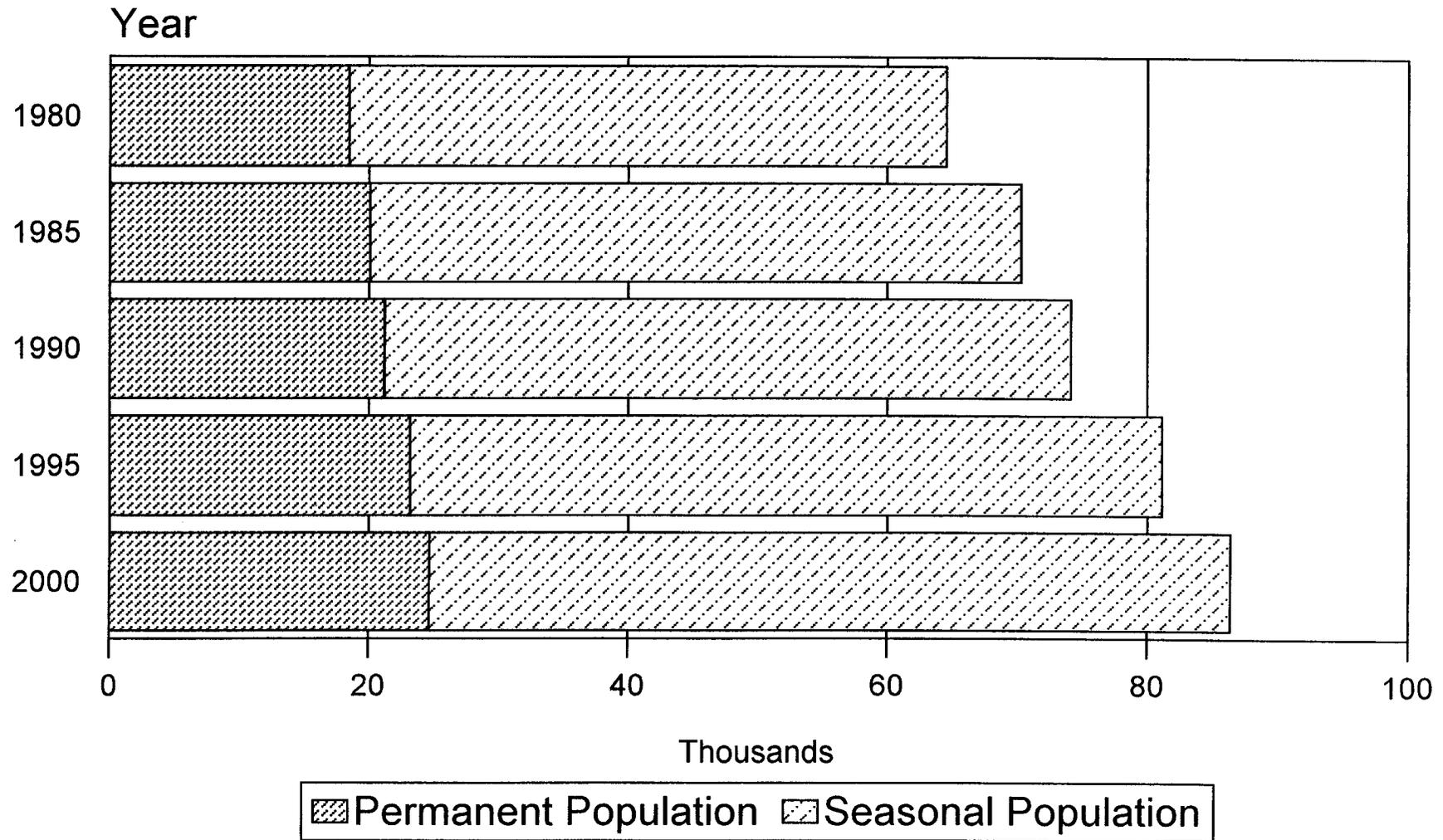
### **ETHNICITY**

In 1990 the U.S. Census provided information on the ethnic background of the population. At this time we have information of this sort on a county-wide basis only. For the most part this data provides us data about historical development of the Cape rather than as a current basis for long range comprehensive planning. It is interesting to look back however as to where we all have come from. The applicability for physical municipal planning perhaps is not very great (see Table 3-5)

The accompanying chart (see Chart 3-6) shows that the Cape's two largest ethnic groups by far are the Irish and the English (Yankee). Together they make up almost 42% of the entire population. Certainly that figure represents the historical settlement patterns of the Cape. The next five ethnic groups represent the later in-migration patterns, but together they total only slightly over another 31% of the Cape's population. The remaining ethnic groups are about as fragmented as our multi-ethnic and cultural society.

# Yarmouth Population

1980 - 2000



Source: U.S. Census, 1980, 1990, & Planning Staff Calculations

Chart 3-4

# Projection of Summer vs Permanent Resident Population 1990 - 2010

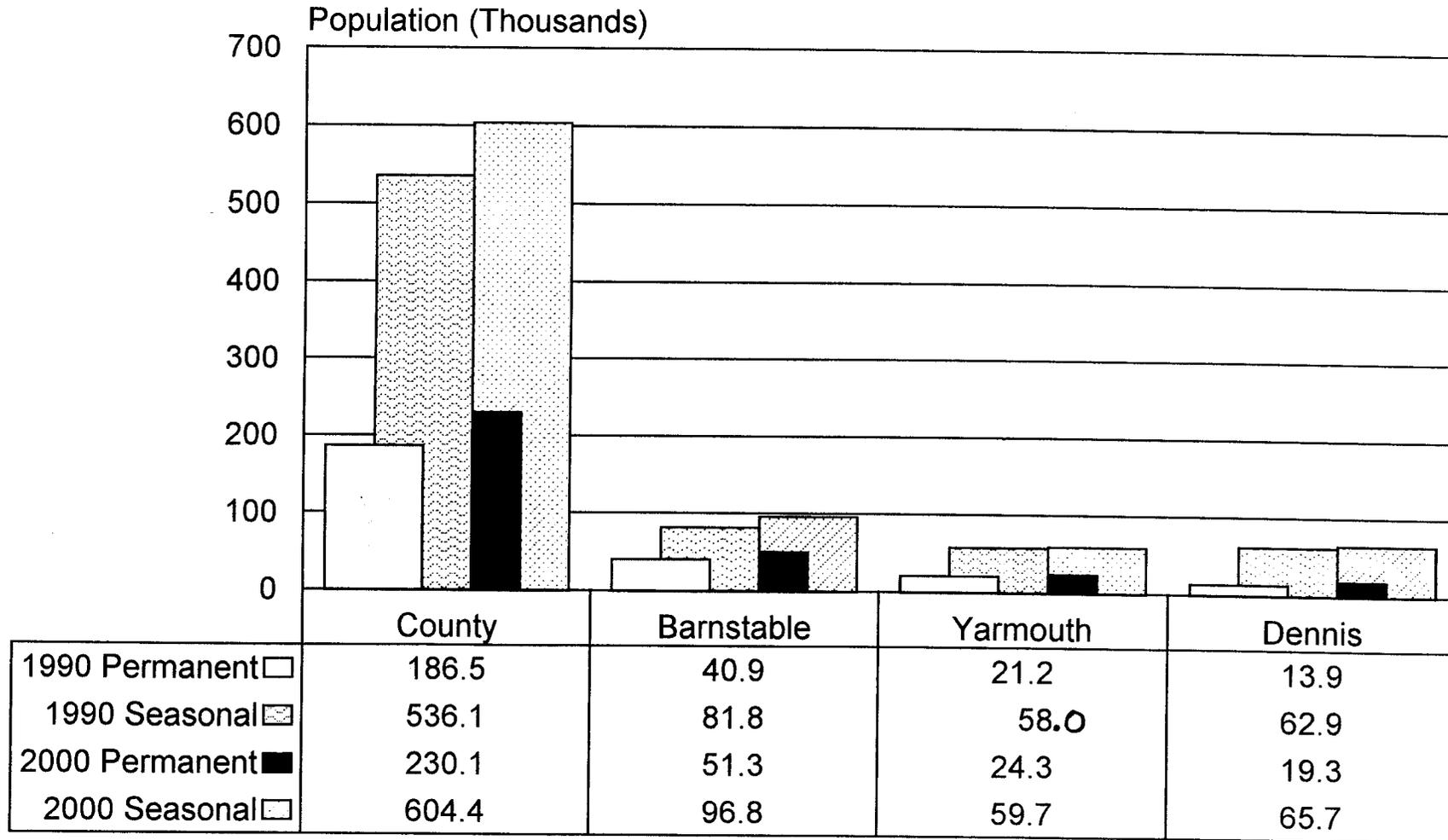


Chart 3-5

### MINORITY POPULATION 1980 - 1990

	1980 Total Pop.	1980 Minority Population	Percent	1990 Total Pop.	1990 Minority Population	Percent	%CHANGE 1980--1990
YARMOUTH	18,449	264	1.43	21,174	721	3.41	+173.11%
BARNSTABLE	30,898	1,571	5.08	40,949	2,736	6.68	+ 74.16%
DENNIS	12,360	259	2.10	13,864	434	3.13	+ 67.57%
BARNSTABLE COUNTY	147,925	5,648	3.82	186,605	8,649	4.63	+ 53.13%

Source: U.S. Census of Population

Table 3-4

### ANCESTRY - BARNSTABLE COUNTY - 1990

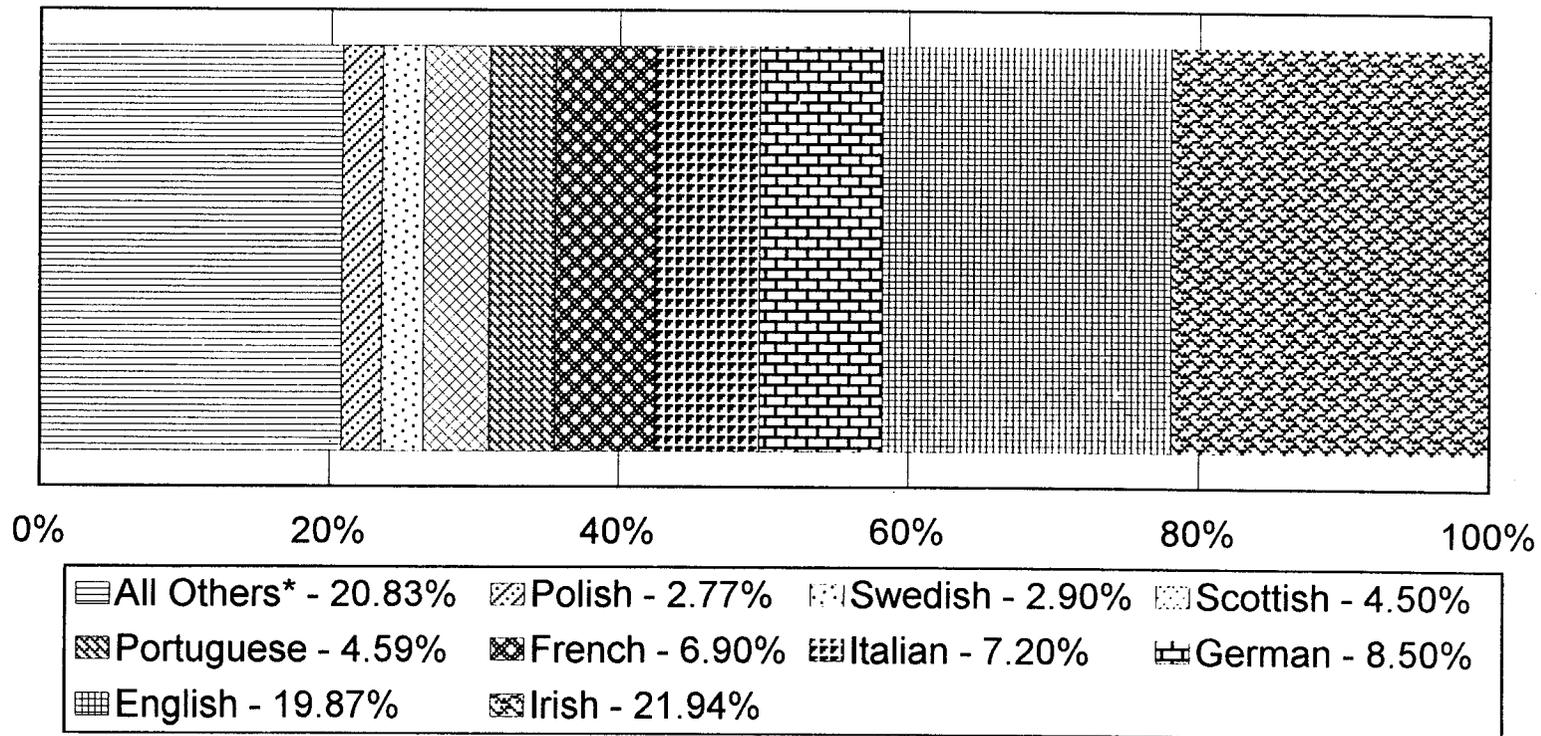
	TOTAL ETHNIC POPULATION	% of Total		TOTAL ETHNIC POPULATION	% of Total		TOTAL ETHNIC POPULATION	TOTAL % OF CHG
IRISH	52,687	21.94	FRENCH	16,568	6.90	POLISH	6,647	2.77
ENGLISH	47,709	19.87	PORTUGUESE	11,030	4.59	ALL OTHERS	50,029	20.83
GERMAN	20,414	8.5	SCOTTISH	10,818	4.50			
ITALIAN	17,288	7.2	SWEDISH	6,963	2.90	TOTAL ANCESTRIES REPORTED	240,153	100.00

Source: U. S. Census of Population

Table 3-5

# Social Ancestral Characteristics of Barnstable County

1990



\* Each less than 2.5%

Chart 3-6

## **F. EDUCATIONAL TRENDS**

### **EDUCATIONAL ATTAINMENT**

1990 was the first census year that we had comparable and detailed educational attainment data. The attached table, (see Table 3-6) although lacking in trend data, does give an interesting profile of the Cape and its towns as regards educational attainment.

In the state, of the 3,962,223 persons over 25 years, 80.0% were high school graduates and 27.2% had a bachelor's degree, or more. Barnstable County and Barnstable Town exceeded the state average for bachelor's degrees or higher. This latter statistic indicated the highest on Cape to be in Orleans, 38.2%, and the lowest in Wellfleet, 21.2%; Yarmouth was the fourth lowest, 22.5% of the persons over 25 having a bachelor's degree or higher. (see Chart 3-7)

## EDUCATIONAL ATTAINMENT (PERSONS 25 YEARS OLD AND OLDER IN 1990)

TOTAL	MASS. % 3,962,223	BARNSTABLE CT. % 133,951	BARNSTABLE TOWN % 28,965	YARMOUTH % 15,994	DENNIS % 10,402					
LESS THAN 9TH GRADE	317,943	7.25%	4,039	3.02 %	847	2.92%	414	2.59%	230	2.21%
SOME HIGH SCHOOL	474,714	11.98%	11,549	8.62%	2,418	8.35%	1,826	11.42%	981	9.43%
HIGH SCHOOL GRAD.	1,178,509	29.74%	41,186	30.75%	8,787	30.34%	5,550	34.7%	3,387	32.56%
SOME COLLEGE	624,944	15.77%	27,700	20.68%	6,032	20.83%	3,327	20.28%	2,222	21.36%
ASSOCIATE DEGREE	287,114	7.25%	11,890	8.88%	2,684	9.27%	1,281	8.01%	947	9.1%
BACHELORS DEGREE	657,161	16.59%	25,186	18.8%	5,477	18.91%	2,333	14.59%	1,798	17.29%
GRADUATE/ PROFESSIONAL DEGREE	421,838	10.65%	1,240	9.26%	2,720	9.39%	1,263	7.9%	837	8.05%

	<u>MASS. %</u>	<u>BARNSTABLE CT. %</u>	<u>BARNSTABLE TOWN %</u>	<u>YARMOUTH %</u>	<u>DENNIS %</u>
%H.S. Grads/Higher	80.0%	88.4%	88.7%	86.0%	88.4%
% Bachelor's Degree or Higher	27.2%	28.1%	28.3%	22.5%	25.3%

Source: U.S. Census

Table 3-6

# Educational Attainment In Yarmouth

Persons 25 Years Old or Older  
1990

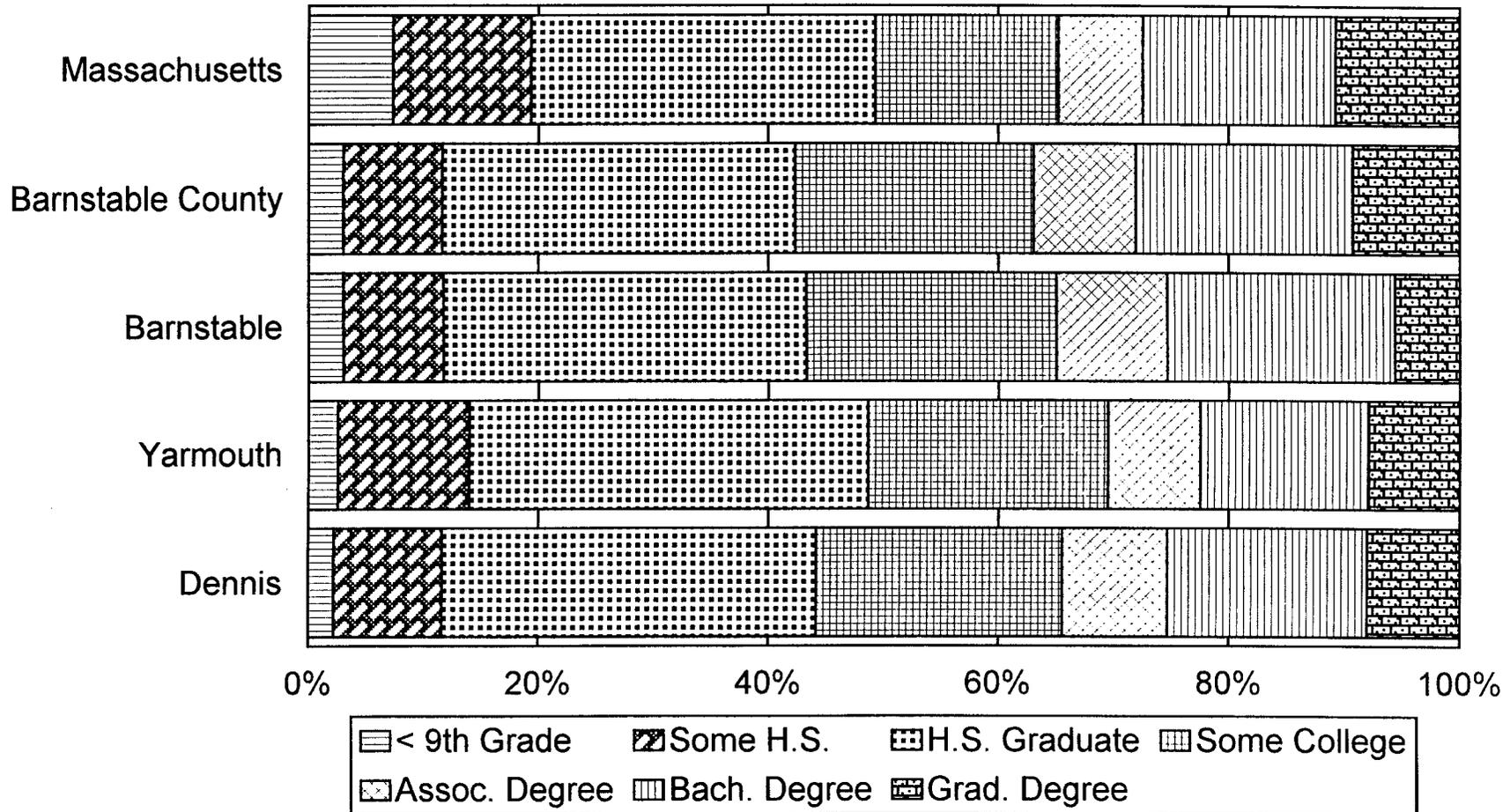


Chart 3-7

## **G. AGE AND SEX CHARACTERISTICS**

### **WHAT IS AN AGE TREE?**

In analyzing any local government's population it is usual to look at 5 year age groupings by sex. The result is a long table of numbers that is not easy to evaluate. As a result, this age information is often shown graphically, which typically takes a "Christmas Tree" shape since the younger age groups are commonly larger. But such is not always the case if the population's age characteristics are unusual in character.

### **WHY IS YARMOUTH TREE UNUSUAL?**

Yarmouth's age tree is unusual!!! (see Chart 3-8) Since we are a much older community on average, our age tree shows it very graphically. The numbers of men in each five year age group are fairly uniform up to age 60, at which point they increase sharply for 15 years to help form a sort of high "mushroom" shape. The accompanying age tree chart shows this. It also shows the 5 year age group change between 1980 and 1990 for both sexes. The size of the population over 60 for women explodes until age 80 causing the "top-heavy mushroom cloud" effect. The top of the age tree shrinks rapidly after 75, as older people pass away, notably the men! After age 85 there are very few men left (217)! Women live, on average, almost 8 years longer, than men, 80 to 72 years.

### **BASIC FORECAST FOR CHANGES IN THE VARIOUS AGE GROUPS.**

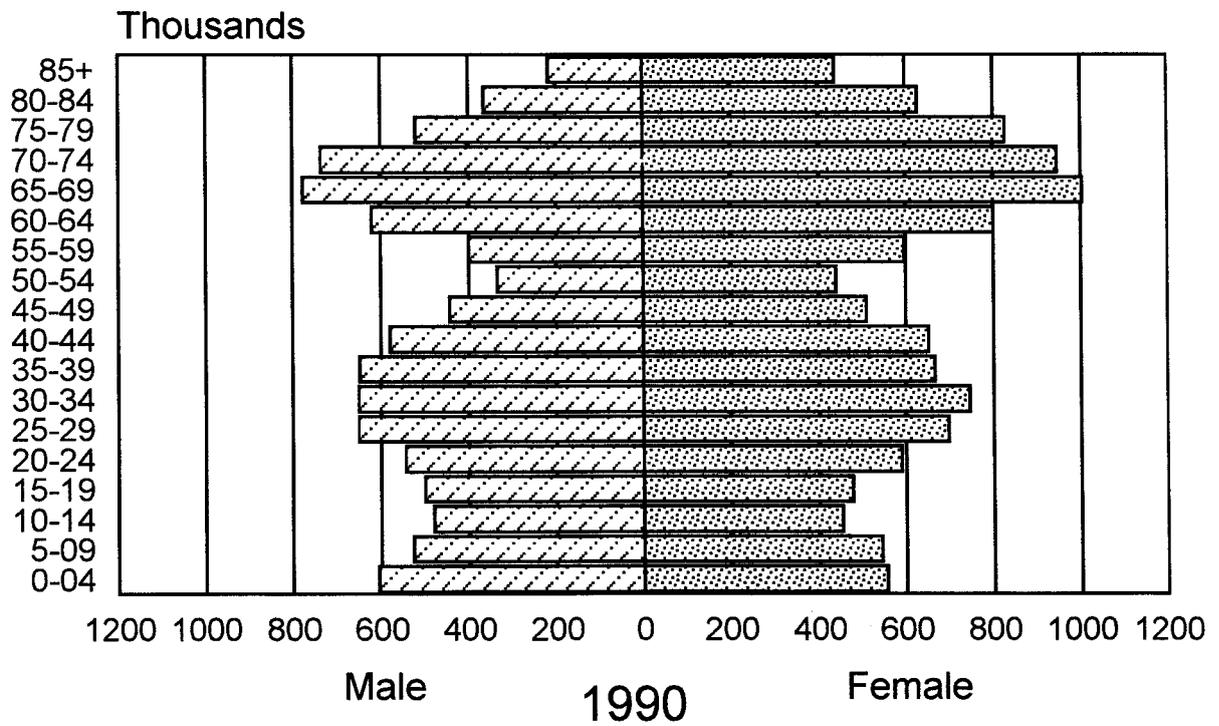
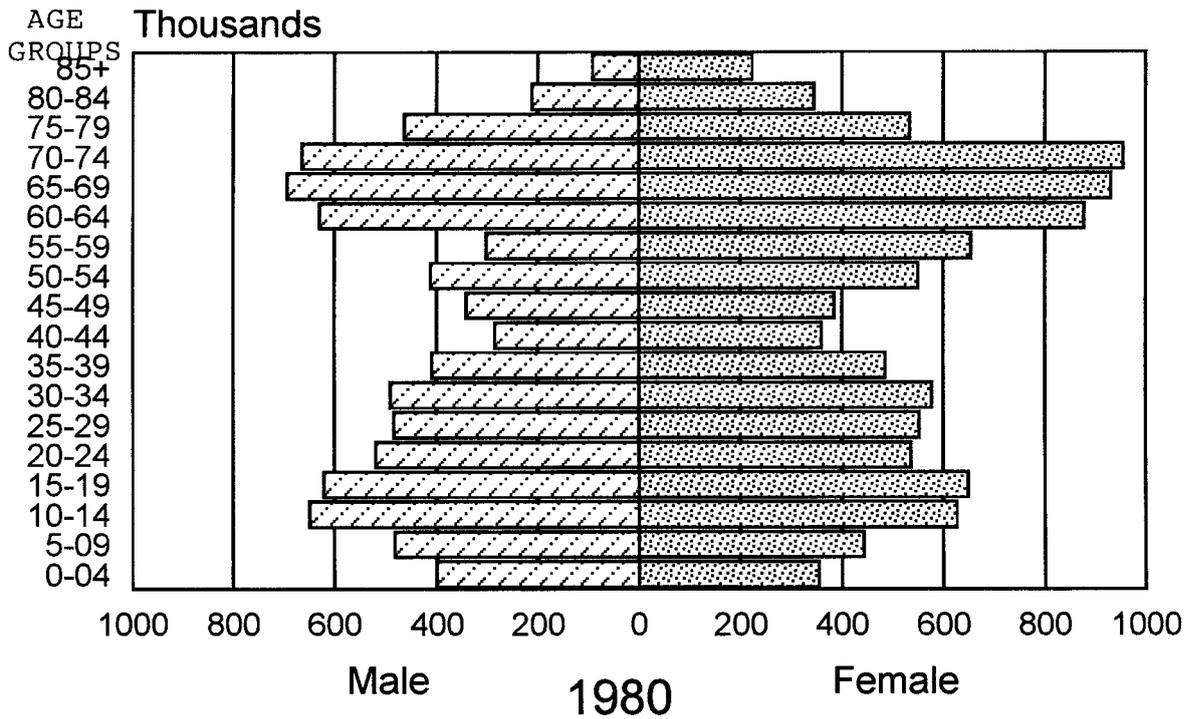
A basic piece of information that is needed for planning is not only how many people we are planning for, but what ages. Only in the past year have we been able to answer that question. By using the UMASS (MISER) forecast for the various age groups in the year 2010 we will be able to factor out a forecasted population by age group for the year 2015. This is far from a perfect technique, but at least it is one that will yield figures generally suitable for long-range planning purposes. As soon as these figures are ready we will prepare a supplement to this report, probably during Phase II of the Comprehensive Planning Program.

### **MEDIAN AGE TRENDS**

A median age is one in which half the reported populace is older than that age, and the other half is younger. It is more reliable for analysis purposes since it is an adjustment for extremes in the reported conditions. As a result of the 20 year long immigration of seniors Yarmouth's median age reached 47.1 years in 1980 and then actually dropped a little to 45.3 years by 1990, primarily as a result of the increasing senior population that is resident in town.

Interestingly enough there is considerable variation between the various Census Tracts here. In 1990 South Yarmouth was the oldest at 55.3 years, an unbelievably high figure; West Yarmouth, with more commuting working people than the other tracts, had the youngest median age at 39.2. YarmouthPort's tract includes Old

# Yarmouth Population Distribution



Source: U.S. Census, 1980 and 1990

Chart 3-8

Yarmouth as well. Its median age fell in between the other two at 45.0 years in 1990. Still all these ages are older than the usual for suburban communities, usually such ages are in the low 30's; it reflects our large retirement age population, of course. (see Table 3-7)

### **POPULATION OVER 65**

The surprising thing about the population over 65 total is that it shows a percentage of elderly persons far below the presumed 50% of the total population; in Yarmouth it was under 31% in 1990; and it was changing relatively slowly in percentage contribution to the whole town population as well. Between 1980 and 1990 Yarmouth's senior population increased from 28% to 30% of the total; for all Barnstable County's seniors as a whole they increased from 20% to 22%. Both Yarmouth (30%) and Dennis (29%) had substantially higher percentages over 65 than did Barnstable Town (20%). As might be expected the Cape's percentage over 65 exceeded the State's, 22% to 13% in 1990. (see Chart 3-1) When projecting from this set of data it appears that the percentage of Yarmouth's total population over 65 will stabilize somewhere around 40% of the total population rather than at the expected 50% of the total. (see Tables 3-8 and 3-9)

## TRENDS IN MEDIAN AGES

1980 - 1990

	1980	1990	% CHANGE 1980-1990
MASSACHUSETTS	31.1	33.4/33.57	+8%
BARNSTABLE COUNTY	37.1	39.5/39.46	+6%
BARNSTABLE TOWN	36.2	38.13	+5%
DENNIS	43.7	44.5	+2%
YARMOUTH	47.1	45.29	-3.8%

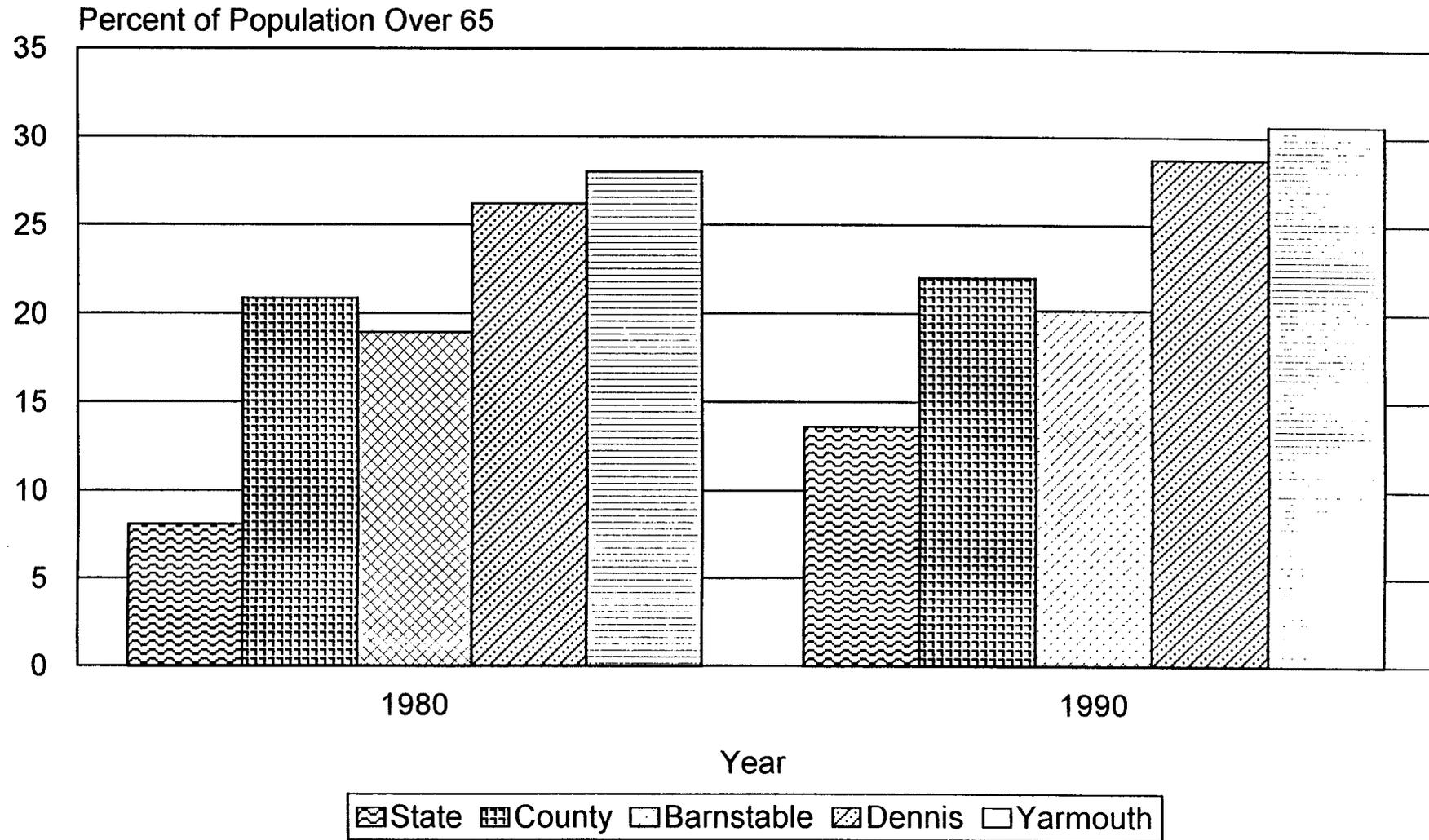
CENSUS TRACT 118 (YarmouthPort)	45.0
CENSUS TRACT 120 (South Yarmouth)	55.3
CENSUS TRACT 121 (West Yarmouth)	39.2

Source: U.S. Census

Table 3-7

# Trends in Percentage of Senior Population

1980 - 1990



Source: U.S. Census

Chart 3-9

**POPULATION OVER 65 - 1990 YARMOUTH CENSUS TRACTS**

CENSUS TRACT	TOT. POPULATION	POP. OVER 65	% OF OVER 65
118 Yarmouthport	5375	1565	29.1
120 So. Yarmouth	8106	3106	38.3
121 W. Yarmouth	7693	1917	23.6
Yarmouth Town	21,174	6,488	30.64

Table 3-8

**POPULATION OVER 65 - 1980-1990**

	<b>MASSACHUSETTS</b>	<b>BARNSTABLE COUNTY</b>	<b>DENNIS</b>	<b>YARMOUTH</b>	<b>BARNSTABLE TOWN</b>
1950					
1960					
1970					
1980	465,449	30,725	3,240	5,171	5,849
1990	819,284	41,135	3,989	6,488	8,285

% Change

1980 - 1990

+76.02%

+33.88%

+23.12%

+25.47%

+41.65%

Source: U.S. Census

Table 3-9

## **H. POPULATION FORECASTS**

### **BIRTH, DEATH, MIGRATION RATES**

In order to lead up to realistic population forecasts we need to know what is happening "naturally" to our population. - Those birth/death conditions are not static, they are dynamic, and vitally affect population change.

### **BIRTH RATES/CHANGES IN BIRTH RATES**

Since it has a relatively older population, Yarmouth has a relatively lower birth rate, and surprisingly one that has changed somewhat differently than expected over the past 40 years. (see Charts 3-10 & 3-11) From 1960 to 1992 the actual annual number of live births in Yarmouth has increased, erratically, from 130 to 195 per year over the 32 year period. (See Table 3-11) However, when these actual numbers are applied to the estimated existing yearly population, the rates of birth per total population dropped dramatically from 15 per thousand in 1963 to just over 7 per thousand in 1979. Since then the birth rate has increased slowly again, fairly steadily, to about 9.5 per thousand. This startling change was apparently the result of the tremendous influx of older (retired) persons in the 1970-80 time frame, people obviously mostly past their reproductive years.

### **DEATH RATES/CHANGES IN DEATH RATES**

At the same time the number of registered deaths increased from a low of 93 in 1963 to 328 in 1989. (See Table 3-10) This was not unexpected, given the rapid in-migration of seniors into Yarmouth. However, when a death rate is calculated using the estimated annual population, the rate in deaths per thousand persons has remained remarkably stable. That rate dropped some from 17.50 per thousand in 1960 to 12.50 in 1963. Since then it has increased slowly, and erratically, to just over 15 per thousand. This appears to be expectable for an aging community such as Yarmouth (see Charts 3-12 and 3-13)

### **TRENDS IN INFERRED MIGRATION RATES**

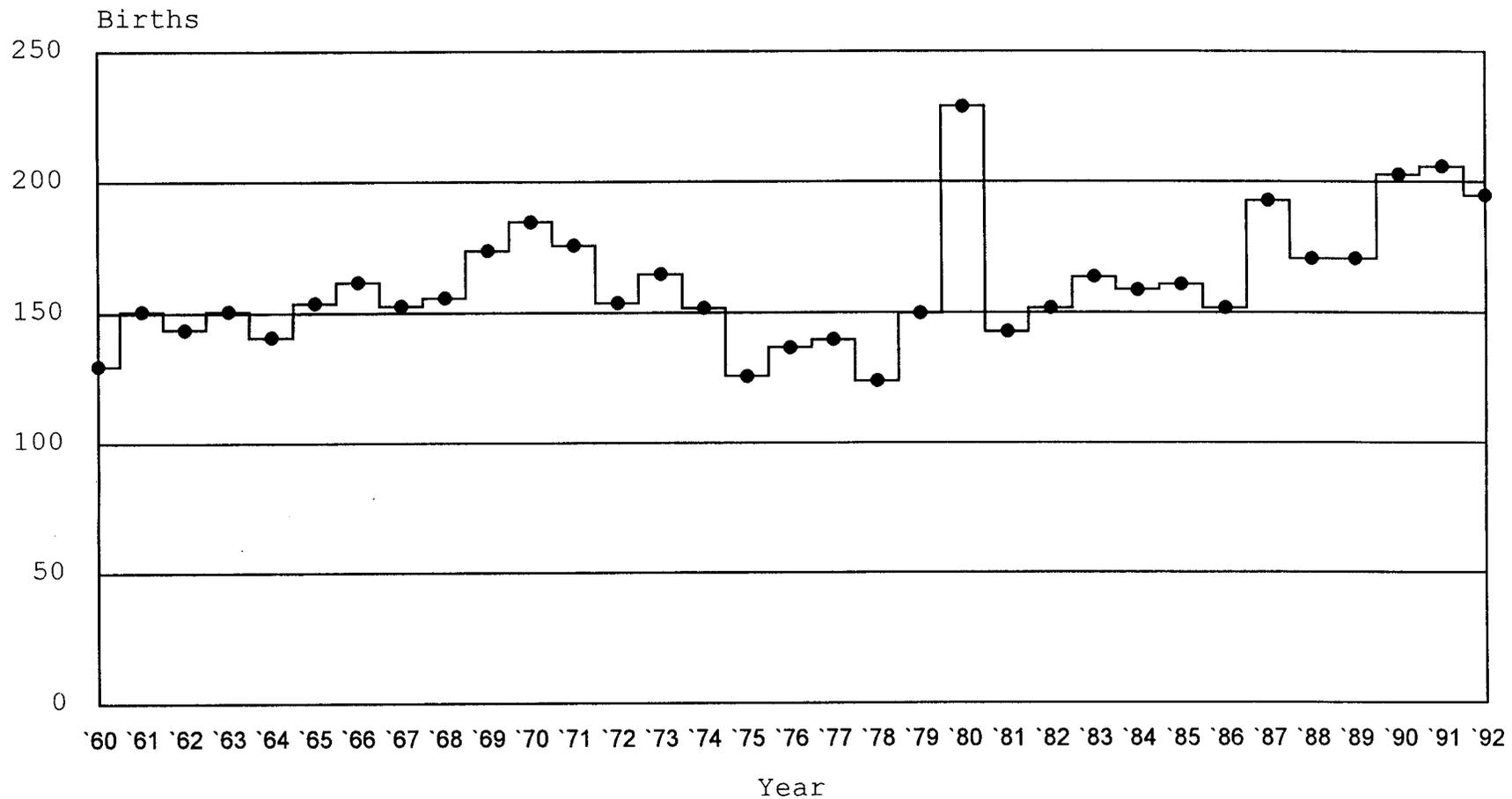
If the actual number of births is known and also the number of deaths for the analysis period (1960-90), we can calculate how much our population should have increased, or decreased, in that time, due to "natural conditions." That has been done.

Of course in reality our population grew a substantially different, larger amount. So where did all the additional people come from? They must have moved into Yarmouth! That is, there was a lot of in-migration.

Not surprisingly, between 1960 and 1970 in-migration ran between 595 and 659 per year, then increased between 1970 and 1980 to between 632 and 815 per year. However, the inferred migration rate slowed considerably to between 341 and 463 between 1980 and 1990. It has slowed even more since then, but has not completely stopped.

# Yarmouth Registered Resident Live Births

1960 - 1992



# Yarmouth Resident Live Birth Rates

1960 - 1990

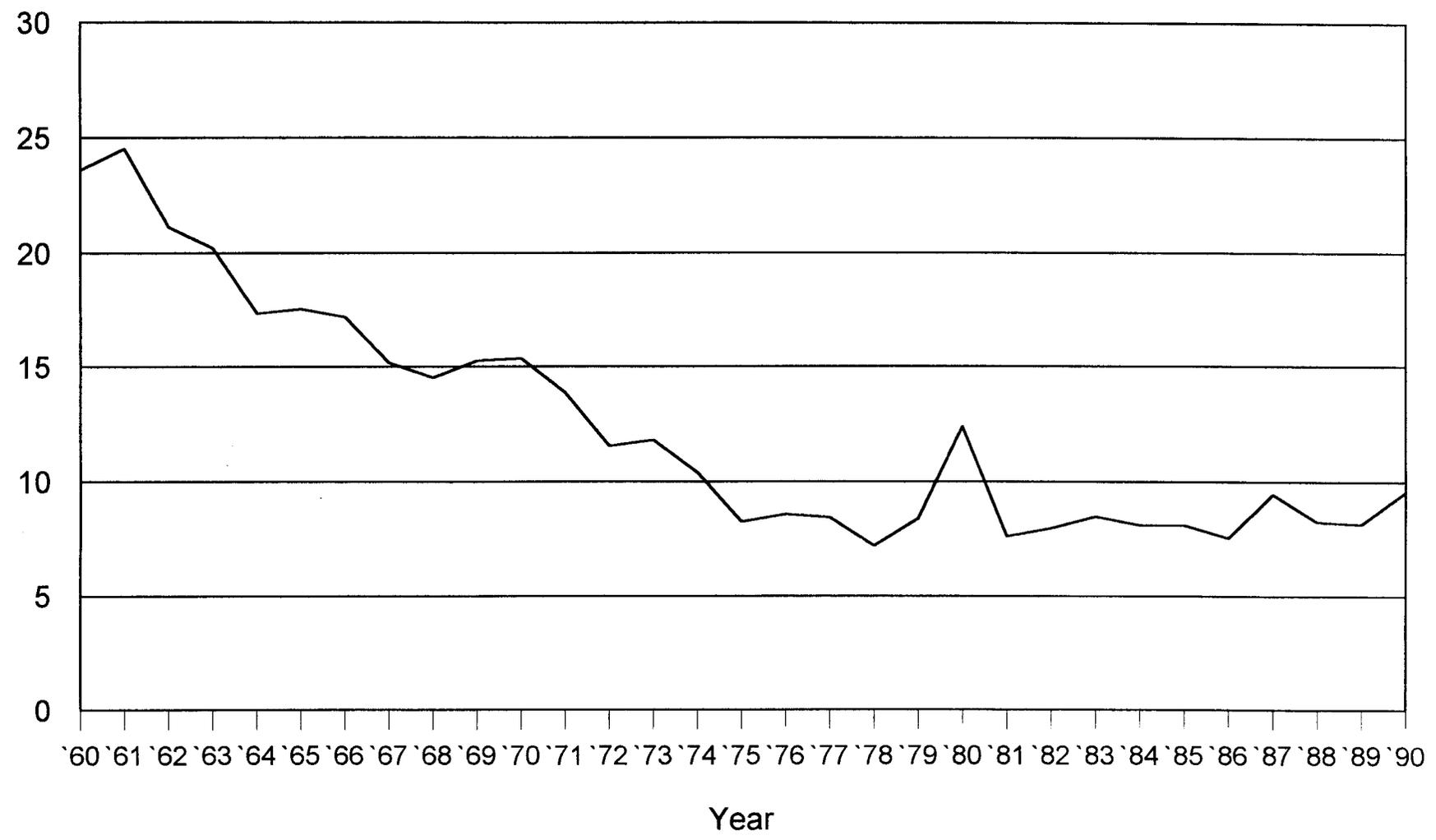


TABLE 3-10  
 YARMOUTH REGISTERED  
 RESIDENT DEATHS  
 1960 - 1990

1960	96
1961	98
1962	114
1963	93
1964	104
1965	131
1966	135
1967	145
1968	162
1969	153
1970	176
1971	166
1972	199
1973	229
1974	228
1975	220
1976	275
1977	236
1978	298
1979	293
1980	297
1981	273
1982	253
1983	284
1984	284
1985	342
1986	313
1987	309
1988	313
1989	328
1990	320
1991	
1992	

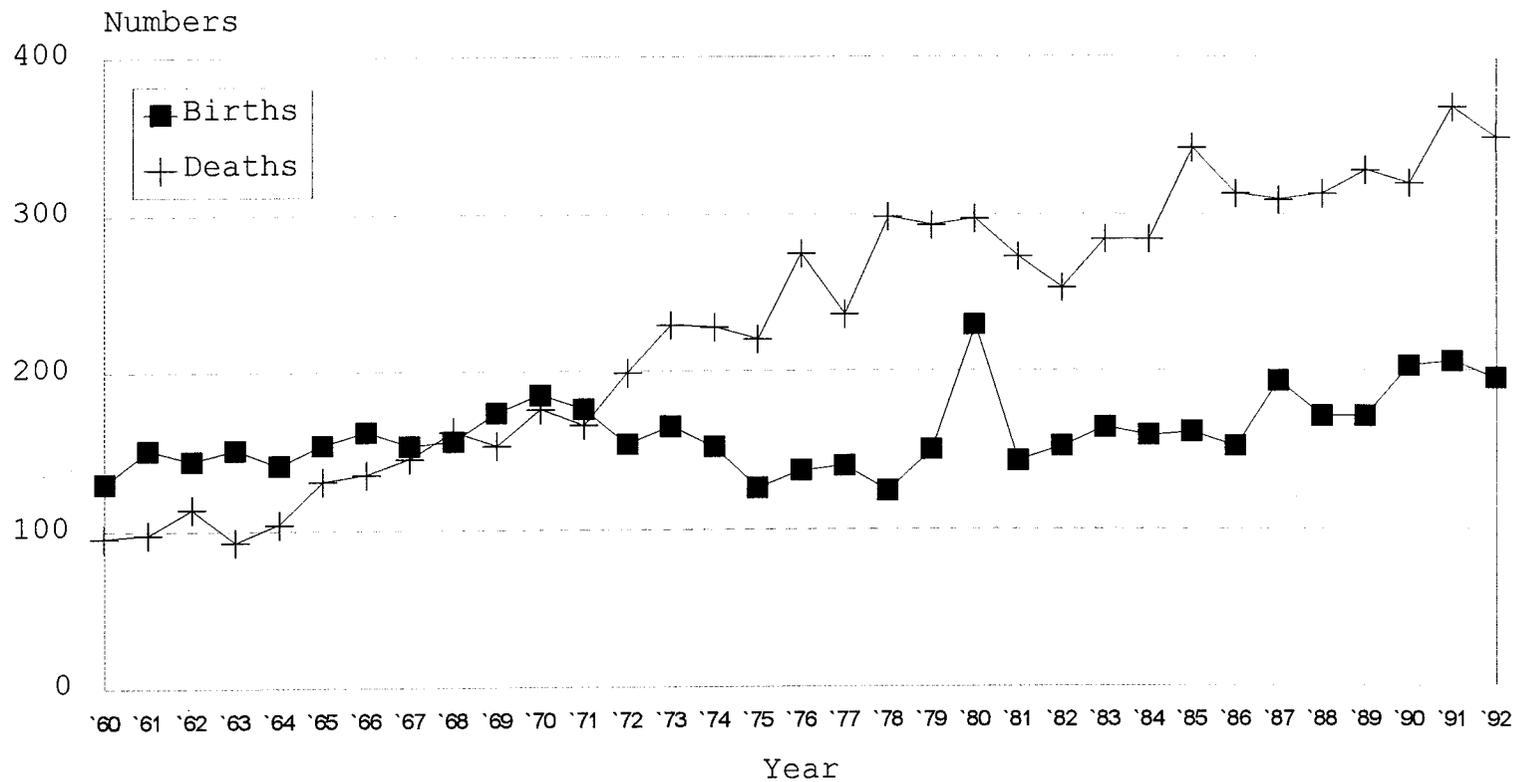
TABLE 3-11  
 YARMOUTH - REGISTERED  
 RESIDENT LIVE BIRTHS  
 1960 - 1992

130
151
144
151
141
154
162
153
156
174
185
176
154
165
152
126
137
140
124
150
229
143
152
159
164
161
152
193
171
171
203
206
195

Sources - Yarmouth Town Reports. 1961-1992  
 Yarmouth Town Clerk - Vital Statistics

# Births and Deaths

## Town of Yarmouth, 1960 - 1992



Source: Yarmouth Town Reports, 1961 - 1991, Yarmouth Town Clerk - Vital Statistics

Chart 3-12

# Yarmouth Death Rates

1960 - 1990

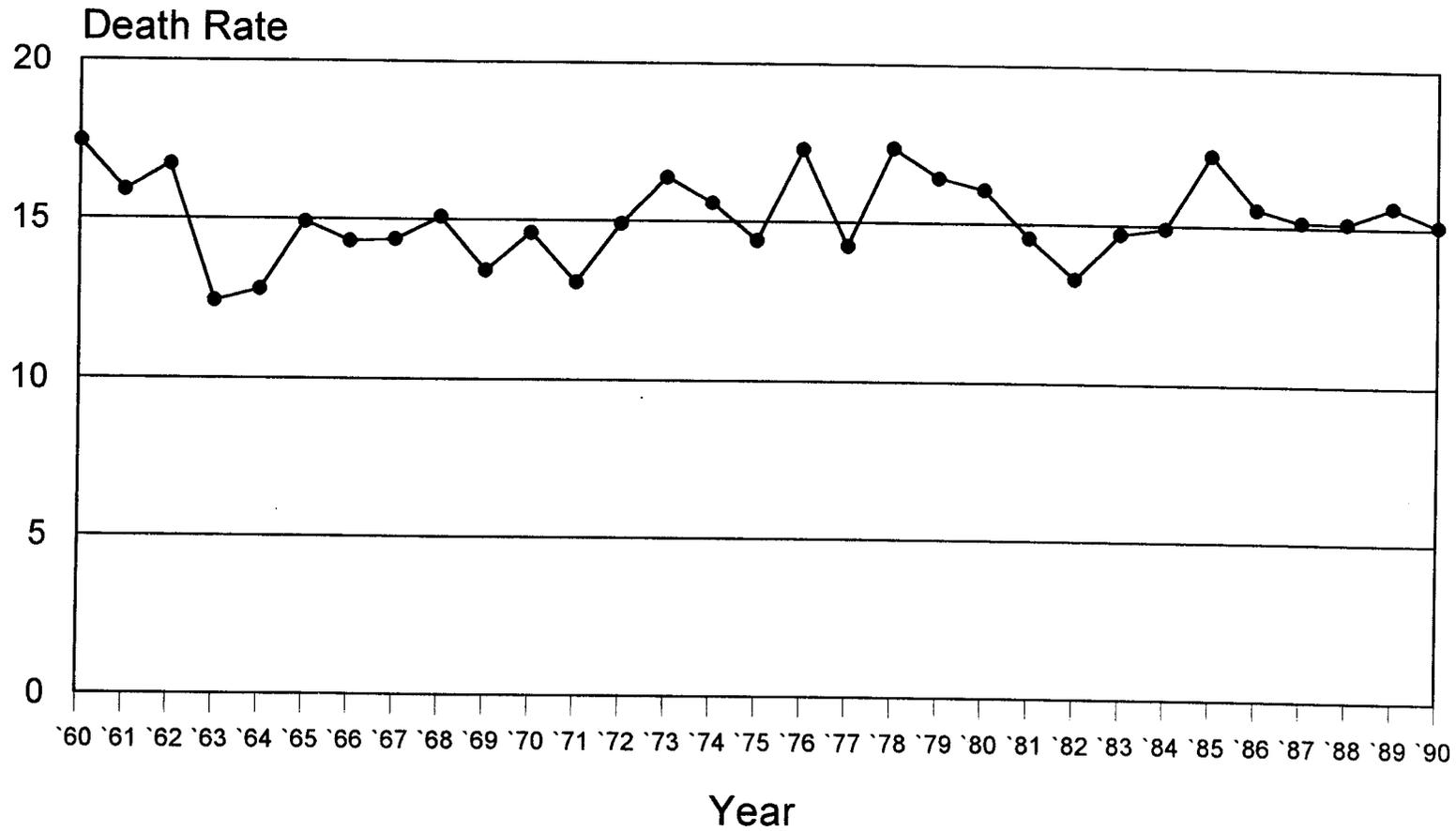


Chart 3-13

## **PROJECTIONS AND FORECASTS OF TOWN POPULATION**

At the present time two types of forecasts for Yarmouth have been prepared, a "ratio step-down" forecast, and an "inferred migration" rate forecast. They are radically different in their approach since they respond to two different premises about local changes in population. They represent a high and a low population forecast giving us a "range" of expectation within which to work. Our forecast time frame is for 20 years from now, that is until 2015.

### **STEP - DOWN TECHNIQUE**

Basically this method looks at the United States population forecast of the Census Bureau and the percentage that Massachusetts was of the nation, and how that percentage has been changing. Massachusetts population, over the last 40 years, has been a decreasing percentage of the United States so that percentage contribution has been factored even further downwards for the period until 2015.

The same was done for Barnstable County as a percentage of Massachusetts (it has been increasing) and Yarmouth's population as a percentage of Barnstable County. The result, of course, yields a forecast for each level of government.

It is usually, and certainly is in this case, a very conservative way of looking at population change. It also has the potential for considerable error in the percentage contribution assumptions of smaller units since they are an educated value judgement. Not surprisingly this technique yielded a forecast that Yarmouth's population would increase very slowly from the total in 1990 of 21,174 to 23,492 in 2015, most of that increase coming in the first 15 years of the 20-year forecast period.

### **INFERRED MIGRATION RATE METHOD**

This technique is much more sensitive to local changes, but not to national and/or regional changes in the way the first method is. Usually this method is a more optimistic type of forecast, and in this case it proved to be that way.

The births and deaths were projected by using a projection of their current rates per 1000 population and an annual "natural" population increase was calculated from these totals. In addition the yearly in-migration rate was factored and projected, and this number was added to the projected naturally increasing or decreasing population as well, to get a projected population year by year. These fairly extensive calculations were done for the entire period from 1990-2015, taking into consideration the ever-lessening amount of land available for development in Yarmouth.

The result was a "high" forecast which gave a forecast for a 2015 population of 29,058, up from 21,174 in 1990. (see Table 3-12) As a result of this, it would appear that we need to plan for a least another 7,800 people in Yarmouth in the period between 1995 and 2015! (see Chart 3-14)

TABLE 3-12

**SUMMARY OF POPULATION FORECASTS - 1990 - 2015**

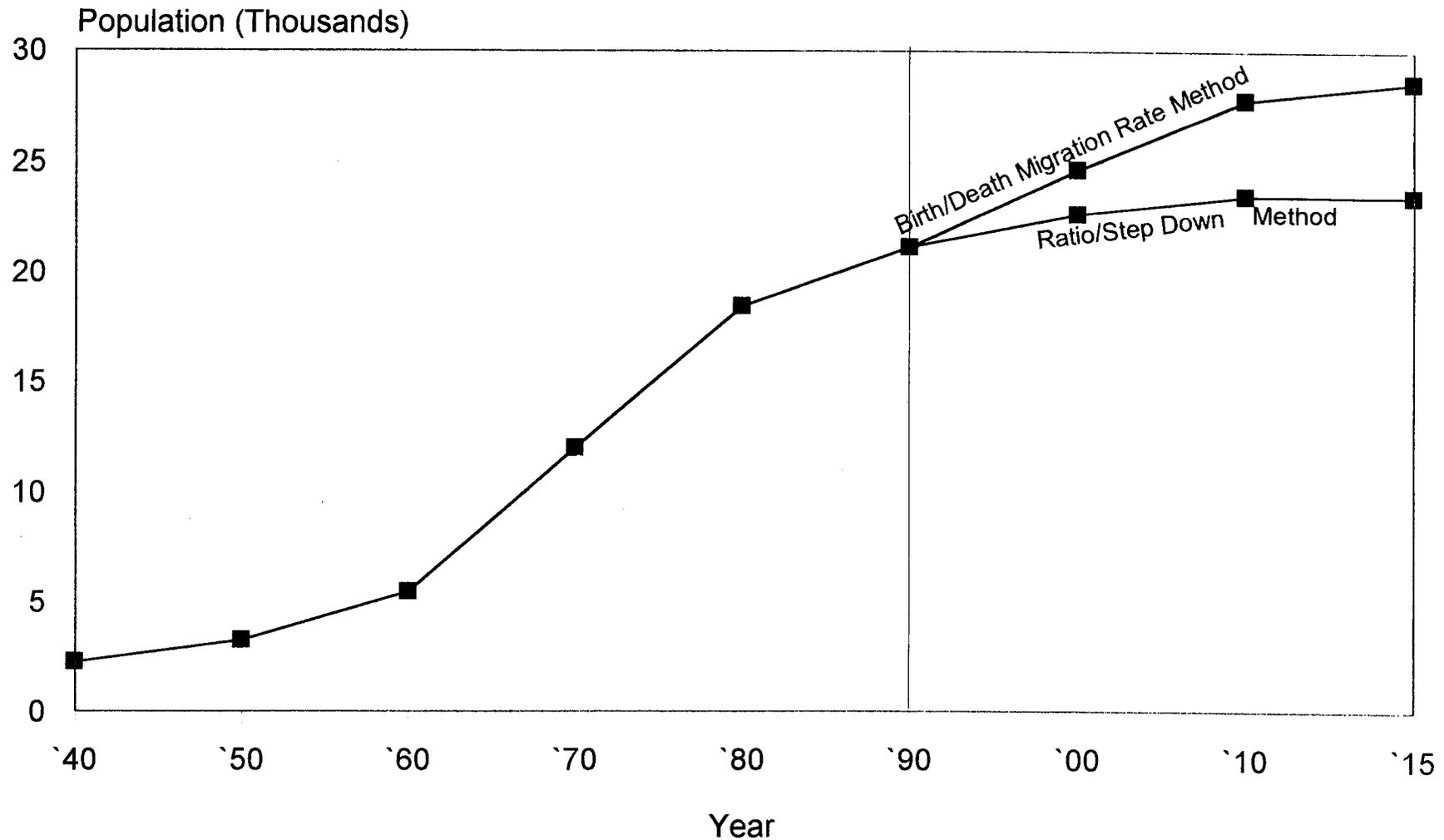
U.S. CENSUS COUNTS

1980	18,449
1990	21,174

	INFERRED MIGRATION METHOD	RATIO - Step/Step Down METHOD
2000	24,677	22,658
2010	27,888	23,506
2015	29,058	23,492

# Yarmouth Population Growth Projection

## 1940 - 1990 - 2015



Source: U.S. Census, Planning Div. forecasts

Chart 3--14

## **I. REMAINING UNFILLED DEMOGRAPHIC NEEDS**

When we reached this stage of the Population Study we ceased work, at least temporarily, to issue the data we had received and the forecasts that had been evolved. The forecast has already proved very useful. However, there are a number forecasts and certain types of data that would prove helpful, additionally, if we had them. It is our intent to add them to the Population Chapter during Phase II of the Comprehensive Planning Program.

### **Those that would be useful may be briefly described as follow:-**

#### **PROJECTIONS FOR TRAFFIC ZONES**

Of all the listed future needs, more work has already been done on land use and population forecasting for TAZ's (Traffic Analysis Zones) than on any other units. This is because of the Barnstable-Yarmouth Transportation Study work which needed the data for its transportation model. These are "straight line" forecasts and need to be reviewed, up-dated, and completed for the entire town. There are 35 TAZs, overall in Yarmouth.

#### **PROJECTIONS FOR NEIGHBORHOODS**

No forecasts for population have been done for any of the 12 "Planning Neighborhoods." Since these are fairly large block groupings, it will take considerable time to project future population for them. The Yarmouth neighborhoods will probably be done on a project specific basis, or perhaps by "activity centers."

#### **PROJECTIONS FOR CENSUS TRACTS**

There are only three Census Tracts in Yarmouth now and even with "splits" there would be just 6 in year 2000. But there has been a lot of very useful census data gathered for these units in the 1990 census. Forecasts for these tracts would provide a basis for "village" planning.

#### **DEVELOPMENT OF A BUILDING TREND FORECAST**

We do have on hand a substantial amount of building data for Yarmouth for the last 40 years. The period between 1985 and 1995 would be of particular interest, a period of "boom" and "recession", and a time when Yarmouth's land resource was substantially used up. A forecast based on building trends would provide a third forecast to go with the other two that have been completed.

#### **DEVELOPMENT OF A "SURVIVORSHIP" FORECAST**

This is essentially an insurance type of forecast based on the ages of various population cohorts and their calculated "survival", plus the migration into each cohort that is being experienced by 5 year age group, and the projection of future migration. These are long and complicated calculations and lack of time, equipment, and staff will probably preclude their completion.

### **FIVE YEAR AGE GROUP FORECASTS**

However, if a survivorship forecast can be made it would be possible to extract projections for five year age groups by sex. This is information that we receive numerous requests for. Perhaps the state or the Cape Cod Commission could help with this.

### **UMASS - MISER POPULATION PROJECTIONS**

Projections to the year 2010 have already been done using a combination of the migration-rate and cohort survival method. The forecast derived for Yarmouth however is 22, 078 in 2010. We were already at 22,200 in 1995!

They have made age group forecasts as well, by town, but these must be substantially factored to be useful here. UMASS-Miser has a reputation for being very good for larger populations but suffers from a lack of detailed knowledge of local conditions to guide its town forecasts.

### **REVIEW OF VOTING PRECINCT BOUNDARIES**

Yarmouth has already revised its six voting precinct boundaries, by having its planning staff review block population and growth statistics. Over a year ago the Commonwealth approved changes that changed the precincts of 1/6 of the registered voters here. These boundaries must be regularly reviewed to keep precinct size numerically equal. No major changes are now expected as a result of the immediate past work.

### **HOLDING CAPACITY STUDY**

Relating to population and land use both, an analysis of the "holding capacity" of the current zoning and ultimately the future land use plan is badly needed. This, is a complicated calculation. It should be coordinated with other towns and the Cape Cod Commission. No work has as yet been undertaken upon it since we do not have sufficient resources.

## CHARTS

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## **MAPS**

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