

## II. DEMOGRAPHIC ANALYSIS

### A. INTRODUCTION

This demographic analysis establishes past trends and projects future population characteristics for the Town of Cumberland. It then explores the relationship of these estimates to both current and future service demand. The demographic analysis examines historic trends in both overall population change and population composition. It examines the short and long-term population forecasts that served as the basis for predicting service demand in the 1991 Comprehensive Plan. Updated population forecasts based on more recent data are included; however, the Rhode Island Statewide Planning program will have new population projections available in Fall of 2003. These forecasts will most likely be incorporated into this Comprehensive Plan in the form of an amendment. The forecast element of the analysis is intended to integrate population change with general land use to guide planning policy and explore the implications of community growth. This element of the Plan is divided into three sections:

- **Long Term Analysis** - The characterization of population change and growth in the community by describing long-term trends and their relationship to the evolution of Cumberland.
- **Contemporary Demographic Shifts and Trends** - The study of significant post 1970's changes in the size and composition of the population which were determinants of public service demands of the recent past. A discussion of the accuracy of near-term and long-term forecasts used in the 1991 Plan is included in this section.
- **Population Forecasts** - Estimates of future population levels as indicators of future public service demand.

**B. FINDINGS**

**1. Long Term Analysis**

**Historic Population Growth in Cumberland**

As shown in Table II-1, Cumberland has undergone significant population growth during the twentieth century. Between 1900 and 2000, its population grew from 8,925 to 31,840, an increase of over 350 percent. During the same period, Rhode Island's

**Table II-1** Long Term Population Trends

YEAR	TOWN POP.	PERCENT CHANGE	STATE POP.	PERCENT CHANGE
1900	8,925	N/A	428,556	N/A
1910	10,107	13.2%	542,610	26.6%
1920	10,077	-0.3%	542,610	26.6%
1930	10,304	2.2%	687,497	13.7%
1940	10,625	3.1%	713,346	3.7%
1950	12,842	20.8%	791,346	11.0%
1960	18,792	46.3%	859,788	8.5%
1970	26,605	41.6%	946,725	10.1%
1980	27,609	1.7%	947,154	0.005%
1990	29,038	7.2%	1,003,464	5.9%
2000	31,840	9.6%	1,048,319	4.5%

SOURCE: U.S. Census of Population, 1900-2000

population increased from 428,566 to 1,048,319, or 245 percent. Thus, Cumberland has grown at approximately 1.4 times the rate as the State as a whole. This growth has not been consistent. The Town's historic development surged at the beginning of the century, then remained static up to World War II. Between 1900 and 1910 the Town experienced a 13 percent increase in population. This growth corresponds to Rhode Island's period of industrialization and

expansion. For the next 30 years, however, the Town grew only slightly more than five percent. In the forty years between 1900 and 1940, Cumberland's population gained 1,700 persons.

The post-war experience was very different. Between 1940 and 1950, the Town's population grew by 20.9 percent; between 1950 and 1960, it grew by 46.3 percent; and between 1960 and 1970, by 41.6 percent. This represents a population increase of over 150 percent in the thirty-year period, 1940 to 1970. During the same period the State's population increased by less than 33 percent. Cumberland's post-war rate of growth was therefore nearly five times that of the State.

The ten-year change between 1970 and 1980 was 1.7 percent. While this is a relatively minor increase, it is still significant when compared to the population growth for the State, which was less than one percent during the same period. Between 1980 and 1990

the Town grew by 7.2 percent while the State grew by only 0.05 percent. In the most recent decade, the Town has grown by 9.6 percent while the State grew 4.5 percent.

## **2. Contemporary Demographic Shifts and Trends**

### **Age and Racial Characteristics of the Population**

The demographic profile of Cumberland reveals an aging population, as exemplified by changes in median age: in 1970 Cumberland's median age was reported as 29.2 years. This increased to 33.8 years in 1980, 36.7 years in 1990 and 39.3 years in 2000.

Table II-2 shows the ten-year changes by Census age cohorts; the greatest increase and decrease for each decade is underlined. Between 1970 and 1980 Cumberland's most

**Table II-2** Composition by Age

AGE COHORT	POP 1970	POP 1980	% CHANGE	POP 1990	% CHANGE	POP 2000	% CHANGE
0-4	2,274	1,280	<u>-43.7%</u>	1,785	39.5%	1,971	10.4%
5-9	3,022	1,797	-40.5%	1,808	0.6%	2,207	22.1%
10-14	3,029	2,596	-14.3%	1,749	<u>-32.7%</u>	2,257	29.0%
15-19	2,340	2,930	25.2%	1,814	<u>-38.1%</u>	1,872	3.2%
20-24	1,464	1,950	33.2%	1,856	-4.9%	1,232	<u>-33.6%</u>
25-34	2,963	3,418	15.3%	4,766	39.4%	3,901	-18.1%
35-44	3,561	3,379	-5.2%	4,393	30.0%	5,735	30.5%
45-54	3,603	3,521	-2.3%	3,365	10.4%	4,600	36.7%
55-64	2,254	3,283	45.6%	3,273	0.3%	2,967	-9.1%
65-74	1,359	1,792	31.8%	2,627	<u>46.6%</u>	2,608	-0.7%
75+	736	1,122	52.5%	1,602	<u>42.8%</u>	2,490	<u>55.4%</u>
<b>Total</b>	<b>26605</b>	<b>27069</b>	<b>1.7%</b>	<b>29038</b>	<b>7.2%</b>	<b>31840</b>	<b>9.6%</b>

SOURCE: U.S. Census of Population, 1970-2000

rapidly increasing age groups were 55-64 years (45.6%), 65-74 years (31.8%) and 75+ years (52.5%). Considerable declines were recorded in the earliest age cohorts: -43.71 percent for 0-4 years, -40.54 percent for 5-9 years and -14.3 percent for 10-14 years. These trends changed significantly in the 1990 - 2000 period. While the elderly sector (75+ years) continued to show rapid growth (55.4%), the middle years of 35-44 and 45-54 also show a strong growth trend (30.5% and 36.7%) as do the pre-school (0-4), elementary (5-9) and middle school age groups (10-14). The college and young family age groups (20-24 and 25-34) show declines; this may reflect the high cost of housing or simply an aging population. A similar trend can also be seen in Statewide figures: in Rhode Island as a whole, the youngest age cohorts declined significantly between 1970 and 1990, and then increased slightly over the past decade.

Table II-3 describes the racial characteristics of Cumberland's population. The 1980 population was approximately 98 percent white and 2 percent nonwhite. By 1990 the racial make up of the Town had become 98.9 percent white and 1.1 percent nonwhite. The non-white composition increased to 4.4 percent by 2000; nearly double the 1980 population. Racial composition was uniform across all age groups, with the exception of those older than 70 years. This racial breakdown contrasts to that of the State, whose 2000 population is approximately 85 percent white and 15 percent nonwhite.

**Table II-3 Composition by Race and Ethnicity**

RACE	POP 1970	%1970	POP 1980	%1980	POP 1990	%1990	POP 2000	%2000
WHITE	26,549	99.9%	26,841	98.0%	28,730	98.9%	30,803	96.7%
BLACK*					71	0.2%	180	0.6%
AM. INDIAN*					11	0.0%	25	0.1%
ASIAN*					116	0.4%	264	0.8%
HISPANIC**			318	1.2%	440	1.5%	667	2.1%
OTHER*					110	0.4%	267	0.8%
<b>TOTAL</b>	<b>56</b>	<b>0.1%</b>	<b>546</b>	<b>2.0%</b>	<b>748</b>	<b>2.6%</b>	<b>1,411</b>	<b>4.4%</b>
<b>NON-WHITE</b>								

SOURCE: U.S. Census of Population 1970-2000

\*Detailed data not available for 1970-1980

\*\*Data not contained in Total Non-White for 1970

**Socio-economic Characteristics of the Population** - Table II-4 documents some of the more significant changes in socio-economic characteristics of Cumberland's population that occurred between 1970 and 2000. One of the more notable observations is the decrease in the average household size from 3.49 in 1970 to 3.05 in 2000. This decline is consistent with the accompanying data that shows a 60 percent increase in the number of households during the 1970's, but only a 35 percent increase in the number of families. As

**Table II-2 Selected Social Indicators**

INDICATOR	1970	1980	1990	2000
POPULATION	25,605	27,069	29,038	31,840
HOUSEHOLDS	7,607	8,871	10,764	12,198
FAMILIES	6,714	7,400	8,324	9,034
MED. FAMILY SIZE	3.49	3.02	3.10	3.05
PER CAPITA INCOME	\$3,259	\$7,603	\$17,166	\$25,592
MED. FAMILY INCOME	\$12,267	\$25,635	\$45,695	\$63,194
MED. HOUSEHOLD INCOME	\$11,311	\$20,849	\$40,683	\$54,656

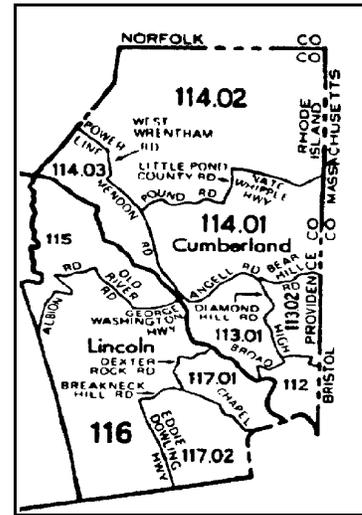
SOURCE: U.S. Census 1970-2000

family size has decreased, all income categories have increased. In the past decade median family income has increased by 38.3 percent, median household income by 34.3 percent, and per capita income by 49.1 percent. Each of these three income categories are higher than those of the State as a whole. In addition, median income in Cumberland has increased at a

higher rate than the State.

### Spatial Distribution of the Population

This data is concerned with the geographic settlement patterns of the Town's population and the changes that are occurring as a result of residential growth. The spatial distribution of Cumberland's population has changed in recent years. While the Town's population has grown in each of the past three decades, certain areas of the Town have seen population decreases, while others have grown at a rate much faster than that of the Town as a whole. Table II-5 shows the spatial distribution of Cumberland's residents among its six census tracts for 1970 through 2000, Figure II-I shows the location of these tracts.



**Figure II-1** Census Tracts

**Table II-3** Geographic Distribution of the Population

CENSUS	1970	1980	%	1990	%	2000	%	Tract
POP	POP	CHANGE	POP	CHANGE	POP	CHANGE		
112	5,867	5,622	-4.2%	5,642	0.4%	5,762	2.1%	
113.01	4,092	3,770	-7.8%	3,640	-3.4%	3,811	4.7%	
113.02	3,489	3,387	-2.9%	3,803	12.3%	4,002	5.2%	
114.01	5,997	6,710	11.9%	6,492	-3.2%	7,388	13.8%	
114.02	2,585	2,843	10.0%	3,669	29.1%	3,870	5.6%	
114.03	4,575	4,737	3.5%	5,792	22.3%	7,007	21.0%	

SOURCE: U.S. Census of Population: 1970-2000

The population in Census tracts 112, 113.01, and 113.02 have generally grown at a slow rate or decreased in population. Conversely, tracts 114.01, 114.02 and 114.03 have shown overall growth faster than the Town's average rate of population increase.

**Table II-6 Population Density**

The census tracts with declining populations are located in the more urbanized southern sections of the Town (bordered to the north by Angell Road and Bear Hill Road, to the west by the Town of Lincoln and to the east by Bristol County, Massachusetts). The three census tracts which have exhibited the most growth were all in the northern, more rural portion of the Town (to the north of Angell and Bear Hill Roads). The suburbanization of Cumberland, particularly during the mid- to late-postwar period, is characteristic of the settlement patterns of ex-urban communities throughout New England and the northeast. As a result of this population shift within the Town, the density (persons per acre) has decreased in the southern half of Town and increased in the northern half, as shown in Table II-6.

CENSUS TRACT	TOTAL ACERAGE	POPULATION DENSITY			
		1970	1980	1990	2000
112	788	7.9	7.6	7.2	7.3
113.01	1,703	2.4	2.3	2.1	2.2
113.02	1,257	2.8	2.7	3.0	3.2
114.01	4,524	1.4	1.5	1.4	1.6
114.02	7,726	0.4	0.4	0.5	1.6
114.03	1,858	2.5	2.6	3.1	3.8
<b>TOTAL/AVG</b>	<b>17,856</b>	<b>1.5</b>	<b>1.5</b>	<b>1.6</b>	<b>1.8</b>

SOURCE: U.S. Census of Population: 1970-2000

### Natural Increase

The population's natural increase, or surplus of births over deaths, is a measure of historic trends and future growth potential. There was a significant decline in natural increase during the 1960's and early 1970's. Between 1980 and 1990 there was slight growth in natural increase, probably caused by a recovery in the local birth rate since 1980 and stable mortality rates; the highest number of resident births occurring in that decade was 348 (in 1988). Natural increase continued to grow in the 1990s: in 1991 natural increase reached 126 persons, the highest point in the past 30 years. This measure remained over 100 persons per year throughout the first half of the 1990s; more recent data is not yet available.

### Estimates from the 1991 Plan

Near term forecasts are defined as short term (three to five year) projections that depict probable changes in both the size and composition of the population. Ordinarily such

near term forecasts are not undertaken as part of a long-range Comprehensive Plan. However, the original Comprehensive Plan was written at the end of the decennial census period, thereby making short-term forecasts necessary to establish approximations of demographic conditions at that time. Without the Census as a source of detailed population data it was necessary to rely upon substitute information provided by several independent sources, including the CACI, Inc. Demographic and Income Forecast Report; State of Rhode Island, Department of Administration, State Planning Council, Planning Division, Population Forecasts; Town of Cumberland, Department of Public Schools School Facilities Need Assessment; and New England School Development Council (NESDEC) Community Enrollment Forecasts.

***Socio-economic Indicators 1980 to 1995*** - Table II-7 documents the near term projections and estimates of 1990 population composition developed by CACI, Inc, along with 1990

Census data. Near-term projections and estimates of population composition forecasted several significant demographic shifts would take place by 1995 in Cumberland. CACI's estimates of 1990 statistics were generally less than true values. As their short-term forecasts were based on the estimated 1990 values, the short-term population projections were also understated.

**Table II-7 1990 Population Estimates**

<u>INDICATOR</u>	<u>1980 CENSUS</u>	<u>1990 ESTIMATE</u>	<u>1990 CENSUS</u>
POPULATION	27,069	28,437	29,038
HOUSEHOLDS	8,871	10,121	10,764
FAMILIES	7,400	8,046	8,324
AVG. HOUSEHOLD SIZE	3.02	2.78	2.68
PER CAPITA INCOME	\$7,603	\$13,610	\$17,166
MED. FAMILY INCOME	\$25,635	\$42,613	\$45,695
MED. HOUSEHOLD INCOME	<del>\$20,849</del>	<del>\$35,660</del>	<del>\$40,683</del>
MEDIAN AGE	33.8	36.3	36.7

SOURCE: U.S. CENSUS

The first major change projected was an increase in the number of households at a rate significantly higher than the increase in the size of the population. The estimates used for 1990 indicated that the population had grown by 5.2 percent since 1980, while over the same period it was estimated that the number of households had increased by over 14 percent. The CACI study underestimated both the 1990 population and number of households: census data for that year showed that the population had increased by 7.3 percent while number of households increased by 21 percent over the ten year time-frame. CACI's forecast also under-estimated the increase in number of families: increase in number of families from 1980 to 1990 was estimated at 8.7 percent, while

actual increase was 12 percent. Although rates of increase of population, households, and families were underestimated by this study; the conclusion that the majority of growth in Cumberland was occurring in the form of non-family household formation, possibly resulting from occupancy by single persons or unrelated persons that do not consider themselves a traditional family unit, was valid. However, while on average household sizes are smaller the number of families with children has also increased, as demonstrated by the increase in school enrollment over the past decade.

The 1991 Plan predicted that median age would likely exceed 38.6 years by 1995. While no data is available for 1995, as of 2000 Cumberland's median age had exceeded 38.6. The original Plan included predictions on changes in age composition of Cumberland's population; these forecasts cannot be directly compared to Census data as different age categories were utilized. However, general trends predicted by the 1991 Plan can be analyzed. The Plan predicted that the total size of the population older than 65 years and the proportion of the total population over 65 would increase, which would likely have an impact on the demand for both services and housing. While there has been an increase in this age group, the percentage of the population that is 65 or older has remained stable at approximately 20 percent. The 1991 Plan cited data indicating significant decrease in the overall proportion of the 0-17 age group, from 37 percent of the total population in 1970 to 26 percent of the total population in 1980, and 18 percent of the total population in 1990. While the younger age categories did decline until 1990, this age group still made up approximately 22 percent of the population in 1990 and has increased over the past decade.

The other major trend identified in the 1991 Plan were increases in income levels from 1980 to 1990. These forecasts were generally correct, however, increases were greater than estimated: median household income increased by 95 rather than 70 percent, average family income increased by 78 percent while the forecast was for 64 percent. Similarly, estimates of income in the State as a whole were also less than actual increases. While the Plan estimated that Cumberland's 1990 median household income was approximately 26 percent greater than the statewide median, 1990 Census data shows that Cumberland's median income in 1990 was only 20 percent greater than the Statewide value.

***Near Term Forecasts of School Age Population*** - The 1991 Plan documented the results of four independently prepared estimates of the size Cumberland's school age population

from 1990 to 1996. The firm of KLQ of Walpole, MA, predicted that enrollment levels in grades K-12 would be 4,796 by 1995, an increase of approximately 17 percent. True enrollment figures for 1995 were only slightly less than this estimate (4750 students). This was the most accurate estimate included in the 1991 Plan; the NESDEC estimate showed a greater number of students, while CACI, Inc. and the Rhode Island Planning Council underestimated enrollment. KLQ's estimate for the year 1999 placed the K-12 public enrollment at 5,229, or an increase of approximately 28 percent over 1990 levels. In fact, 5,135 students were enrolled in Cumberland High Schools in 1999; this still represents a significant increase in the number of school children. Between 1990 and 2000 enrollment in Cumberland Public Schools increased by 843 students.

**Long Term Forecasts** - The purpose of long-term population forecasts is to provide a basis for long-range policy considerations, particularly those involving the development of infrastructure and major capital improvement programs. The planning interval specified is a maximum of 20 years, in this case, to the year 2010. Two sources for long-term projections were used. The first projections were developed by the Rhode Island Office of State Planning. The second set of projections were developed internally by Maguire Group, Inc. (the private firm hired to assist the Town with writing the 1991 Comprehensive Plan), and were based on the relationship of housing development to population change. The latter set of estimates used historic housing production and occupancy trends which were translated into the population impacts of various build-out analyses. It should be pointed out that the accuracy of long-term projections diminishes as the planning interval increases. For this reason the long term estimates are taken only as general indicators of overall population growth and are not recommended for demand estimates that require cohort specific projections. This stipulation is made despite the fact that certain sources, such as the Rhode Island Department of Administration, Division of Planning, provide cohort specific projections up to 30 years into the future.

The alternate forecast prepared by Maguire Group was based on the probability of future housing development and on projected occupancy patterns. Between 1960 and 1990, the annual level of housing production in Cumberland was approximately 184 units per year. This annual average was believed to be somewhat skewed by the development boom of the 1980's, which saw annual production of over 300 single family and condominium units during certain years of expansive growth. The long-term growth scenario was proportionally reduced in the belief that the high levels of housing construction of the late 1980's would be repeated in the foreseeable future. Given the market conditions,

environmental constraints and a regional over-supply of housing at that time, it was assumed that annual production level would range from 75 to 100 housing units maximum. However, both long-term estimates cited in the 1991 Plan underestimated population growth and number of households. Population estimates for 2010 ranged from 29,656 to 31,740, these estimates are less than Cumberland's 2000 population of 31,840. Estimates of the number of households in Cumberland in 2010 are likely more accurate: 1991 estimates for 2010 ranged from 12,392 to 12,900; as of 2000 there were 12,198 households in Cumberland.

### **3. Population Forecasts**

In order to adequately plan for Cumberland's future, whether for providing additional facilities and services or by developing ways to limit and guide growth, it is necessary to have some indication of how fast and how soon population growth will occur. Therefore, this section includes near-term population growth for the Town of Cumberland.

#### **Short-term forecasts**

Although the Rhode Island Statewide Planning Program has as of yet not developed population forecasts based on the Rhode Island Census, it is possible to forecast near term population levels for the Town of Cumberland. Two methods of forecasting are used: extrapolation from recent population growth, and estimates of new residential building permits.

As was noted in the previous section, between 1990 and 2000 Cumberland's population grew from 29,038 to 31,840 people. This corresponds to an average growth of 280 residents per year. Assuming population growth will remain constant in the near future, the population forecast for 2010 is 34,640, or an additional 2,800 residents over the 2000 population.

The above forecast assumes growth will remain at the same level as in the 1990-2000 time period. However, Cumberland has recently issued a cap on building permits, limiting their issuance to 100 per year (since 1996 yearly building permits have ranged from 105 to 197). This cap will remain in place until a more comprehensive plan for managing growth

in Cumberland is devised. Using an average of 100 new homes per year, and an average occupancy of 2.59 (from Census 2000), Cumberland's population will be 2,590 greater than in 2000, for a total population of 34,430.

Both of these forecasts suggest that substantial growth will occur in the near future. Unless proactively managed, this continued growth will continue to stress the Town's infrastructure and facilities, as well as negatively impact the Towns suburban/rural character.

### Public School Enrollment

While detailed population forecasts for Cumberland as a whole based on Census 2000 data have not been developed as of the writing of this 2003 Plan, L.A. Torrado Architects conducted a forecast of short-term public school enrollment as part of its Facilities Plan. The forecast is based on the Cohort Progression method, which utilizes a series of progression ratios which are calculated as the percent of students in a particular grade who enroll in the next grade the following year. Table II-8 summarizes the L.A. Torrado's estimate of 2005-2006 Cumberland Public School enrollment by grade, compared with 2000-2001 actual enrollment figures. As the table demonstrates, while some grades show a decrease in enrollment, overall enrollment is expected to increase by 371 students over the five-year period.

**Table II-8 Public School Enrollment**

<b>GRADE</b>	<b>2000-2001</b>	<b>2005-2006</b>	<b>Additional Students</b>
UNGRADED	191	199	8
PRE-K	84	98	14
KIND.	384	356	-28
1	396	381	-15
2	372	403	31
3	399	367	-32
4	368	389	21
5	425	446	21
6	403	437	34
7	388	402	14
8	385	436	51
9	398	419	21
10	380	469	89
11	340	419	79
12	331	395	64
<b>Total</b>	<b>5244</b>	<b>5614</b>	<b>371</b>

Source: L.A. Torrado Architects

### Build-out Analysis

The results of three build-out analyses were included in the Land Use Element of this

Plan. These analyses estimated Cumberland's population once all available land was developed. These estimates ranged from approximately 38,200 to 41,200. Based on the short-term population forecasts above, build-out may occur within the next 20-25 years. This Comprehensive Plan outlines the strategies that will be used to ensure that future development follows a well thought-out course and maintains Cumberland's character.

### **C. ISSUES IDENTIFICATION**

Cumberland has witnessed significant shifts in the size and composition of its population since the turn of the century. From a low point in the 1970s, the rate of population growth has steadily increased. In addition, there have been significant shifts in the age distribution of the population. The median age and proportion of residents over the age of 65 have increased steadily. The younger age groups declined between 1970 and 1990 and have since increased. The number of households has grown at a greater rate than both the total population and the number of families; this trend is likely to continue, with family and average household size continuing to decrease. It is expected that an aging population of increasing affluence will have higher expectations for the level of public services that the community provides, while growth in the number of school-age children will necessitate increased personnel and facilities. Cumberland's population is expected to continue its high rate of increase unless specific strategies for growth management are created and implemented.