

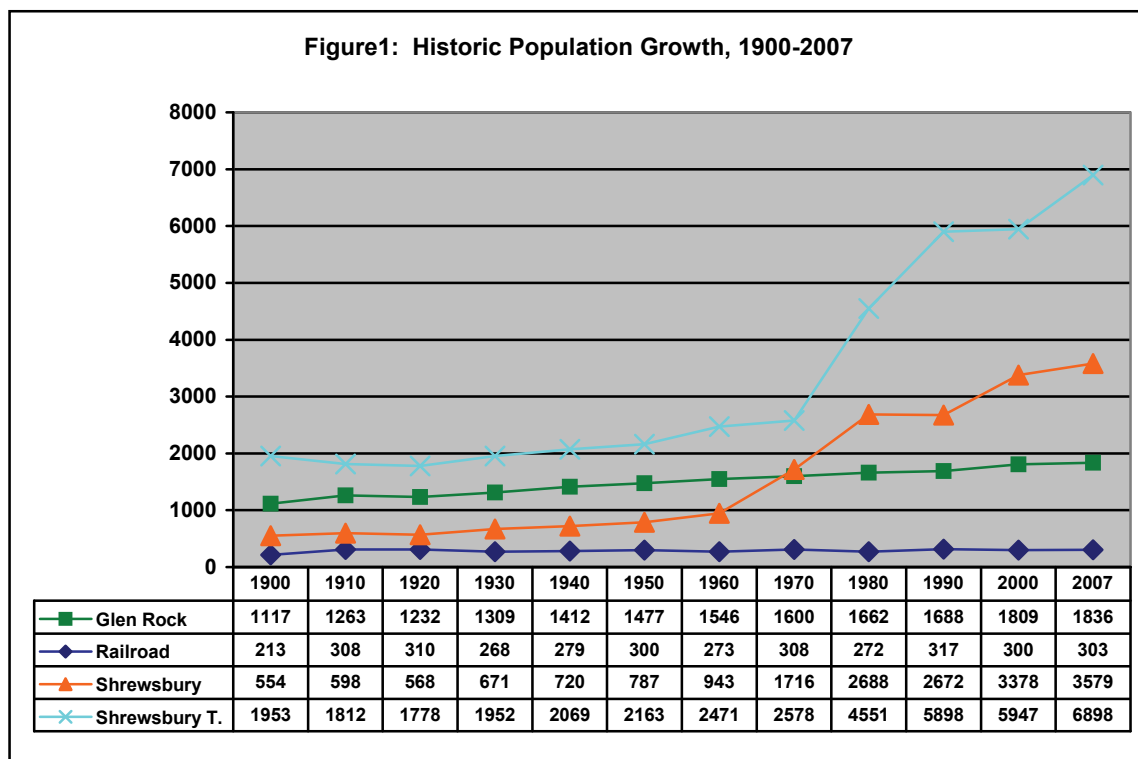
IV. POPULATION STUDIES



Future population projections are a primary building block of any comprehensive plan. The expected future size of a population is the basis for calculating the extent of public services and lands that are likely to be needed. In addition, particular groups within the population have different service needs. This chapter will present past, current and expected population statistics, beginning with historic population growth and continuing with demographic data and concluding with population projections.

A. HISTORIC POPULATION GROWTH AND CHANGE

Population change is the result of two (2) factors: the gain and loss of residents through birth and death and through in-migration and out-migration. The Southern York County Region has experienced rapid population growth over the last few decades, primarily reflecting the expansion of development northward from Maryland. The following graph illustrates the historic population growth of the Southern York County Region since 1900.



Source: US Census Bureau

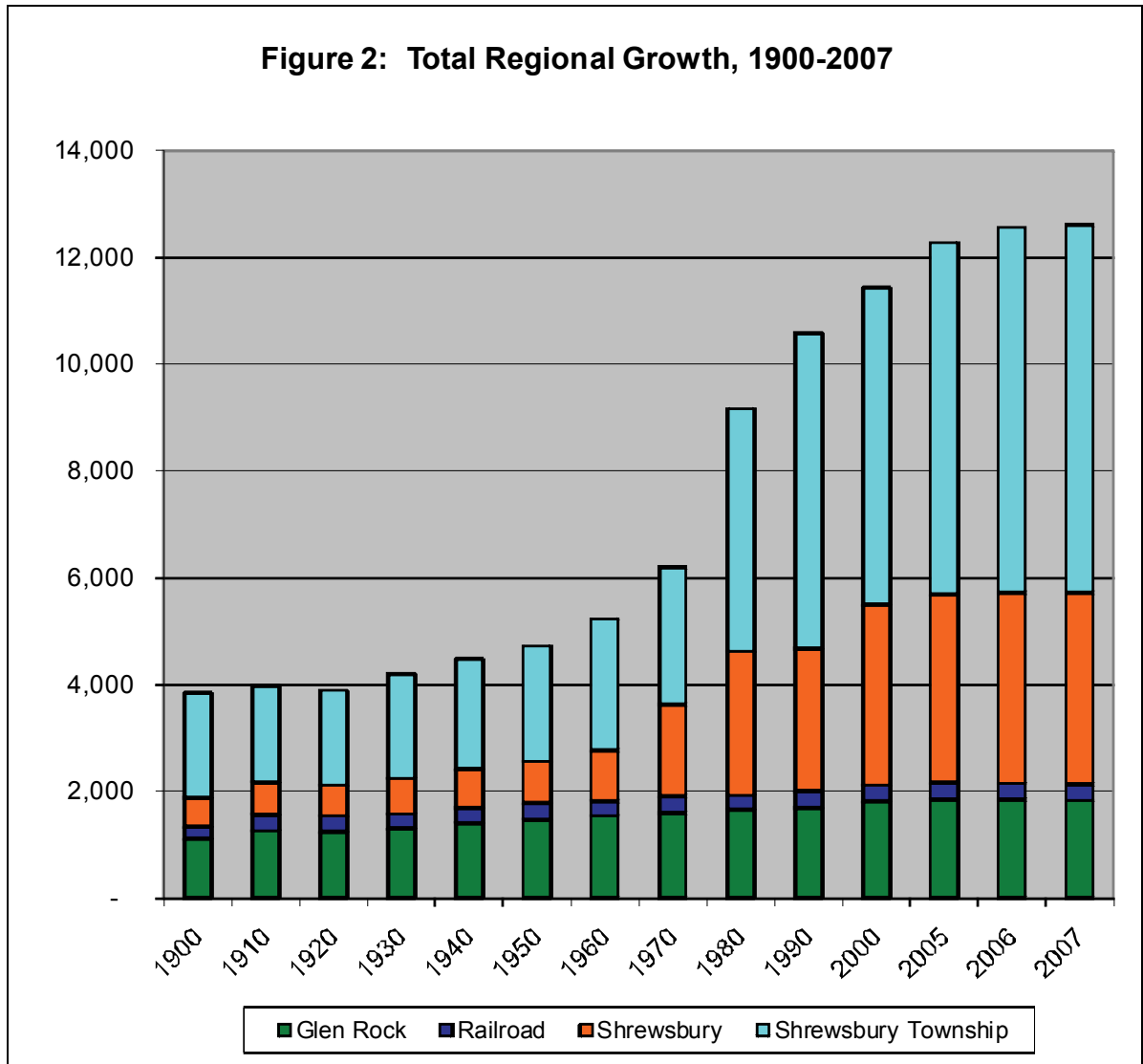
The combination of an attractive rural environment, lower taxes and building costs and convenient access to Interstate 83 has fueled recent development within the Region. As shown above on Figure 1, Shrewsbury Township (in turquoise blue) has experienced marked increases in population, beginning in the 1970s. Glen Rock Borough’s trend, as shown with the green markers above, indicates a slow growth over the last 107 years.

Shrewsbury Borough (shown in orange) has experienced the most noticeable growth in the most recent decades, while Railroad Borough (shown in navy blue) has exhibited the least variable amount of change over time.

Regional Population Growth

In addition to considering each municipality’s historic population growth, it is interesting to look at the Region as a whole. Figure 2, below, helps one to visualize the communities in which the bulk of the Region’s historic growth has occurred.

As shown, for all decades since 1900, Shrewsbury Township has represented the largest portion of the Region’s population and Railroad Borough the smallest. Shrewsbury Borough has demonstrated the most variation over the 106-year period for which data is presented.



Source: US Census Bureau

In addition, it is useful to compare recent historic growth rates among the Region's municipalities. This can provide insight into regional factors that are affecting local growth trends. The following table (Table 1) shows the net increase in persons and percent changes in growth from 1950 to 2000 for each of the Region's municipalities. The data is based on the decennial US Census.

Table 5			
Regional Growth Rates, 1950-2000			
Municipality	Net Change (number of persons)	Percentage Change	Average Growth per Decade (1950-2000)
Glen Rock Borough	332	22.5%	3.2%
Railroad Borough	-	-	0.7%
Shrewsbury Borough	2,591	329.2%	27.2%
Shrewsbury Township	3,784	174.9%	20%
Region	6,707	141.9%	15.7%
York County	179,014	88.3%	10.9%

Source: US Census Bureau

As indicated in the table above, between 1950 and 2000, Shrewsbury Township had the most significant net change in population (+3,784) and the second highest percent change in population (174.9%), while Shrewsbury Borough exhibited the highest percent change (329.2%) over the same period.

Looking at the statistics for the Region, the Region has demonstrated a higher percent change (141.9%) for the 50 year period higher than that of York County, and the Region has outpaced the County as a whole in terms of the average growth per decade.

2007 Population Estimates

The US Census Bureau releases municipal population estimates each July for the year prior. Table 6 presents that 2007 population estimates for the municipalities in the Region.

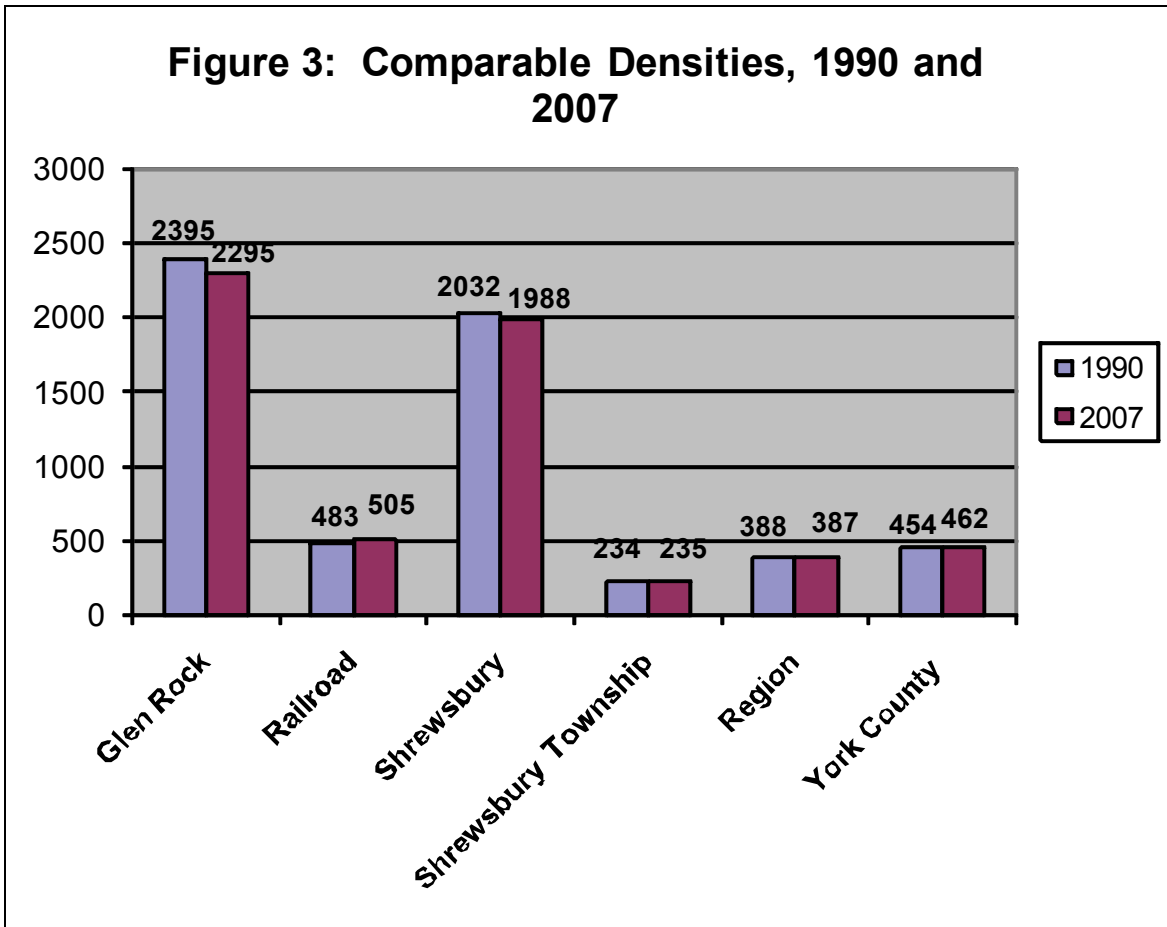
Table 6	
2007 Population Estimates for the Region	
Glen Rock Borough	1,836
Railroad Borough	303
Shrewsbury Borough	3,579
Shrewsbury Township	6,898
Region	12,616

Source: US Census Bureau

Population Density

Population density is another interesting aspect to study. Density is expressed as the number of persons per square mile and is calculated using the following formula: population density = total population/area (mi²). Figure 3 (Comparable Densities, 1990

and 2007) depicts the relative densities for each of the Region’s municipalities, the Region as a whole and York County. Density is calculated by using the 2007 population estimates. 1990 population densities are included for comparison.



Source: US Census Bureau

Figure 3 shows that Railroad Borough is the only municipality in the Region for which the population density decreased from 1990 to 2007. It is no surprise that the Region’s Boroughs exhibit greater densities than does the Township and the County as a whole.

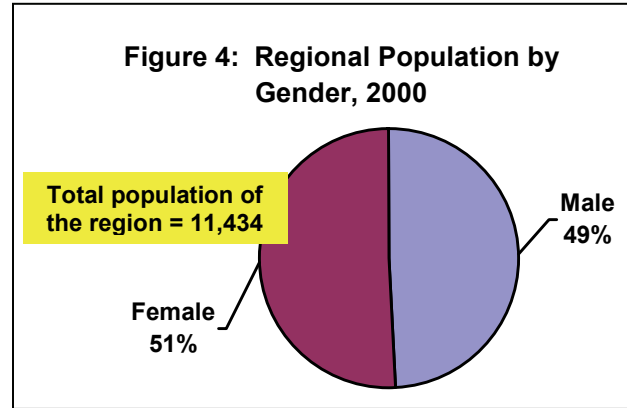
B. DEMOGRAPHIC DATA

In addition to the total numbers of residents and the density at which they are distributed throughout the Region, it is important to consider other characteristics of the Southern York County Region’s population. These demographic elements have important bearing upon the types and quantities of public services that may be needed. This section details some of the important demographic data for the Region.

POPULATION BY GENDER

Figure 4 shows the distribution of gender in the region. It comes as little surprise that there is almost an even split of males and females.

Looking at the Region by municipality, that almost even distribution of males and females remains consistent, as shown in Table 7. Shrewsbury Borough has the largest gap between males and females with 48% and 52%, respectively.



Source: US Census Bureau

Table 7: Population by Gender, 2000					
	Total Persons	Total Females	(%)	Total Males	(%)
Glen Rock Borough	1,809	907	50.1%	902	49.9%
Railroad Borough	300	151	50.3%	149	49.7%
Shrewsbury Borough	3,378	1,755	52%	1,623	48%
Shrewsbury Township	5,947	2,994	50.3%	2,953	49.7%
Region	11,434	5,807	50.8%	5,627	49.2%
York County	381,751	194,084	50.8%	187,667	49.2%

Comparison to 1990 data shows little variation. For 1990, the Region was 51.2% female and 48.8% male. Railroad Borough had the largest gap between males and females with 43.5% and 56.5% respectively. Not unlike Census 2000, the 1990 data shows that the Region and York County are very similar in the percentages by gender.

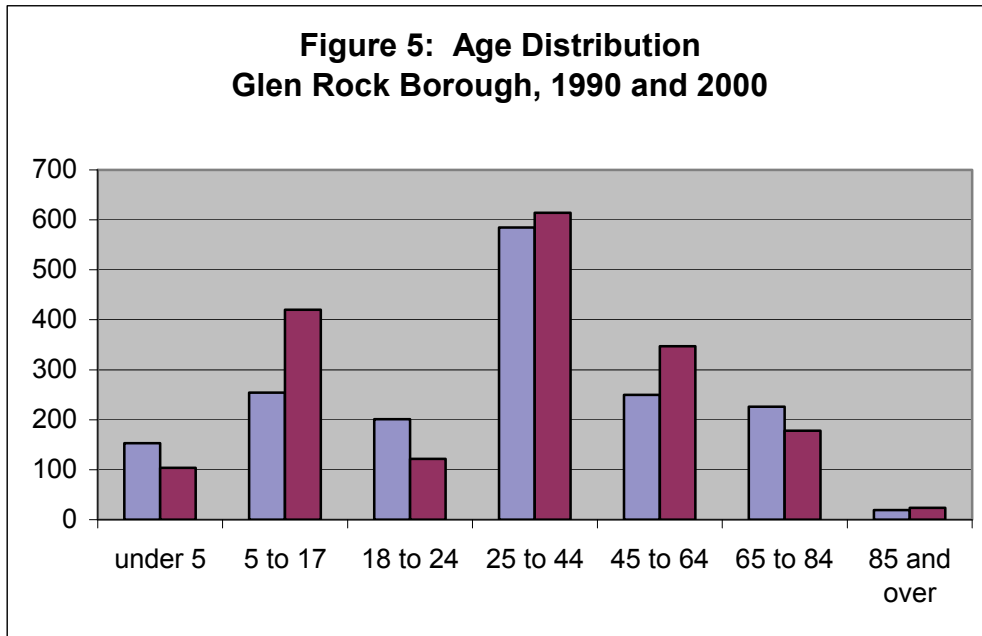
POPULATION BY AGE

A variety of age groups necessitates a variety of public service needs that should be specifically addressed. Age composition data has long been recognized as supplying the elements for school and recreational planning and analyses. Projections of age composition are especially important in determining long range facility needs and land requirements for those school and recreational sites. Age data is also valuable in defining stages of the life cycle that, in turn, are used in studies to gauge activity patterns, household moving behavior, housing and various community facilities and services.

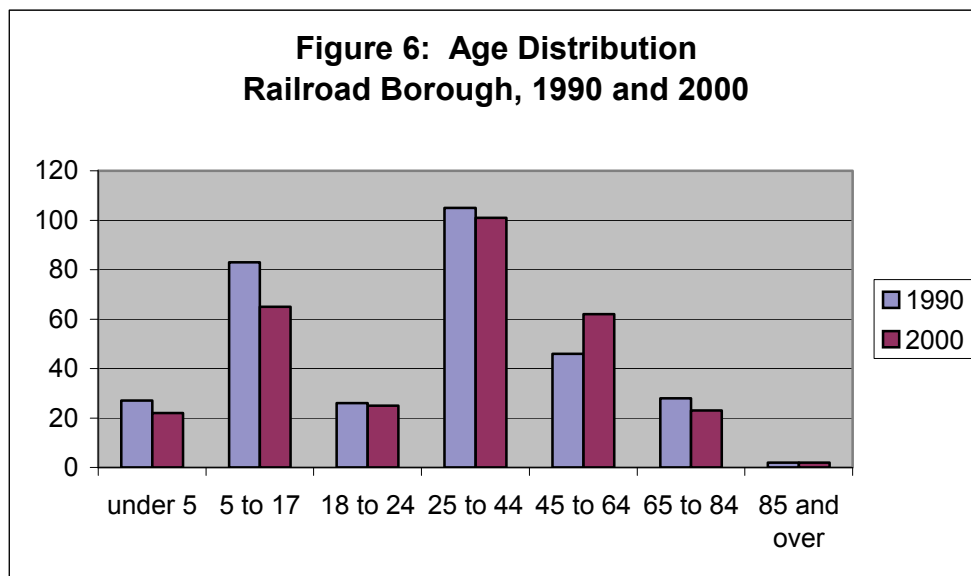
For example, the number of children under the age of five (5) can help to predict future elementary school classroom space. Those in the 5 to 17 year age bracket comprise the school-aged population and have increasing needs in terms of recreation sites and services. The segments of the population included in the 18 to 64 age bracket generally comprise the workforce. The 18-24 year olds may be entering higher education or the labor force and often rely on the rental housing market. This segment of the population is typically more mobile.

Those in the 25-44 year-old segment comprise the younger labor force and tend to be the households with children. The more mature labor force, those aged 45-64 tend to be more settled, less mobile, and at the height of their earning potential. Those over 65 years and over 85 years old, too, have differing demands for health and public transit services and for special recreation service needs.

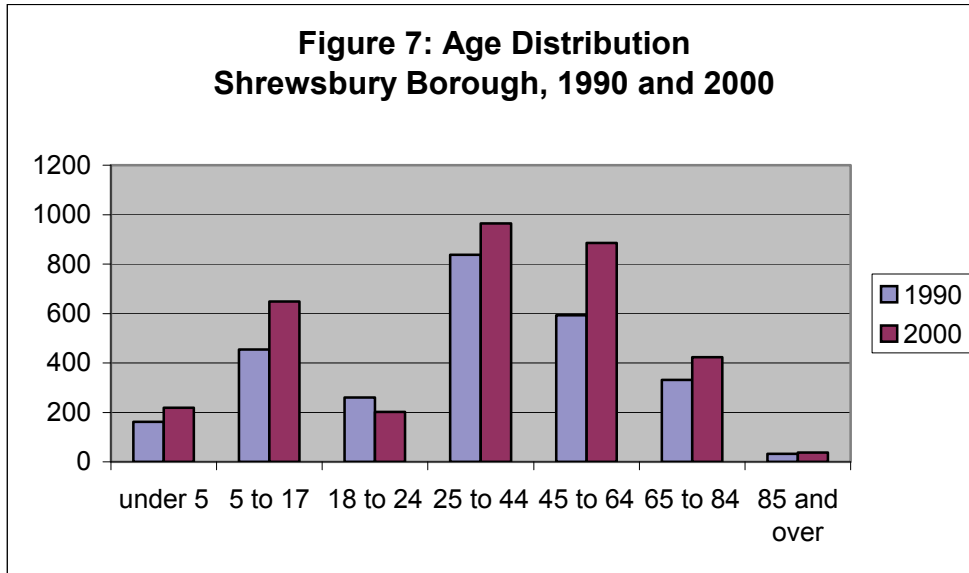
The following series of figures presents comparative age distribution data for the municipalities that comprise the Southern York County Region.



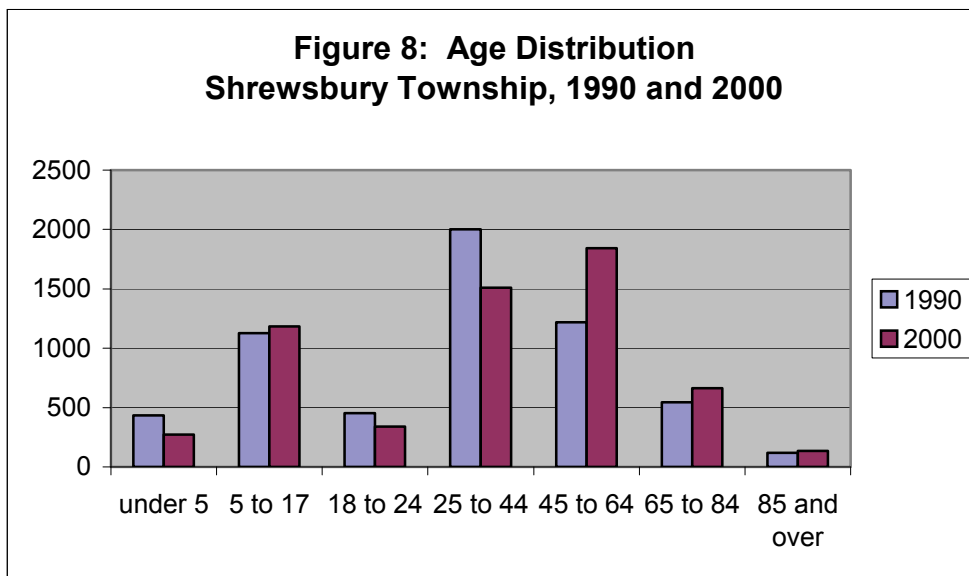
Source: US Census Bureau



Source: US Census Bureau



Source: US Census Bureau



Source: US Census Bureau

As shown above, in all four (4) figures, the age bracket with the highest number of residents is the 25-44 year olds, however the total number in that age bracket decreased in Shrewsbury Township from 1990 to 2000 by almost 33%. All four (4) charts also show an increase in the 45-64 year old bracket. Shrewsbury Borough was the only municipality in the region to show an increase in those under 5 years of age.

OTHER DEMOGRAPHIC DATA

Other data elements help to describe the demographic composition of the Region. Such data include racial composition, household statistics and education attainment. The following tables illustrate this set of data.

Race

Race, as defined by the US Census Bureau, is “a self-identification data item in which respondents can choose the race or races with which they most closely identify.” Table 8 presents data from the 1990 and 2000 US Census, however, it is important to note that Census 2000 race data are not directly comparable with data from the 1990 Census. New guidelines were implemented in Census 2000 to be more reflective of the increasing diversity of the Nation’s population.

**Table 8
Population by Race, 1990 and 2000**

Area	White		Black or African American		American Indian or Alaska Native*		Asian*		Native Hawaiian or other Pacific Islander*	Some other race		Two or more races*
	1990	2000	1990	2000	1990	2000	1990	2000	2000	1990	2000	2000
Glen Rock Borough	1,670 (98.9%)	1,774 (99.4%)	0	18 (1.1%)	8 (.5%)	3 (.2%)	8 (.5%)	6 (.3%)	1 (.05%)	1 (.06%)	0	7 (0.4%)
Railroad Borough	317 (100%)	289 (96.3%)	0	5 (1.7%)	0	0	0	0	0	0	0	0
Shrewsbury Borough	2,633 (98.5%)	3,293 (92.1%)	4 (.14%)	27 (.8%)	1 (.03%)	5 (.15%)	25 (.9%)	26 (.8%)	5 (.14%)	9 (.33%)	9 (.27%)	13 (.38%)
Shrewsbury Township	5,821 (98.7%)	5,859 (85.8%)	15 (.6%)	18 (.3%)	5 (.08%)	2 (.03%)	40 (.68%)	27 (.45%)	0	17 (.29%)	12 (.2%)	29 (.49%)
<i>Region</i>	<i>10,441</i> (98.7%)	<i>11,215</i> (98.1%)	<i>19</i> (.18%)	<i>68</i> (.59%)	<i>14</i> (.13%)	<i>10</i> (.87%)	<i>73</i> (.69%)	<i>59</i> (.52%)	<i>6</i> (.05%)	<i>27</i> (.23%)	<i>21</i> (.18%)	<i>49</i> (.42%)
York County	323,339 (95.2%)	354,103 (92.6%)	10,985 (3.2%)	14,095 (3.7%)	416 (.12%)	679 (.18%)	2,103 (.62%)	3,273 (.86%)	116 (.03%)	2,731 (.8%)	5,297 (1.4%)	4,188 (1.1%)

Source: US Census Bureau

Given the changes in definition by the US Census Bureau regarding the category of race, there are several notes to be made.

- The 1990 Census presents data for “American Indian, Eskimo or Aleut” while Census 2000 indicates the category as “American Indian or Alaska Native (which includes Eskimo and Aleut).
- The 1990 Census combines “Asian or Pacific Islander” while Census 2000 has separate categories of “Asian” and “Native Hawaiian or other Pacific Islander.”
- Census 2000 also lists “Two or More Races” while 1990 Census lists just “Some Other Race.”

Household Statistics

Other demographic data that informs this Plan is household data. Table 9 shows household composition data.

Table 9 Households by Type, 2000								
	Total HH	Family Households				Non-Family Households		
		Married Couple	% of Total	Male HOH (no wife)	Female HOH (no husband)	One Person	% of total	2 or more persons
Glen Rock Borough	703	379	53.9%	40	85	166	23.6%	29
Railroad Borough	111	62	55.9%	2	11	32	28.8%	4
Shrewsbury Borough	1,281	856	66.8%	28	52	321	25%	24
Shrewsbury Township	2,188	1,560	71.3%	67	115	375	17.1%	71
Region	4,283	2,857	66.7%	137	263	894	20.8%	128
York County	148,288	87,066	58.7%	5347	13,448	34,556	23.3%	7,871

Comparison to 1990 Census indicates the following:

- The total number of households in the Region increased by just over 12% (462 households).
- The total number of married couple family households decreased almost 3% from 1990 to 2000.
- The total number of one-person households increased 25.6% during the same period.

Educational Attainment

Table 10, below, presents the educational attainment data for the municipalities that comprise the Region, the Region as a whole and York County. Shrewsbury Borough has the lowest percentage of those 25 years and older *whose highest level of education completed is high school*, however, Shrewsbury Borough also has the highest percentage of those with four (4) plus years of college. Data presented in this table does not include those who have completed some college, just those completing at least four (4) years.

Table 10 Educational Attainment, 2000					
	Population 25 years and over: Total	Population 25 years and over; HS graduate (includes equivalency) as highest level of educational attainment		Population 25 years and over; with 4+ years of college	
Glen Rock Borough	1,161	551	47%	212	18%
Railroad Borough	178	89	50%	16	9%
Shrewsbury Borough	2,290	673	29%	620	27%
Shrewsbury Township	4,146	1,550	37%	882	21%
Region	7,775	2,863	37%	1,730	22%
York County	259,040	107,689	42%	47,604	18%

Source: US Census Bureau

Income

Another interesting facet of demography is income. Table 11 presents income data – per capita, median household and median family income, as well as poverty information. The data is from Census 2000, based upon 1999 figures. (**Note, the **average** per capita, median household and median family income is presented for the Region).

Table 11					
Income, 2000					
Based on 1999 data	Per Capita	Median Household	Median Family	Individuals Below Poverty	
Glen Rock Borough	\$19,076	\$41,188	\$50,865	156	8.7%
Railroad Borough	\$16,709	\$37,917	\$47,813	14	4.7%
Shrewsbury Borough	\$20,292	\$49,983	\$57,358	162	4.7%
Shrewsbury Township	\$24,841	\$58,191	\$65,966	217	3.8%
Region**	\$20,230	\$55,501	\$46,820	549	4.9%
York County	\$21,086	\$45,268	\$52,278	25,269	6.7%

Source: US Census Bureau

Data shows that Shrewsbury Township has the highest per capita, median household and median family income in the Region. Glen Rock Borough has the highest percentage of individuals below poverty. While the Region's average per capita income is below that of York County, the average median household and average median family incomes both exceed the County's.

C. POPULATION PROJECTIONS

Population projections are another important element to discuss. Projections are important to the future allocation of land use and the delivery of services. They are a building block that will be used repeatedly to forecast future land use and service needs. Consequently, great care must be exercised to assure that these figures represent the best guess as to how the Region will grow.

To start, it is imperative to understand that no population projection can accurately forecast all of the factors that might cause a particular rate of growth. Instead, historical trends are analyzed and compared with current conditions to see how accurately they predict recent data. The most accurate method is then used to project future conditions. Typically, projections rely upon extrapolations of past growth rates. However, these methods of projection may not be particularly reliable for boroughs with limited remaining buildable land as they sometimes can overestimate the amount of growth that is probable or possible.

The following presents five (5) sets of population projections that have been developed by various methods. Each is discussed and evaluated below. Please note that all utilize historic population data from 1950 to 2000.

o *Method 1 – Arithmetic Extrapolation for Each Municipality*

The arithmetic extrapolation method forecasts growth for each municipality based on the same numeric increases as in the past.

In specific, it was estimated that an average of 1,391 new residents was added or will be added to the Region in each decade between 1950 and 2000. The same net increase was then added to the 2000 population figure, yielding the adjacent 2010 and 2020 projections. See Table 12.

Table 12				
Arithmetic Extrapolation Population Projections				
Municipality	2000	2007 Estimate	2010	2020
Glen Rock Borough	1,809	1,836	1,875	1,941
Railroad Borough	300	303	300	300
Shrewsbury Borough	3,378	3,579	3,896	4,414
Shrewsbury Township	5,947	6,898	6,704	7,461
Region	11,434	12,616	12,775	14,116

o *Method 2 – Geometric Extrapolation for Each Municipality*

This method analyzed the percentage of growth or decline for each municipality since 1950. It was determined that the region grows by an average of about 20% each decade.

This technique assumes that each municipality will experience future growth at an average rate similar to that experienced in the past. These rates were then used to forecast growth individually for each municipality and added together to arrive at a projection for the growth of the Region. See Table 13.

Table 13				
Geometric Extrapolation Population Projections				
Municipality	2000	2007 Estimate	2010	2020
Glen Rock Borough	1,809	1,836	1,881	1,956
Railroad Borough	300	303	303	306
Shrewsbury Borough	3,378	3,579	4,628	6,340
Shrewsbury Township	5,947	6,898	7,433	9,291
Region	11,434	12,616	14,245	17,893

o *Method 3 – Arithmetic Regional Shift-Share*

This method of population projection employs both arithmetic extrapolation and shift-share techniques. Specifically, the Region, on average, has gained 1,341 new residents per decade since 1950.

As shown in Table 14, extrapolating this figure to 2010 and 2020 yields a projected regional population of 12,775 and 14,116 respectively. These 2010 and 2020 figures were then allocated among municipalities according to their respective shares of the 2000 regional population.

Table 14 Arithmetic Regional Shift-Share Population Projections				
Municipality	2000	2007 Estimate	2010	2020
Glen Rock Borough	1,809	1,836	2,018	2,230
Railroad Borough	300	303	332	367
Shrewsbury Borough	3,378	3,579	3,769	4,164
Shrewsbury Township	5,947	6,898	6,656	7,355
Region	11,434	12,616	12,775	14,116

o *Method 4 – Geometric Regional Shift-Share*

This method employs geometric extrapolation and shift-share projection techniques. Specifically, the Region on average has grown at an average of 20% per decade since 1950.

Extrapolating this rate of growth to 2010 and 2020 yields projected regional populations that were then allocated among municipalities according to their respective shares of the 2000 regional population. See Table 15.

Table 15 Geometric Regional Shift-Share Population Projections				
Municipality	2000	2007 Estimate	2010	2020
Glen Rock Borough	1,809	1,836	2,168	2,602
Railroad Borough	300	303	357	428
Shrewsbury Borough	3,378	3,579	4,048	4,857
Shrewsbury Township	5,947	6,898	7,149	8,579
Region	11,434	12,616	13,722	16,466

o **Method 5 - York County**

This method forecasts growth based upon cohort-survival (births minus deaths) and past migration trends for the County as a whole.

The County projection was then disaggregated by municipality using changes in growth rates experienced by municipalities between 1950-2000 and projected forward. The resulting projections were then adjusted as appropriate to yield municipal-level projections. The Region's projection is the sum of the population projections of the municipalities in the Region. See Table 16.

Table 16				
YCPC Population Projections				
Municipality	2000	2007 Estimate	2010	2020
Glen Rock Borough	1,809	1,836	1,905	1,947
Railroad Borough	300	303	310	317
Shrewsbury Borough	3,378	3,579	3,922	4,466
Shrewsbury Township	5,947	6,898	7,253	8,559
Region	11,434	12,616	13,390	15,289

o **Method 6 – Building Permit Trends**

This method looks at residential building permit trends for each municipality over the past ten (10) years (1998-2007). The average number of permits issued per year for each municipality was calculated and used to project the population. This technique assumes that each municipality will experience future growth at an average rate similar to that experienced in the past. The projections for each municipality were added together to arrive at a projection for the Region. The results of this analysis are shown in Table 17.

Table 17				
10 Year Building Permit Trend Population Projections				
Municipality	2000	2007 Estimate	2010	2020
Glen Rock Borough	1,809	1,836	2,027	2,245
Railroad Borough	300	303	303	306
Shrewsbury Borough	3,378	3,579	3,922	4,466
Shrewsbury Township	5,947	6,898	7,253	8,559
Region	11,434	12,616	13,505	15,576

Overview of Projection Methods

The population projections resulting from each of the six (6) projection methods, along with the Region's recent historical growth pattern, have been plotted for comparison purposes on Figure 9. From this Figure, the existing growth curve, as well as the projected growth curves, for the Region can be visualized.

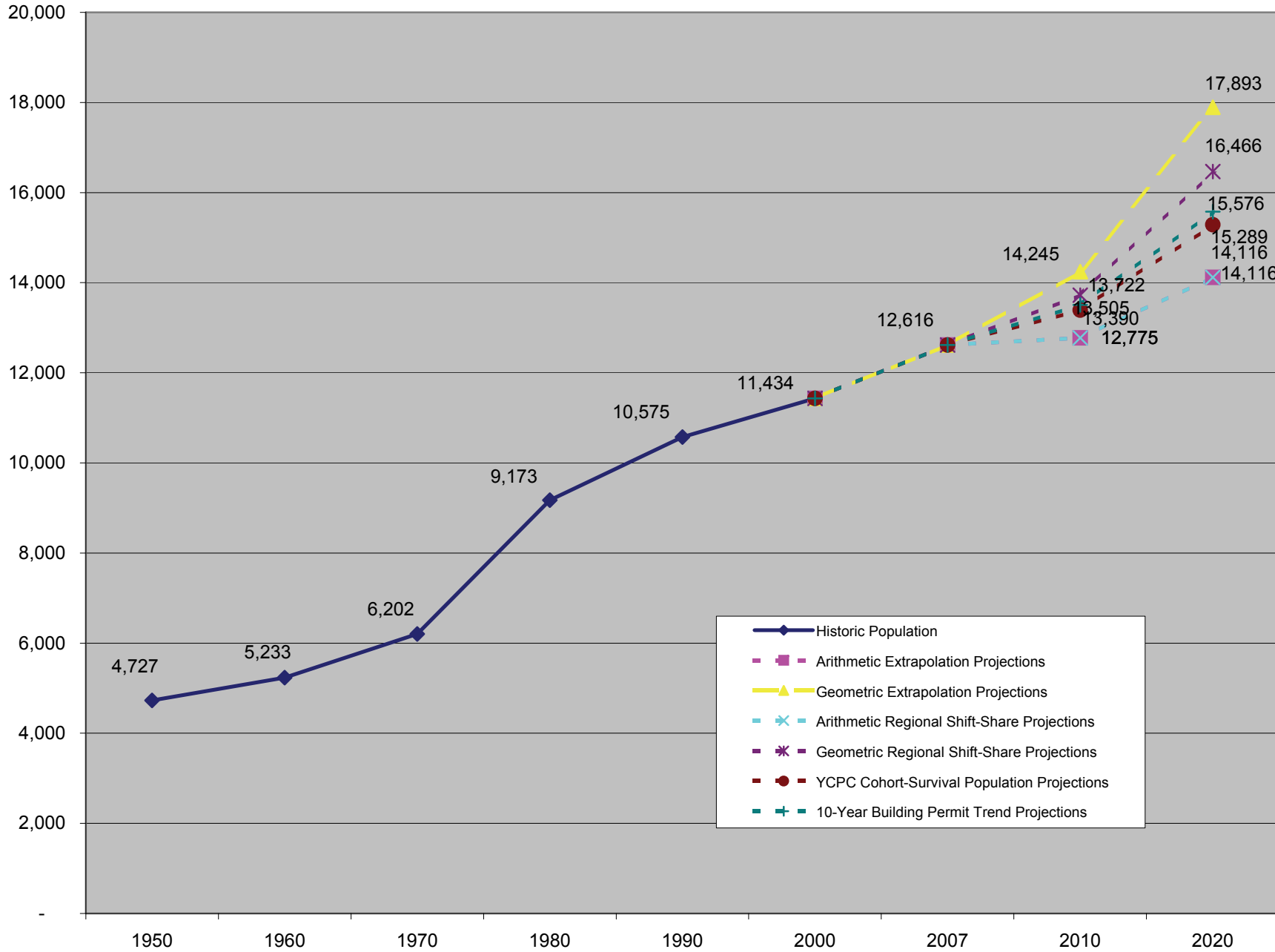
Review and evaluation of the preceding projection techniques indicates that Method 2, Geometric Extrapolation, concludes the highest 2010 and 2020 population projections for the Region. Method 5, York County Cohort Survival, yielded the most conservative figures for population growth in 2010 and 2020. **Of the methodologies presented above, Municipal Officials feel that Method 6, Ten (10) Year Building Permit Trend, yields the most realistic projected population for the municipalities and the Region (13,505 in 2010 and 15,576 in 2020).** These figures will be used to project housing need in Chapter V.

Summary

This chapter has presented a lot of data. The historic population section presents the number of people, while the demographic data presents some of the characteristics of the population. The final section of this chapter considers the future, by presenting various population projection techniques.

Looking forward, the next chapter will look at the Region's housing, in terms of availability, condition and affordability. Subsequent chapters will focus on other issues of the Region, including, but not limited to, the local economy, adjacent planning efforts and community facilities.

Figure 9: Regional Population Trends and Population Projections, 1950-2020



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