

Chapter 5:

Population and Demographics

Approved by Board of Supervisors August 23, 2016

1.0 Introduction

Shenandoah County's policy decisions and growth strategy are determined by current and projected demographics and socio-economic conditions. Despite rapid growth between 1980 and 2010, the County's population has stabilized and is only expected to experience marginal growth or decline. While the population has stabilized, the age break down of county residents has shifted dramatically. In the coming years and decades, the school age population is expected to continue its decline as the average age of county residents' increases.

This is due to three factors: first, that current residents are aging and not having as many children as they once did; second, young people are not moving to the county like they were in the 2000s and therefore are not starting families here; and third, the new retirees moving to the county, especially those from Northern Virginia. An older population with fewer school aged children presents unique policy and service delivery challenges and opportunities for the public, private, faith based, and non-profit sectors.

The charts, graphs, and descriptions are designed to meet three related goals: first, to illustrate historical demographic conditions and trends. Second, to provide a snapshot of the conditions between 2010 and 2015, depending on data availability. And third, to project the demographic changes will likely occur out to the year 2040 and the policy implications of these projections.

1.2 Snapshot of Current Conditions

Since the 1980s the county has experienced significant growth driven by a strong housing market, its close geographic proximity to Northern Virginia, and an influx of retirees and second home buyers. Economic growth in Rockingham and Frederick Counties has also increased housing demand, especially in the southern and northern parts of the County.

The County's growth rate peaked in the mid-2000s before the financial crisis and housing market collapse. While the population continues to rise, the rate of change has decreased significantly. In 2010, for example, the total population of Shenandoah County was 41,993. The Weldon Cooper Center estimates that the population on July 1, 2015 was 42,228; an increase of 235 residents or 0.6% between 2010 and 2015. The growth rate between 2010 and 2015 is in contrast to what the County experienced between 2000 and 2005, where population increased by 2,526 or 6.0%.

While the population growth rate has fallen, the average age of a county resident continues to rise. In 2010, the average age of a county resident was 43.1. Other counties in the Shenandoah Valley also have average ages of over 40, which are higher than both the Virginia average of 37.5 and the national average of 37.2. Not only is the County older, but it also has a lower birthrate.

Children are not being born fast enough to replace aging baby-boomers, who are often integral to economic, social, and cultural organizations. If these trends continue, which they are expected to do, county and town governments, area health care providers, and social service agencies are likely to see an increased demand for their services while at the same time feeling the pressure to operate more efficiently with fewer resources in times of slowing economic growth.

This is particularly important in Shenandoah, where retirees from outside the County comprise a major source of in-migration. With growth occurring in both towns and unincorporated areas at similar rates, providing sufficient services to new homes and businesses outside of current public service areas will require greater investment by the public and private sectors and may require changes to existing County policies and procedures.

2.0 Data Sources & Description

This chapter describes the county's population including its size, characteristics, and geographic distribution; discusses the components of change in the population; and outlines population projections to the year 2040. Data are derived from the US Census Bureau's Decennial Census and annual American Community Survey; Virginia Department of Health; the Center for Disease Control; the Weldon Cooper Center for Public Service and Demographics Research Group at the University of Virginia; and the Housing Assistance Council. Additional qualitative and quantitative analysis is provided by the United States Department of Agriculture's Economic Research Service. Brief definitions of these sources are provided below.

The **United States Decennial Census** counts every resident in the United States. It is mandated by Article 1, Section 2 of the Constitution and takes place every 10 years. The data collected by the decennial census determines the number of seats each state has in the US House of Representatives and is also used to distribute billions in federal funds to local communities. In 2010, approximately 74% of households nationwide returned census forms by mail while the remaining households were counted by census workers walking neighborhoods throughout the United States.

The **American Community Survey (ACS)** is an ongoing survey that provides vital information on a yearly basis about the US and its people. Information from the survey generates data that help determine how more than \$400 billion (2016) in Federal or State funds are distributed each year. Through the survey, the Census Bureau learns about jobs and occupations, educational attainment, veterans, whether people own or rent their home, and other topics. The information helps communities plan hospitals and schools, support school lunch programs, improve emergency services, build bridges, and explore new economic opportunities.

The **Centers for Disease Control (CDC)** works 24/7 to protect

Americans from health, safety, and security threats, both foreign and in the US. As the nation's health protection agency, CDC conducts critical science and provides health information that protects the US against expensive and dangerous health threats, and responds when these arise.

The **US Department of Agriculture's (USDA) Economic Research Service's** mission is to inform and enhance public and private decision making and policy issues related to agriculture, food, the environment, and rural development. With over 300 employees, The Economic Research Service is a primary source of economic information and research in the USDA.

The **University of Virginia's Weldon Cooper Center for Public Service** is a research and training organization focused on the Commonwealth of Virginia. The Center provides objective information, data, and applied research. The Cooper Center's 60 member staff (2016) includes experts in public management, demography, economics and public finance, political science, leadership and organizational development, workforce issues, and survey research.

The **Demographic Research Group** at the Weldon Cooper Center produces the official annual population estimates for Virginia and its localities; conducts practical and policy-oriented analysis of census and demographic data under contract; and communicates rigorous research and its policy implications to clients including state and local governments, employers, non-profit organizations, and the general public through meaningful, intuitive publications and presentations.

In between census years, the Center calculates intercensal population estimates by analyzing changes in housing stock, school enrollments, births, deaths, and driver's licenses issuances. The data are used by state and local government agencies in revenue sharing, funding allocations, planning, and budgeting. Importantly, the data sourced in this chapter are the industry standard for demographic analysis, which allows for comparisons between the current conditions and trends in Shenandoah and other counties in the Commonwealth.

The **Virginia Department of Health (VDH) Division of Health Statistic's** mission is to assure access to timely, comprehensive, population based health data to support community needs assessments, evidence based policy and program decisions, and evaluations of health outcomes and services. Data is collected via vital records, through the use of surveys, and by partnerships with other public and private entities such as the US Census Bureau and National Center for Health Statistics.

The **Housing Assistance Council (HAC)** is a national nonprofit organization that supports affordable housing efforts in rural areas of the United States. Their Rural Data Portal aggregates information from public data sets including the US Census, ACS, and Home Mortgage Disclosure Act. The portal further divides the data into subgroups that are useful to gain a more detailed look into the county's demographics as well as when comparing Shenandoah to similar

counties in the commonwealth

For example, the HAC developed a sub-county designation of rural and small-town areas which incorporates measures of housing density and commuting at the Census tract level to establish a precise measure of rural character. The Center describes the classification system as follows: “This alternative residence definition includes six classifications: 1) rural, 2) small-town, 3) exurban, 4) outer suburban, 5) inner suburban, and 6) urban.” The first two rural tract classifications, small town and rural, are the most applicable to the conditions in the County.

Small towns are defined by census tracts with 16 to 64 housing units per square mile (.025 to 0.1 housing units per acre) and a low degree of commuting to a metropolitan core area identified by a United State Department of Agriculture’s Economic Research Service (USDA ERS) designated Rural Urban Commuting Area Code (RUCA) score of 4 or higher. Rural tracts are defined by areas with less than 16 housing units per square mile (.025 housing units per acre). For perspective, the County’s average is 41.3 housing units per square mile (.064 housing units per acre). With the exception of certain census block groups in Woodstock and Strasburg, all of the County meets these rural or small town designations.

3.0 Boundaries & Geographic Regions

In addition to the small town and rural categories described above, the data in this chapter also include information about the County’s neighboring localities, the Northern Shenandoah Valley region, and the Commonwealth of Virginia. The Northern Shenandoah Valley region is defined by the jurisdiction of the Northern Shenandoah Valley Regional Commission (NSVRC). The NSVRC encompasses the five counties in northwest corner of Virginia including Clarke, Frederick, Page, Shenandoah, Warren and all jurisdictions within as well as the City of Winchester. The NSVRC exists to bring these local governments together to pursue common goals, work together on regional issues and find efficiencies through collaboration.

Occasionally in this chapter, figures will exclude Winchester City data in order to better compare Shenandoah with more rural and suburban localities in the district. Where this occurs a notation will be provided.

At a larger scale, the Center divides the Commonwealth into eight region’s with similar geographic, demographic, and economic characteristics. These regions include: Central, Eastern, Hampton Roads, Northern, Richmond, Southside, Southwest, and Valley-Mountain. Shenandoah is in the Valley-Mountain region. This region encompasses all counties located along the western border of the commonwealth and runs north to south between the Allegheny Mountains to the west and the Blue Ridge Mountains to the east. The majority of the population in the Valley-Mountain Region lives along Route 11, which runs parallel to Interstate 81.

4.0 Population Growth

Population growth occurs through two sources: natural increase and

Figure 5-A
Census Tracts 2010

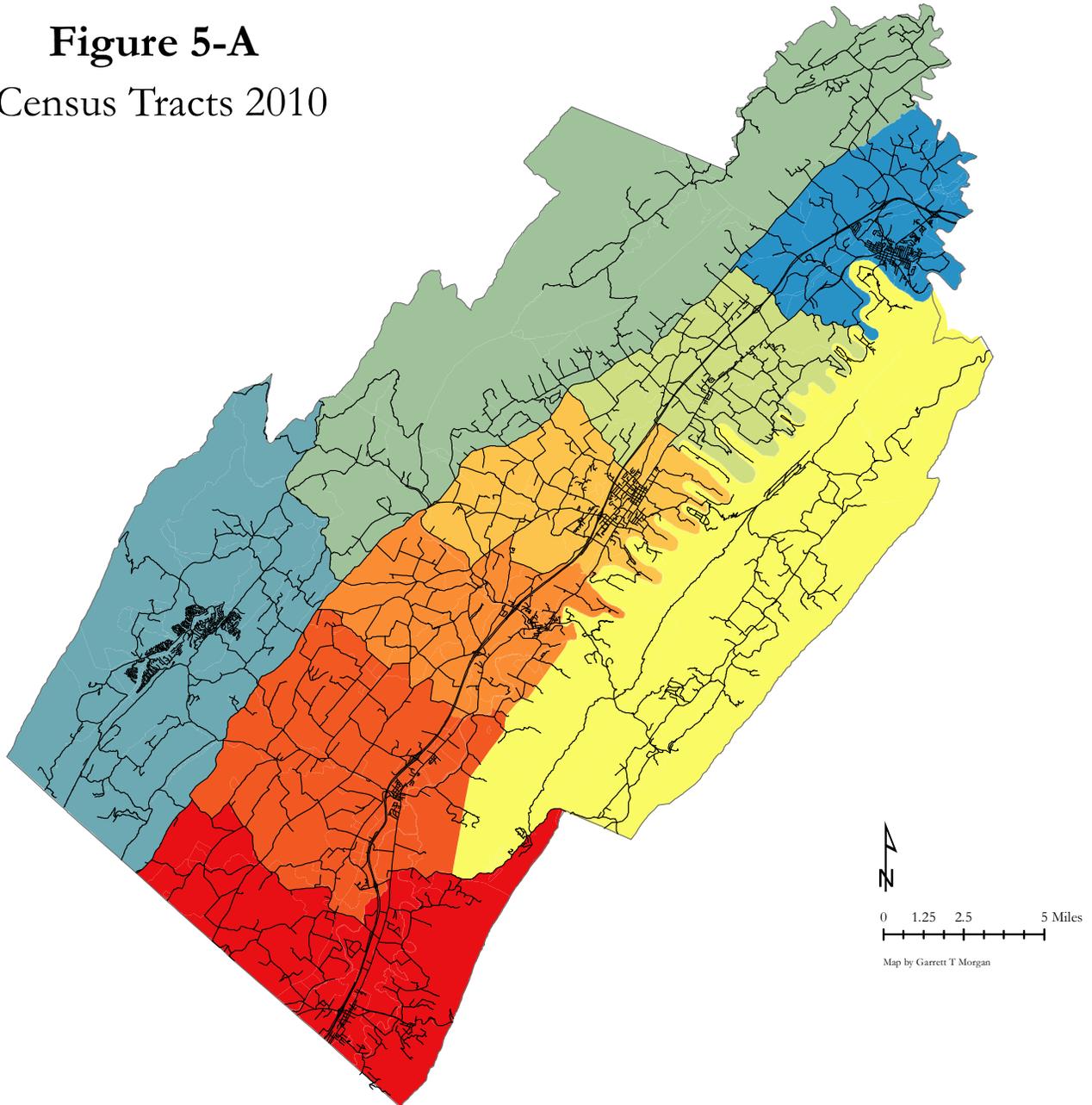


Figure 5-A:
County Census Tracts in 2010

Census tracts are relatively small statistical subdivisions of a county delineated by a local committee of census data users for the purpose of presenting data. Census tracts nest within counties, and their boundaries normally follow visible features, but may follow legal geography boundaries and other non-visible features in some instances. Census tracts ideally contain around 4,000 people and 1,600 housing units.

Source: US Census Bureau, 2016

net in-migration. Natural increase is the difference between the number of births and deaths in a year. Natural increase is dependent on fertility rates or the number of children born per 1,000 women of a childbearing age (15-50 years). Death rates are determined by individual health, access to preventative healthcare, and age. Net in-migration is the number of people who leave subtracted from the number of people who move into the locality each year. Even without significant in-migration, however, population growth does not mean that more children are being born as much as it highlights that people are now living longer.

Since the baby-boom generation of the post-World War II period, the United States has not experienced another boom in births from women in

Figure 5-B: County Population 1860-2015

Source: US Census Bureau

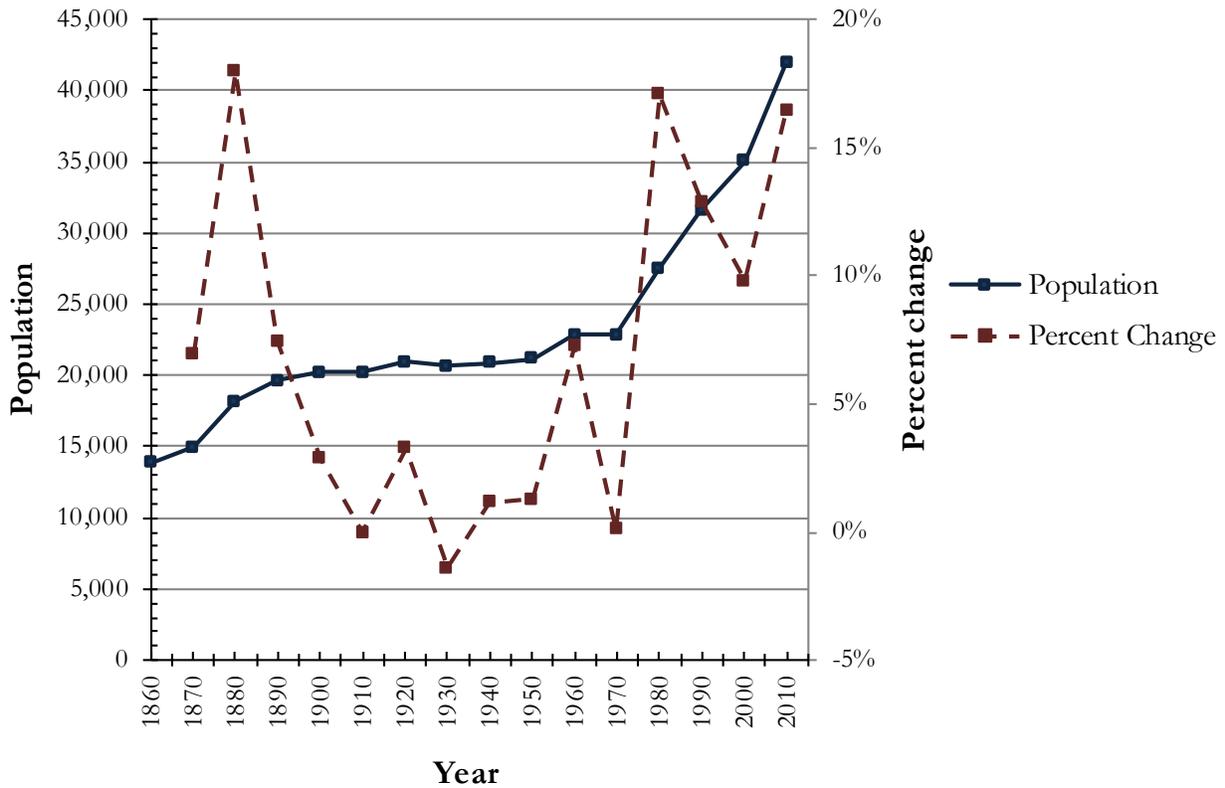
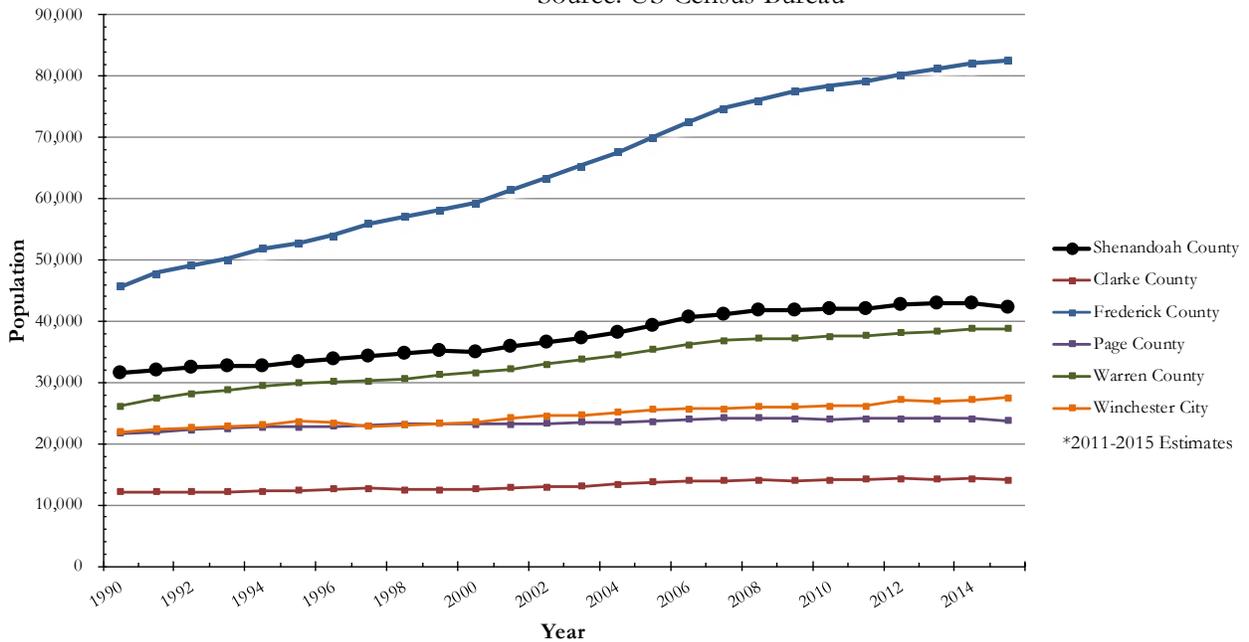


Figure 5-C: Annual Population Growth 1990-2015*

Source: US Census Bureau



their prime childbearing years. The decrease in fertility rate among these women has had a spillover effect, leading to smaller age cohorts entering those primary childbearing years in the future. When combined with changes to socio-economic conditions and marriage patterns, it is not expected that fertility rates will increase in the coming decades. As a smaller locality, Shenandoah County may be acutely affected by these conditions.

4.1 Historic Population Growth

Figure 5-B illustrates the County's population growth from 1860 to 2010. Since the mid 19th Century, the County has grown modestly, with the greatest increases occurring since 1980. The highest rates of change occurred over two periods: from 1870 to 1890 and from 1980 to 2010. Unlike many rural areas in the region, the County did not experience a post war population boom. Since the 1960s, however, the County has consistently grown at a faster rate than the Commonwealth as a whole; seeing the largest gains between 1980 and 1989 and 1990 to 1999, where the population increased by 20.6 and 14.8 percent respectively.

This growth can be primarily attributed to the County's proximity to the Washington DC Metro Area. In the 1990s and 2000s, Northern Virginia experienced exponential growth due to increased Federal government spending and corresponding economic activity. Combined with the high costs of living in the District and its inner suburbs, workers and their families moved further out into Northern Virginia where home prices were more affordable. As the popularity of these areas increased, workers moved further into the Northern Shenandoah Valley. Shenandoah County's relatively low cost of living, strong public schools, and rural character attracted many of these commuters and their families.

Slowing growth in Northern Virginia due to the aforementioned economic challenges, has decreased migration as the second home market struggles and disposable income for many retirees becomes more constricted. These conditions have diminished the financial benefits of residing in Shenandoah and commuting to Northern Virginia for employment.

4.2 Regional Population Growth

Figure 5-C illustrates how populations of the localities in the Northern Shenandoah Valley have increased at uneven rates since 1990. Frederick County has, by far, experienced the greatest growth, with its population increasing from 45,723 in 1990 to 78,305 in 2010. Warren and Shenandoah counties experienced moderate growth during the same period, increasing from 26,142 and 31,636 in 1990 to 37,575 and 41,993 respectively. Page County and Winchester City increased at a slower rate. Clarke County increased by the smallest amount, increasing from 12,101 in 1990 to 14,034 in 2010.

In January 2016, the Weldon Cooper Center released population estimates for all counties and cities in the Commonwealth for the period of 2010-2015. The State's population increased by less than 1 percent each year since 2010, which is the Commonwealth's lowest rate in decades. Despite the slowing growth, Northern Virginia still accounts for nearly three fifths of the Commonwealth's gain, with eight of the 10 fastest growing localities located there. The slowdown has had a greater impact in non-metropolitan counties like Shenandoah.

Figure 5-D
Population by
Census Block 2010

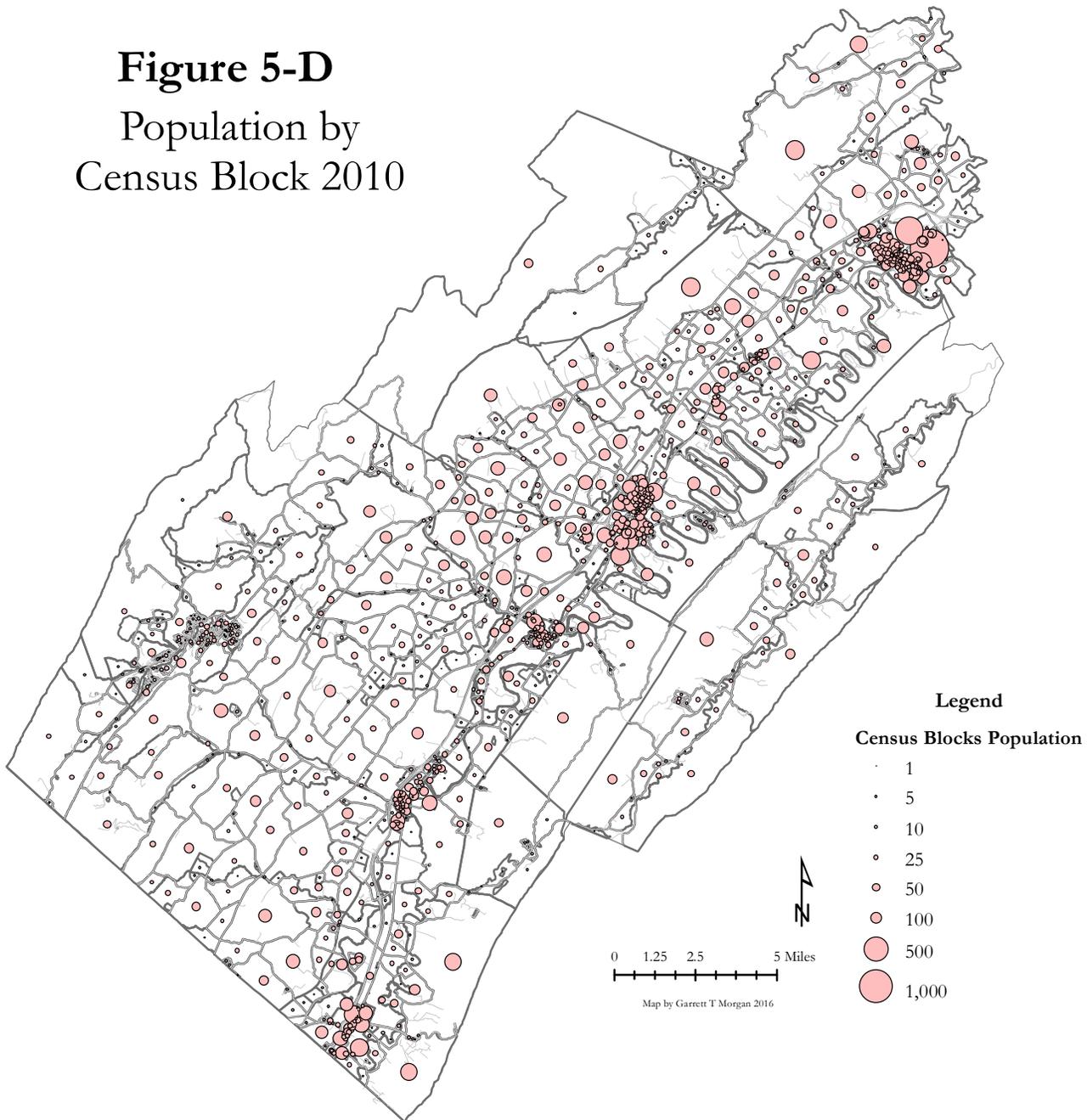


Figure 5-D:
Population by Census Block.

The size of the circle inside each block corresponds to the number of residents living there.

5.0 Density & Town vs. Unincorporated Area Growth

Population trends cannot be fully understood without considering where people are physically moving to or away from. Two indicators: density and the growth in the town vs. unincorporated areas, provide greater details about how population changes are impacting the county. These indicators also illustrate whether or not the county's communities are developing in a more compact and sustainable way or continuing the previous patterns of dispersed subdivisions and sprawl.

5.1 Density

Figure 5-E
Population Density 2010

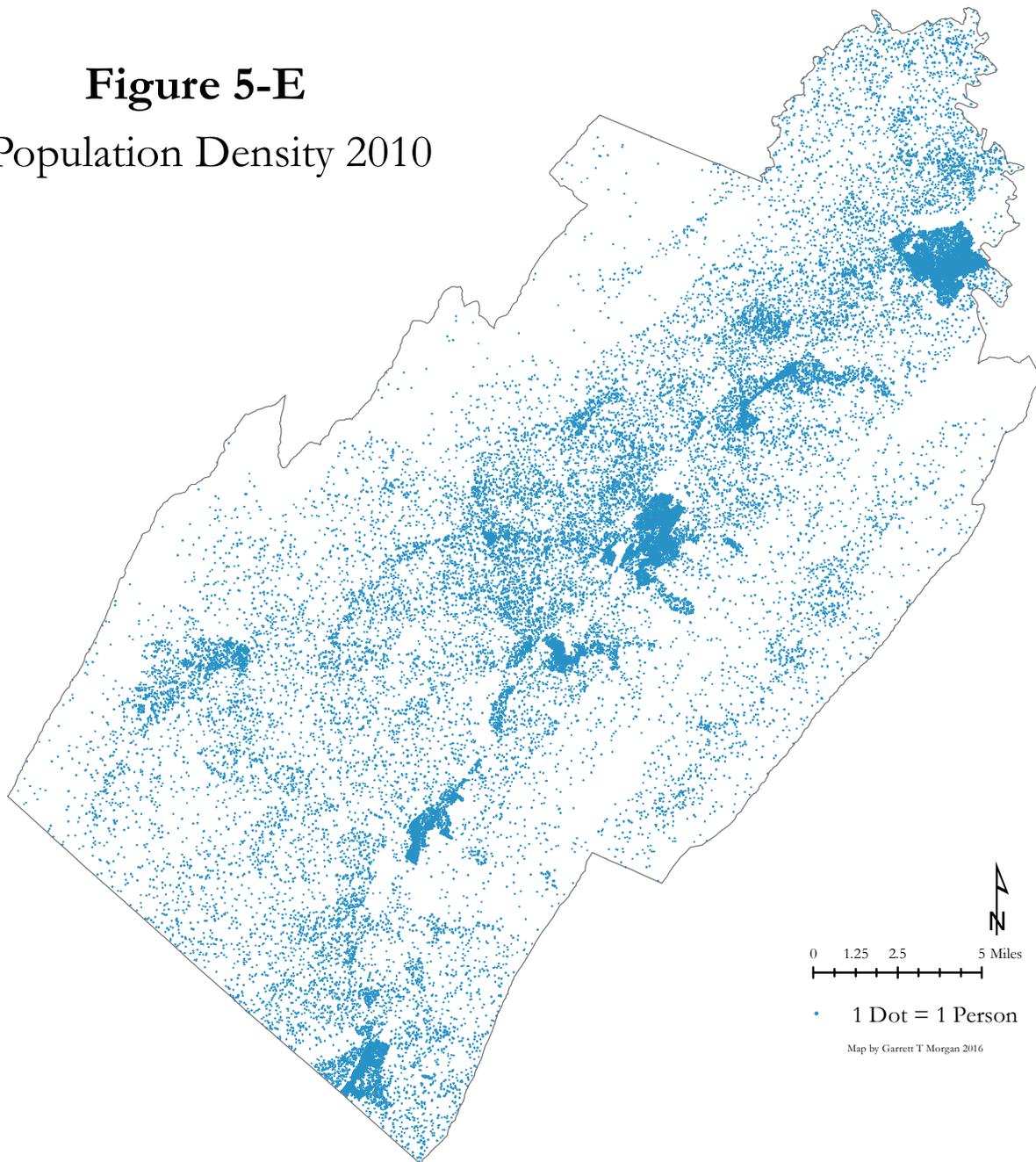


Figure 5-E
Dot Population Density.

Each dot represents one individual and where they live in the county.

Population density is the total population divided by the total acreage of an area. A low density means that residents are spread out, while a higher density means residents are closer together. The distance between residents has an impact on service provision, particularly emergency services. Typically, the greater distance between residents, the greater the cost of government services required to adequately service the residents' needs during times of crisis, which in turn leads to greater costs. Figures 5-D and 5-E illustrate the population density of the County in different ways.

Figure 5-D shows the population of the county by census block. The higher the population, the greater the size of the circle within each census block boundary. This provides a generalization of where most of the County's residents live, which is in the towns along Route 11. A more detailed illustration

Figure 5-F: Population Increases 1990-2010

Source: US Census Bureau

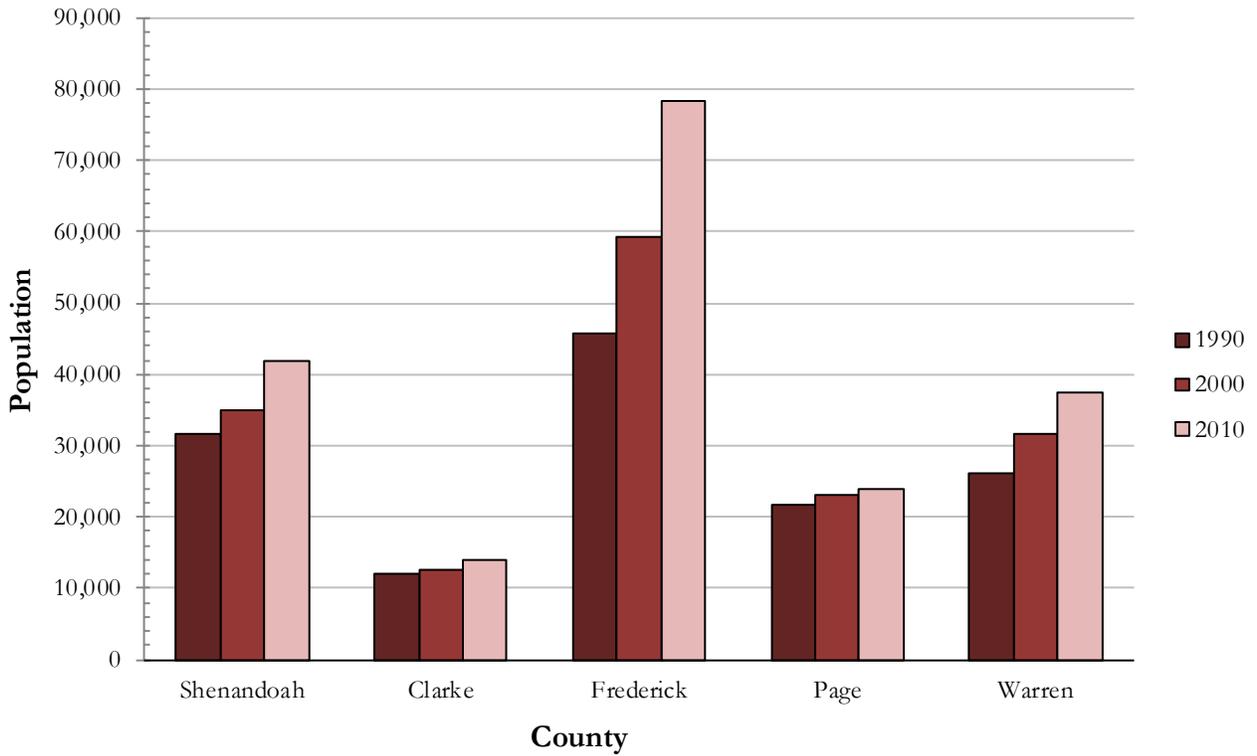
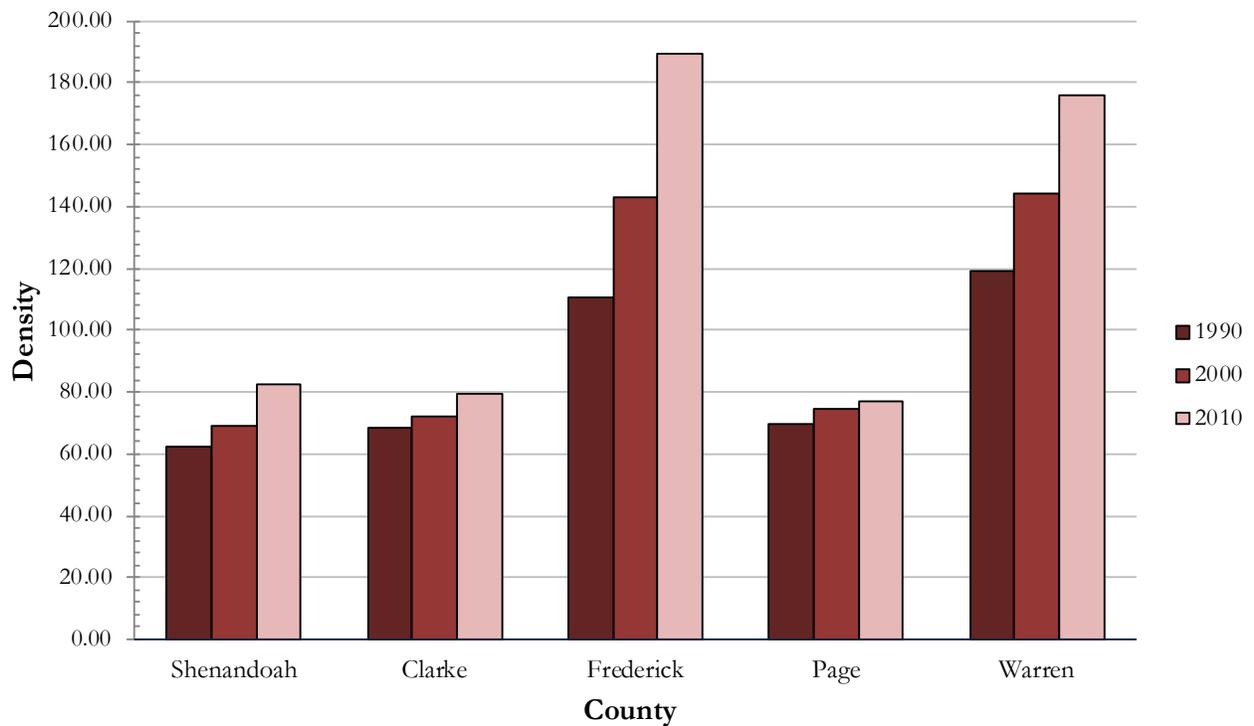


Figure 5-G: Population Density 1990-2010

Source: US Census Bureau

*Winchester City Densities Excluded: '90: 2,377; '00: 2,555; '10: 2,838



of where each individual lives is shown in Figure 5-E, where one dot equals one resident.

Figures 5-D and 5-E illustrate the popularity of the towns as residential locations. However, Figure 5-E provides a more accurate depiction of the low density of the County, with many residents living on large agricultural or residential plots in unincorporated areas. Although this dispersion of residents is inherent to an agricultural community, it presents challenges to local policy makers seeking to address the needs of both town residents and more isolated homeowners.

Figures 5-F and 5-G compare population growth and density between Shenandoah County and other localities in the Northern Shenandoah Valley. Figure 5-F illustrates the population increases from 1990-to 2010 in the region. Frederick County has experienced the greatest increase during this period, while Clarke and Page both experience low levels of growth. Shenandoah and Warren counties grew at similar rates, but at a more moderate rate.

When examining population density during this same period as shown in Figure 5-G, similar trends emerge. Frederick has become significantly more dense, nearly doubling its density from 1990 to 2010. Page and Clarke counties increased slightly during the same period. While Shenandoah and Warren Counties saw similar population growth, however, Warren's density has increased at a much higher rate. This may be attributed to some extent, to growth experienced in Front Royal, the county seat.

Shenandoah County's density in 2010 there was 82.50 people per square mile, compared to an average of 573.81 in the Northern Shenandoah Valley and 202.6 for the Commonwealth. When Winchester City is excluded, the average density of the region is 120.97. By both measures, Shenandoah County ranks as the third most dense locality, is slightly more dense than Clarke and Page with 79.66 and 77.30 respectively but considerably less dense than Frederick, Warren, and Winchester City who measure densities of 189.40, 176.00, and 2,838.00 respectively.

5.2 Town Population

The US Census Bureau defines an urban cluster as any incorporated area having at least 2,500 people. By 1980 the Towns of Strasburg and Woodstock crossed this threshold. While growth has occurred in all of the towns since 1980, Strasburg and Woodstock remain the only urban areas in the county, with 2010 populations of 6,398 and 5,097 respectively. Figure 5-H illustrates population growth in the five towns in the county during this period.

Outside of Woodstock and Strasburg, New Market experienced significant growth with a population increasing from 1,118 in 1980 to 2,146 in 2010. Edinburgh saw more limited population growth, increasing from 752 to 1,041. Toms Brook saw the slowest growth of the towns, increasing from 226 in 1980 to 258 in 2010.

5.3 Town vs Unincorporated Area Growth

Figure 5-I illustrates the breakdown of total population between the towns and unincorporated rural areas. From 1980 to 2010 the population of towns grew from 8,968 in 1980 to 16,934, increasing 89%. During the same period rural areas

Figure H: Population Growth in Towns 1980-2010
 Source: US Census Bureau

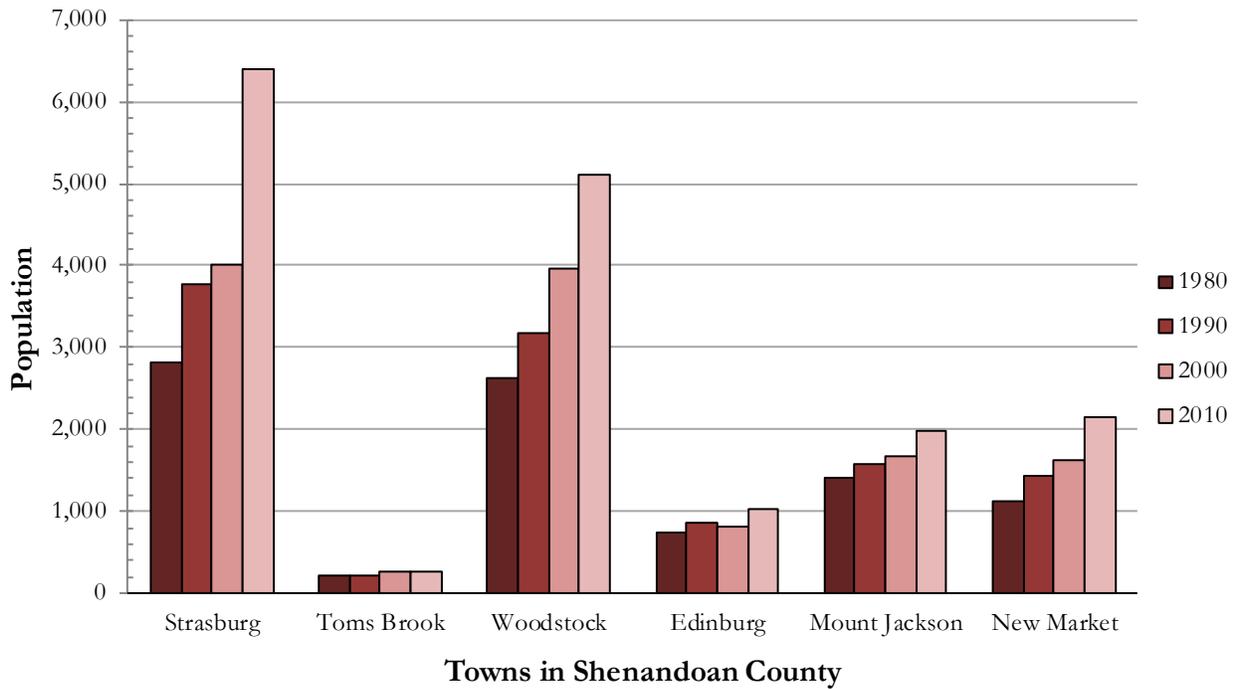
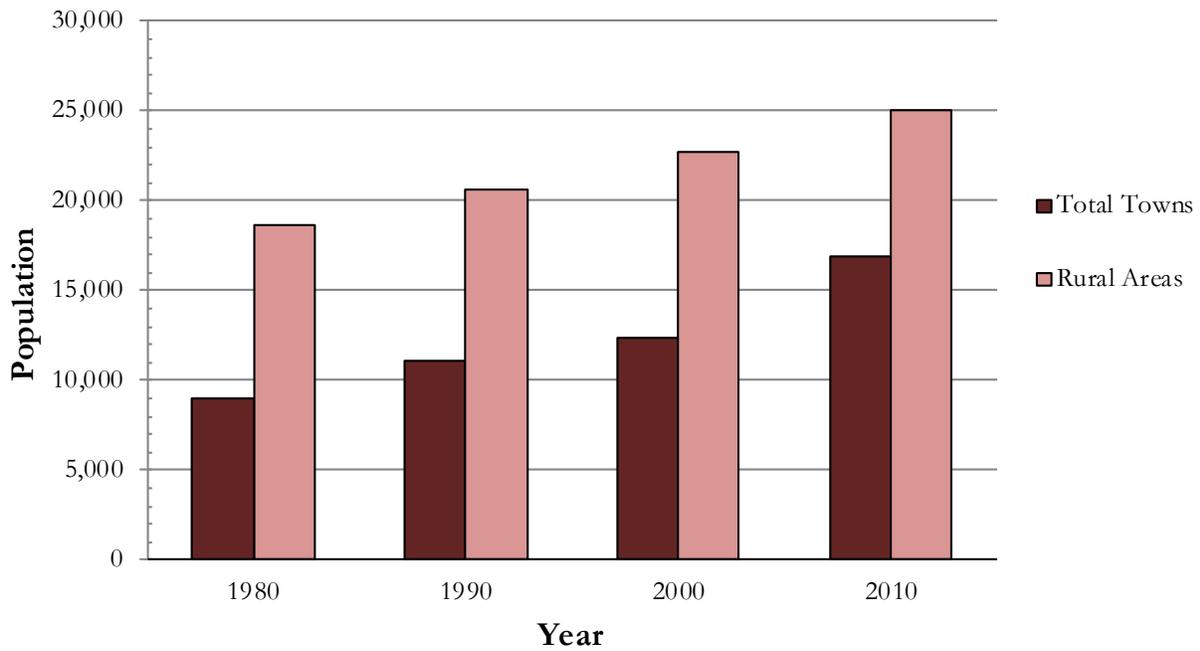


Figure I: Town vs Rural Growth 1980-2010
 Source: US Census Bureau



increased from 18,591 to 25,059 or 35%. Although the rate of growth was faster in the towns, the absolute number of persons added to the county was still greater in the unincorporated areas.

There are several factors contributing to this growth pattern as well as causes for concern if it continues. During the recent growth period there was a notable increase in the raw amount and different types of housing units available in the towns to serve more segments of the population (i.e. apartments and townhomes rather than detached single family dwellings), and many older residents moving into the County chose to live where services were most readily available.

There are significant financial and infrastructural benefits of building new housing units in the towns or within existing public service areas. However, many residents move to the county to immerse themselves and their families in the rural character, and as a result, prefer to build single family dwellings on tracts of land outside of town boundaries. The County's housing needs will be further addressed in Chapter 6: Housing of this Comprehensive Plan.

Spread out development is consistent with county's rural aspects, but they also have higher relative costs of servicing - particularly in terms of Fire, Rescue, and other Emergency Services due to the distance from population centers and their tendency to be on narrow or unpaved roads which may be difficult to traverse during certain weather events.

6.0 Components of Change: Natural Increase and Migration

As described earlier, population change occurs through two events: natural increase and net in-migration or out-migration. Natural increase is the difference between the number of births and deaths in a year. Net in-migration is the number of people who leave subtracted from the number of people who move into the locality each year. Natural increase is dependent on fertility rate or the number of children born per 1,000 women of a childbearing age (15-50 years). Even without significant in-migration, however, population growth does not mean that more children are being born as much as it highlights that people are now living longer.

The County's population is slowly growing and rapidly aging. This section discusses and analyzes these trends and identifies their causes. The analysis will provide a basis for formulating expectations of development and providing government services to the County's population.

6.1 Fertility

Since the baby-boom generation of the post-World War II period, there has not been another boom in births from women in their prime childbearing years across the United States. The decrease in fertility rate among these women has had a spillover effect, leading to smaller age cohorts entering those primary childbearing years in the future. When combined with changes to socio-economic conditions and marriage patterns, it is not expected that the County's fertility rates will increase in the coming decades.

Acting in conjunction with national trends, there are several local factors

that are not only affecting the number of births in the County but also how these births are being recorded. In 2009 the maternity ward at Shenandoah Memorial Hospital in Woodstock closed. This led to the number of births registered in the county to drop from 291 in 2008, to 134 in 2009, and 10 in 2010.

While the decrease in births in the county continued to decline based on general trends, the closing of the maternity ward appears to have had a major impact. Without access to a maternity ward in the county, women are having their children in neighboring localities – particularly Winchester City and Warren County. These women then return with their newborn children to their homes in Shenandoah County. This results in a data collection time lag because these children are not counted as residents of the county until the following year when annual surveys are conducted.

This practice has been amended recently by the Virginia Department of Health (VDH), where all live births are reported. From 2000 to 2010, the agency reported live births by county, not by the mother’s area of residence. Beginning in 2009 the VDH began attributing births of residents outside the county to the county itself. The difference between mothers giving birth in the county and residents giving birth outside of the county but returning to their homes here after hospitalization is considerable.

For example, in 2010 only 10 live births were recorded in the county. For the same year, the VDH also reported 455 live births using the more nuanced model. Data from 2009-2013 for Shenandoah and its peer counties are shown in Figure 5-J. Importantly, both indicators illustrate a downward trend of births in

Figure 5-J: Total Live Births per 1,000 Families 2009-2013

Source: Virginia Department of Health, 2015

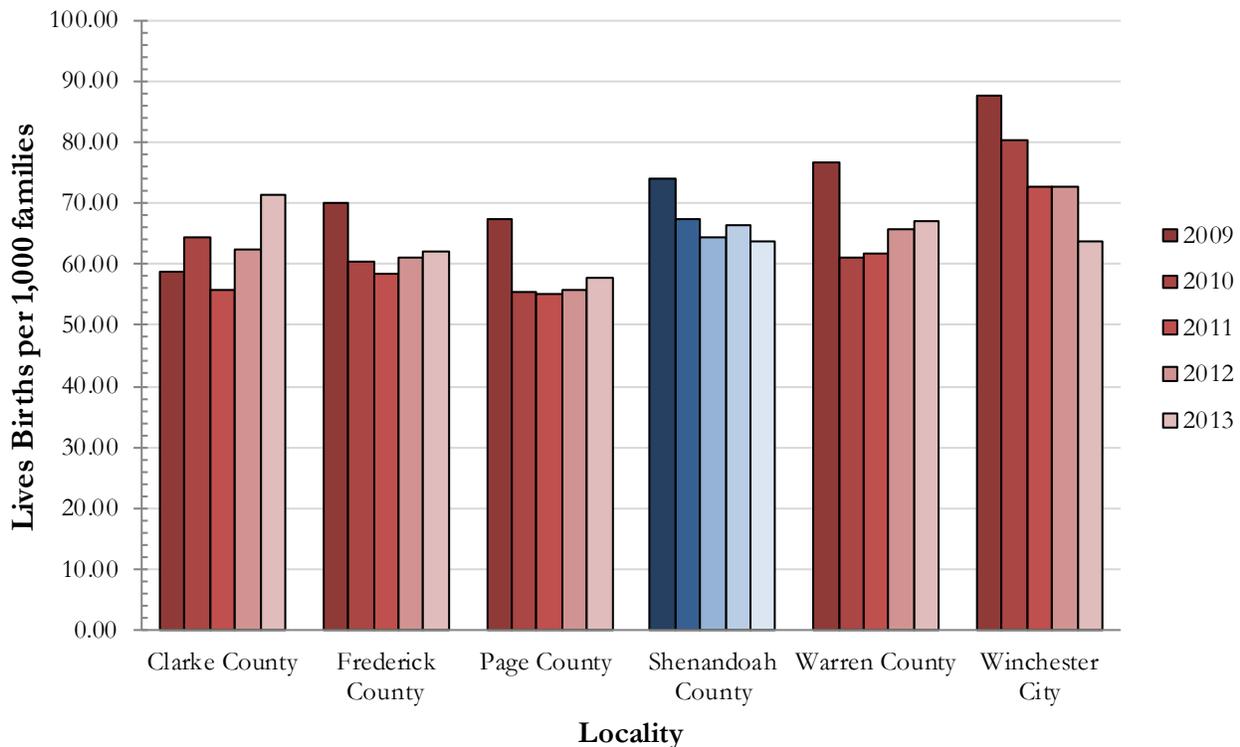


Figure 5-K: Total Deaths per 1,000 People 2009-2013

Source: Virginia Department of Health, 2015

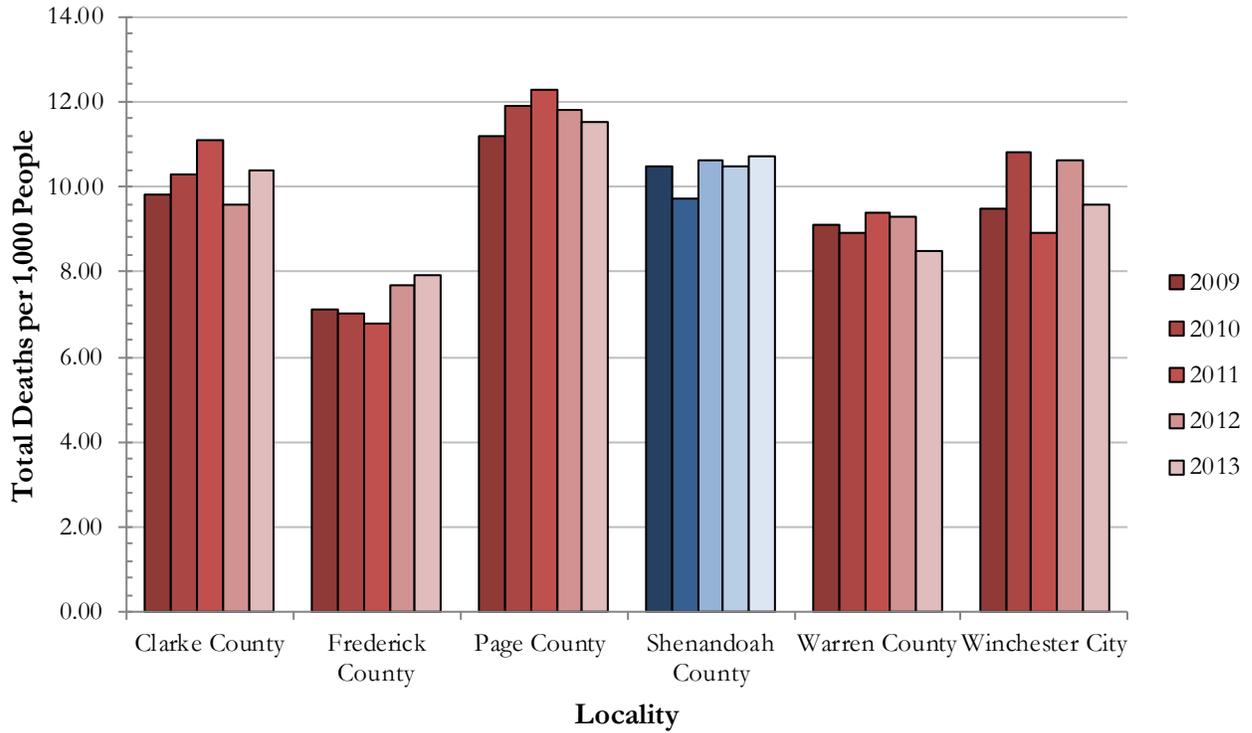
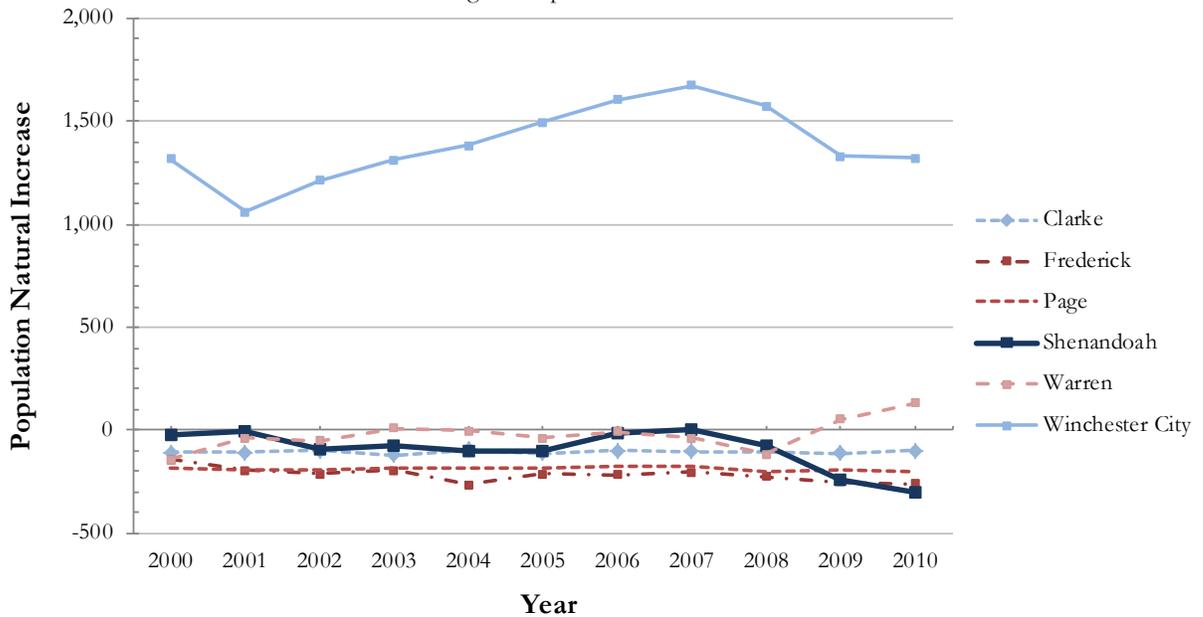


Figure 5-L: Population Natural Increase 2000-2010

Source: Virginia Department of Health



the County.

All counties in the Northern Shenandoah Valley experienced declines in birth rates between 2000 and 2013. Birth rates peaked between 2006 and 2008, but have steadily declined since. If the current trends continue, birth rates will decline, which will have an impact on the County's school age population and demand for social services.

6.2 Natural Increase

Natural increase is the annual difference between the number of births and deaths. While the County's birth rate has been decreasing, the death rate remained relatively constant from 2000 to 2010. As a result of this imbalance, the average age of County residents will continue to rise. Assuming medical advances and national health trends continue, it is unlikely that significant changes to the death rate will occur in coming decades.

Figure 5-L illustrates natural increase data across the Northern Shenandoah Valley from 2000 to 2010. The figure highlights the region's dependency on migration in order to counteract low birth rates and an aging population. Winchester City saw the greatest natural growth over the period, in part because of its role as the regional medical center, but also experienced a noticeable decline after peaking in 2007. Alternatively, Warren saw an increase in natural growth after 2008, while all other localities saw decline. This may, however, be in part attributed to Front Royal's women's health services. Shenandoah's natural growth rate was declining by 2008 and further dropped off after the Woodstock clinic closed in 2009.

6.3 Net Migration

Net migration is the difference between total population increase and natural increase occurring annually. This accounts for the number of residents in a county who have moved to or away from the county. Net migration rates illustrate if a county is growing or shrinking. Net migration is frequently associated with economic growth as well as increased diversity. Figure 5-M illustrates annual net migration from the Northern Shenandoah Valley from 2000 to 2010.

After a decline of population from 1999 to 2000 of 101 people, Shenandoah saw considerable increases in migration from 2001 to 2007. For example, net migration was 572 in 2001, 685 in 2002, 689 in 2003, 886 in 2004, 1,029 in 2005, and peaked at 1,100 at 2006. In 2007 and 2008, the county experienced low net migration rates of 592 and 506 respectively. In 2009, the county experienced significant decline – with a negative net migration rate of 48. In 2010, the net migration rate increased slightly to 10.

Figure 5-N illustrates cumulative net-migration for localities in the Northern Shenandoah Valley from 2000 to 2010. By far, Frederick County saw the greatest in-migration, nearly three times greater as Shenandoah and Warren, attracting 17,500 new residents. Conversely, the City of Winchester saw the greatest decrease, at negative 10,928, which can be almost entirely attributed to the city's regional hospitals.

Shenandoah experienced a positive net migration number of 5,920 during the same period. Page experienced moderate out migration, losing 1,288

Figure 5-M: Annual Net Migration by County & City 2000-2010

Source: US Census Bureau

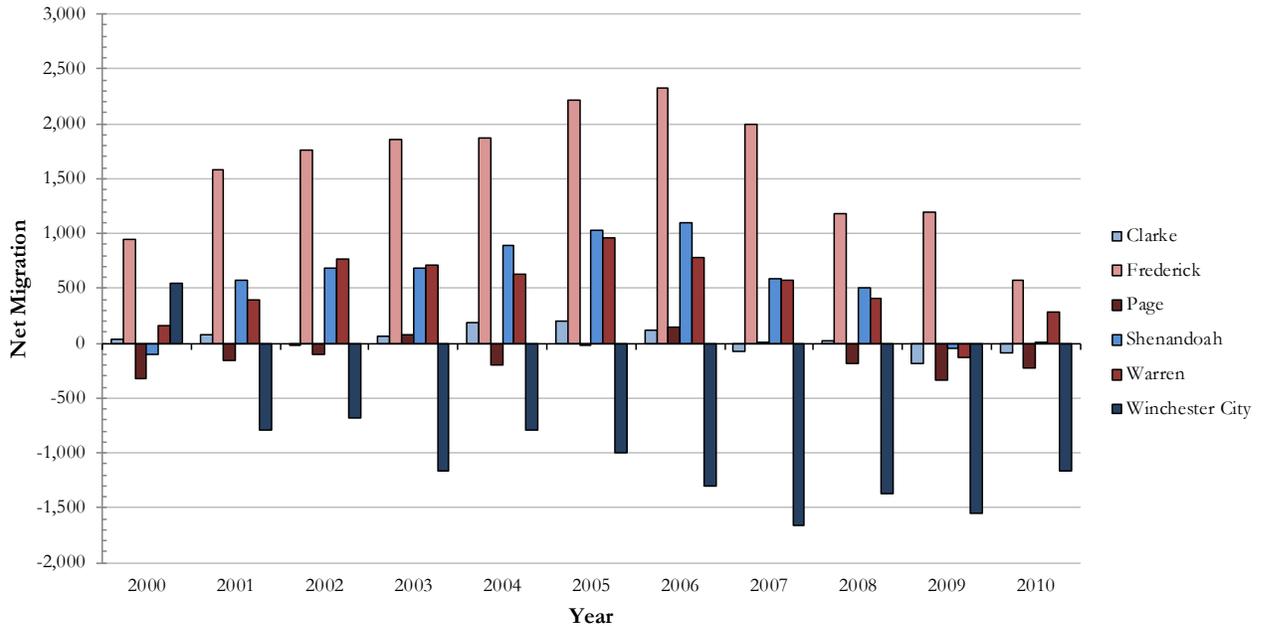


Figure 5-N: Cumulative Net Migration 2000-2010

Source: Virginia Department of Health, US Census Bureau

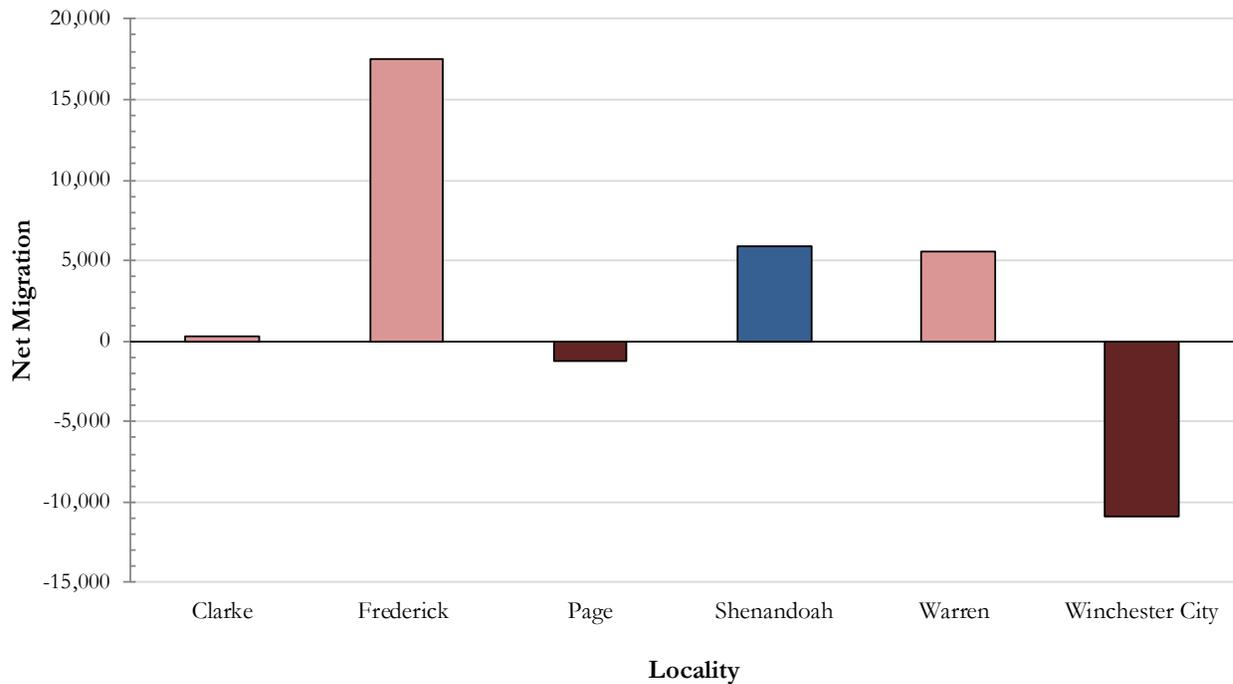
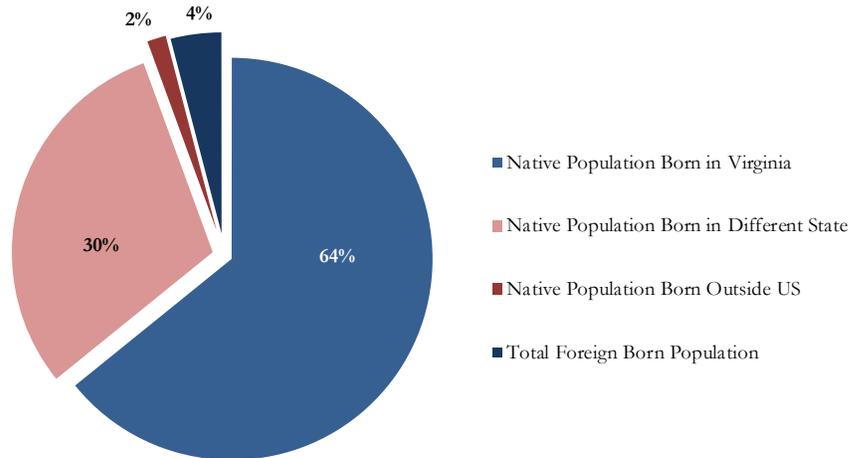


Figure 5-O: Nativity and Place of Birth 2010

Source: US Census Bureau; American Community Survey



residents, while Clarke remained relatively static, attracting 308 new residents. While Shenandoah is following the regional trends, without increased net in-migration, the County’s population will begin to shrink.

6.4 Nativity

Nativity status is another way to look at migration – although not as detailed or time sensitive as annual net in or out migration. Native born individuals are defined as anyone who is a US citizen at birth. These include those born in the US, Puerto Rico, in a US Island Area, or born abroad of US citizen parents. Foreign born individuals are defined as anyone who is not a US citizen at birth. These include Naturalized US Citizens, legal permanent residents, temporary migrants, Humanitarian migrants, and unauthorized migrants.

Figure 5-O illustrates the nativity breakdown of the County in 2013. Between 2000 and 2013, the county’s population continued historic trends, with the majority of residents being born in the US (95%) and predominately born in Virginia (64%). The biggest change that occurred between 1980 and 2010 was the increase in the foreign born population, which increased from 213 in 1980 to 1,721 in 2010. Despite the increase, the foreign population remains approximately 3.5% of the total population.

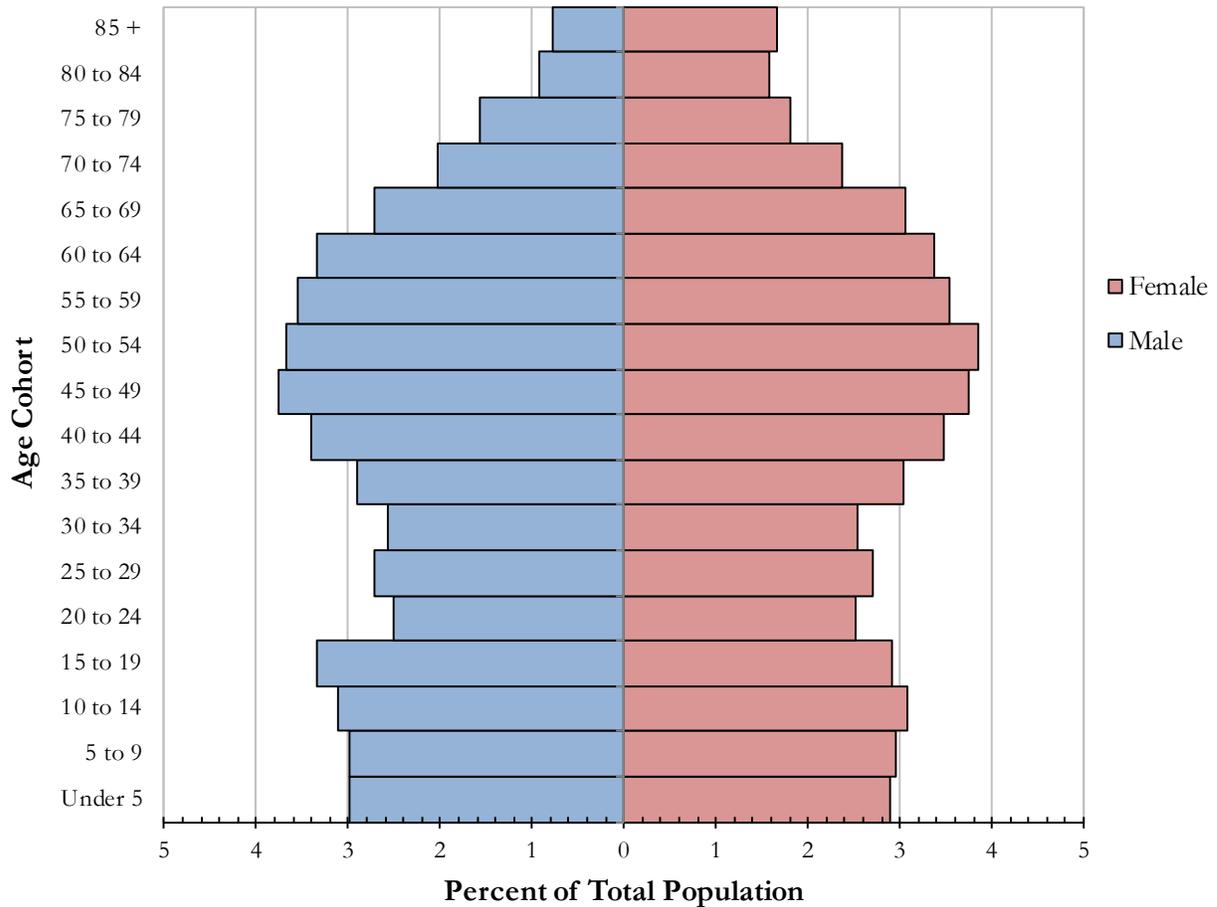
Changes in nativity indicate how diverse a locality is as well as how a region’s demographics are changing. The nativity of citizens does not correspond directly to educational attainment, however. For example, a locality that is increasingly attracting foreign born populations may have a high-skilled industry cluster or be largely agricultural and rely on a migrant workforce.

7.0 Population Characteristics

An analysis of additional demographic characteristics is required to gain a more nuanced understanding of a county’s population beyond the raw numbers inherent to components of change measurements. In the following sections

Figure 5-P: Population Pyramid 2010

Source: US Census Bureau



many, but not all of the unique characteristics that impact policy and growth will be discussed further. These include: age distribution, race and ethnicity, languages spoken at home, household size, educational attainment, and general health indicators.

7.1 Age Distribution

Figure 5-P shows a population pyramid that shows the age distribution of County residents in 2010, separated by age cohort and sex. If a population is growing, the lower age cohorts will be much larger than the older cohorts, to illustrate more births than deaths. While Shenandoah does have a moderately sized population under 9 years of age, the pyramid illustrates the majority of the County's population is over 40.

There is also a visible gap of residents between the ages of 20 and 40, a demographic key to both natural population increase and net in-migration that contribute to long term community development. When combined with an aging population, this gap has possible policy implications as government services will need to accommodate a County where the majority of residents are over 45.

Figure 5-Q illustrates how the county's age distribution has changed

Figure 5-Q: Age Distribution 1970-2010

Source: US Census Bureau

	1970		1980		1990		2000		2010	
	Pop	%								
Under 5	1,713	7.5	1,639	5.9	1,932	6.1	1,948	5.6	2,475	5.8
5-19	6,182	27.0	6,398	23.2	5,876	18.6	6,625	18.9	7,724	18.4
20-44	6,706	29.3	9,352	33.9	11,495	36.3	11,229	32.0	11,906	28.4
45-64	5,190	22.7	6,083	22.1	7,053	22.3	9,190	26.2	12,120	28.9
Over 64	3,061	13.4	4,087	14.8	5,280	16.7	6,083	17.3	7,768	18.5
Totals	22,852	100	27,559	100	31,636	100	35,075	100	41,993	100
Median Age	31.4		33.9		37.4		40.9		43.1	

Figure 5-R: Cohort Migration by Virginia's Regions**Percentage Change 2000 to 2010**

Source: Demographics Research Group, University of Virginia, 2013

Region	Age Cohort					
	15-24	25-34	35-44	45-54	55-64	65-74
Blue Ridge Corridor	62.2	-20.8	2.2	6.0	5.2	5.0
Cresecent Exurbs	-0.9	14.6	36.9	18.4	15.5	10.8
Eastern Virginia	-18.4	-9.3	8.7	6.9	15.9	8.9
Hampton Roads	4.1	1.9	-5.1	-5.1	-1.7	0.5
Northern Virginia	6.0	66.8	16.9	5.9	-4.1	-10.1
Richmond	16.9	21.2	6.4	3.3	-0.3	-1.2
Southside	-13.2	-6.7	3.2	4.1	7.2	5.1
Southwest	-6.0	-7.7	5.1	4.6	6.9	4.6
Valley-Mountain	-6.6	-1.0	19.1	10.3	10.9	9.8
Virginia	13.8	14.2	8.3	4.1	1.7	-0.1

between 1970 and 2010. During this period the average age of a county resident increased from 31.4 to 43.1 years. This increase corresponds with larger demographic trends in the United States and Virginia. As the baby boomer generation continues to age, regions and municipalities across the state will increasingly rely on younger generations to support public services. Shenandoah County has experienced a slight, but steady decline of as a percent of the total population of residents under the age of 19 since 1970.

While the raw numbers of all age cohorts have increased as the total population grew, older age cohorts continue to outnumber those under the age

of 19. For example, approximately 47% of the total population the county is over 44. This intergenerational numeric imbalance should be considered when creating and revising government policies in the near future.

7.1.1 Age-Cohort Migration

The aging population is not unique to Shenandoah County. To gain a better understanding of aging across the commonwealth, it is useful to look at Virginia's nine separate regions. Figure 5-R shows age-cohort migration from 2000 to 2010 across the Commonwealth in these regions. Shenandoah County is in the Valley-Mountain Region, which is located along the western border and runs north to south between the Allegheny Mountains to the west and the Blue Ridge Mountains to the east. The majority of the population lives along the Old Valley Pike Corridor or Route 11, which runs parallel to Interstate 81.

Between 2000 and 2010 nearly three-quarters of the total growth in the Valley region was concentrated in its three largest urban areas: Harrisonburg, Roanoke, and Winchester. Net in-migration contributed to more than four-fifths of the Valley's growth, while natural increase continues to decline. The figure also illustrates that the region has experienced negative growth in both the 15-24 and 25-34 age cohorts by 6% and 1% respectively.

The loss of younger age cohorts often changes the demographic pressure on local services. For example, priorities may shift away from education towards health care and other sectors associated with an aging population rather than children and young adults. As a result, the localities in the Valley-Mountain region will need to focus on attracting young people in the near future in order to support existing institutions and businesses.

7.2 Race, Ethnicity, and Hispanic or Latino Origin

Race encompasses inherited, characteristic traits. Ethnicity refers to cultural origin. For the 2010 Census, the questions on race, ethnicity, and Hispanic origin were asked of individuals. An individual's responses to these questions were based upon self-identification.

Individuals chose from six races: White, Black or African American, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islanders, or Some other Race. Data on race have been collected since the first US decennial census in 1790. Individuals were given the option to identify as more than one race in the 2000 census. The overwhelming majority of US individuals reported only one race in 2010.

Ethnicity differs from race. Ethnicity is a category of people who identify with each other based on common ancestral, social, cultural or national experiences.

Hispanic or Latino origins are a separate category. In addition to their race or races, all respondents are categorized in membership in one of two categories, which are Hispanic or Latino or Non-Hispanic or Latino. It refers to a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race. More than half of the growth in the total population of the US between 2000 and 2010 was due to the increase in the Hispanic population.

Figure 5-S: Racial Diversity of Shenandoah County 2010

Source: US Census Bureau

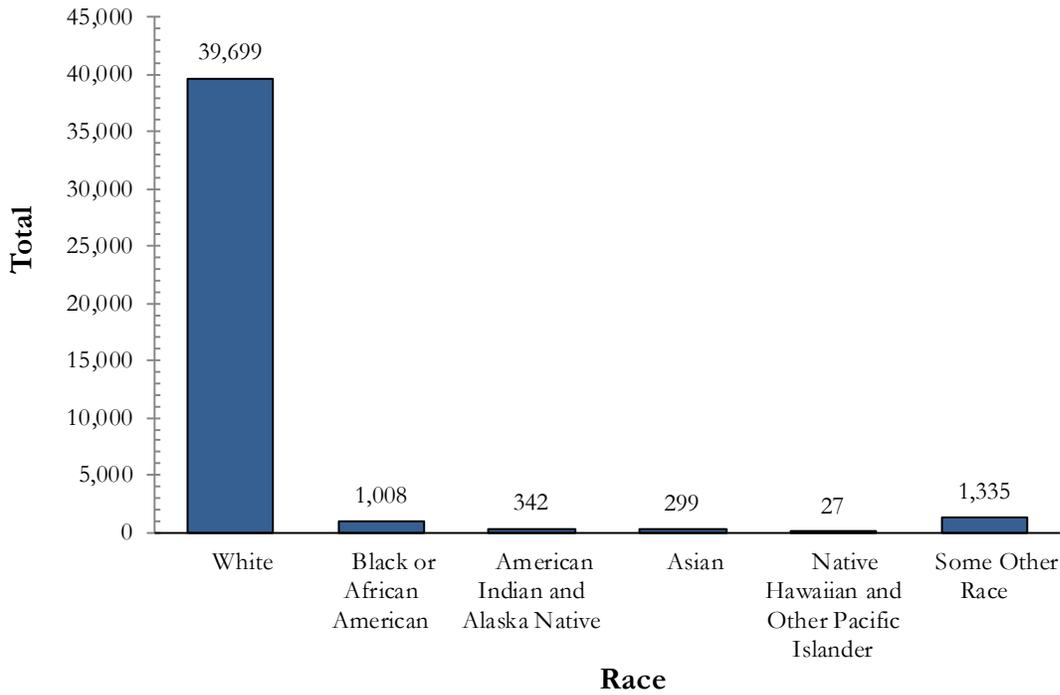


Figure 5-T: Hispanic or Latino Population Origin 2010

Source: US Census Bureau; American Community Survey

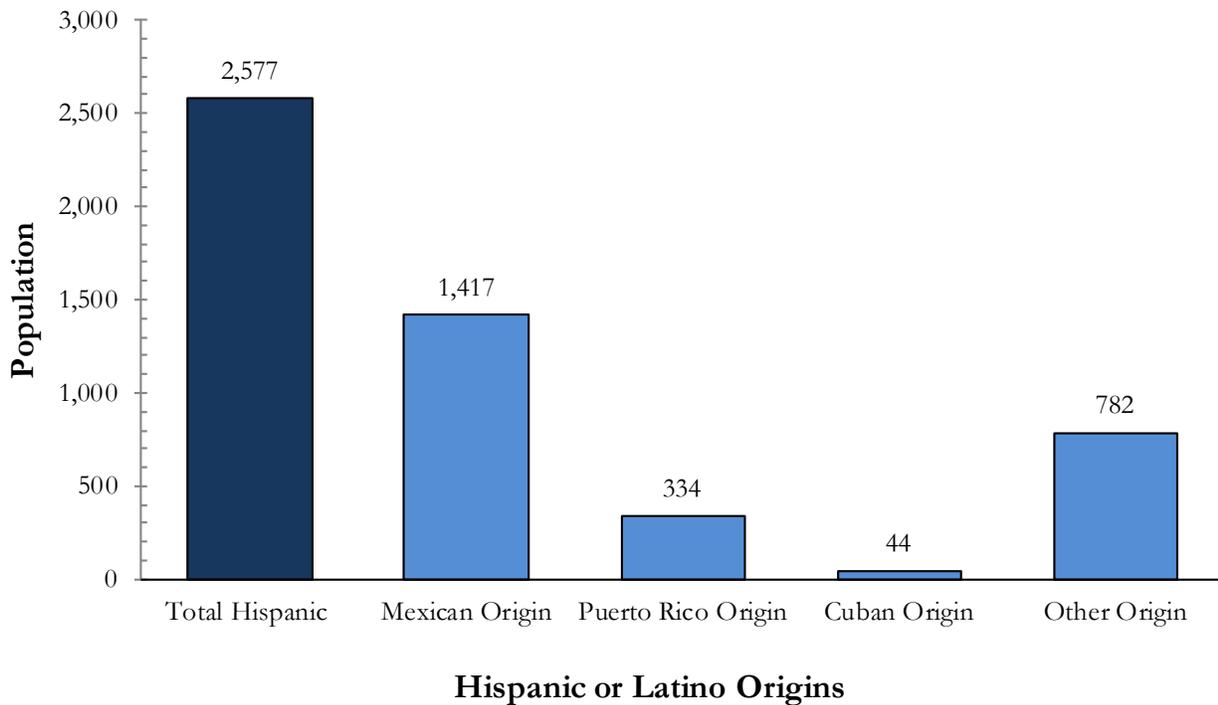
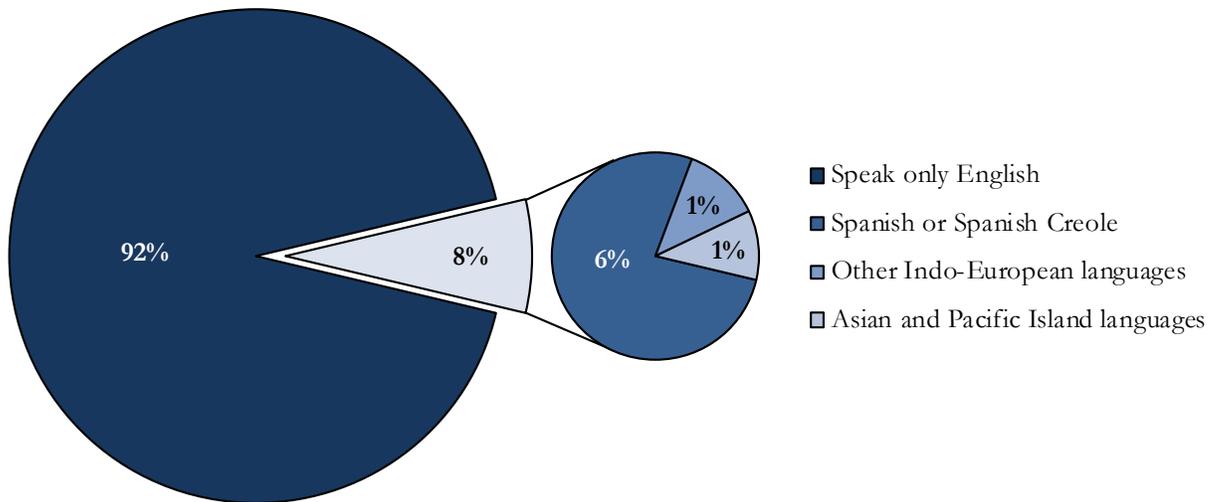


Figure 5-U: Language Spoken at Home

Source: US Census Bureau; American Community Survey 2010-2014



Shenandoah County has a very small minority population despite national diversity trends. Diverse populations are associated with stronger, more resilient localities that are able to better withstand economic shifts while also being more welcoming to migrants – a key demographic to the County’s economy.

Shenandoah has been overwhelming white for decades. This trend has only experienced slight change in recent years due to an increase in the number of residents whom identify as Hispanic or Latino Origin. In 2010, the county was 94.5% white, 2.4% Black or African American, 0.8% American Indian and Alaska Native, 0.7% Asian, 0.1% Native Hawaiian and Other Pacific, and 3.2% Some other Race. Figure 5-S illustrates this breakdown.

One in three new Virginians between 2000 and 2010 were Hispanic or Latino Origin. Hispanics or those with Latino Origin, who can be from any race, have however, seen moderate growth in the County, but not nearly as large as in other parts of Virginia. Figure 5-T illustrates the characteristics of Shenandoah’s Hispanic or Latino Origin population.

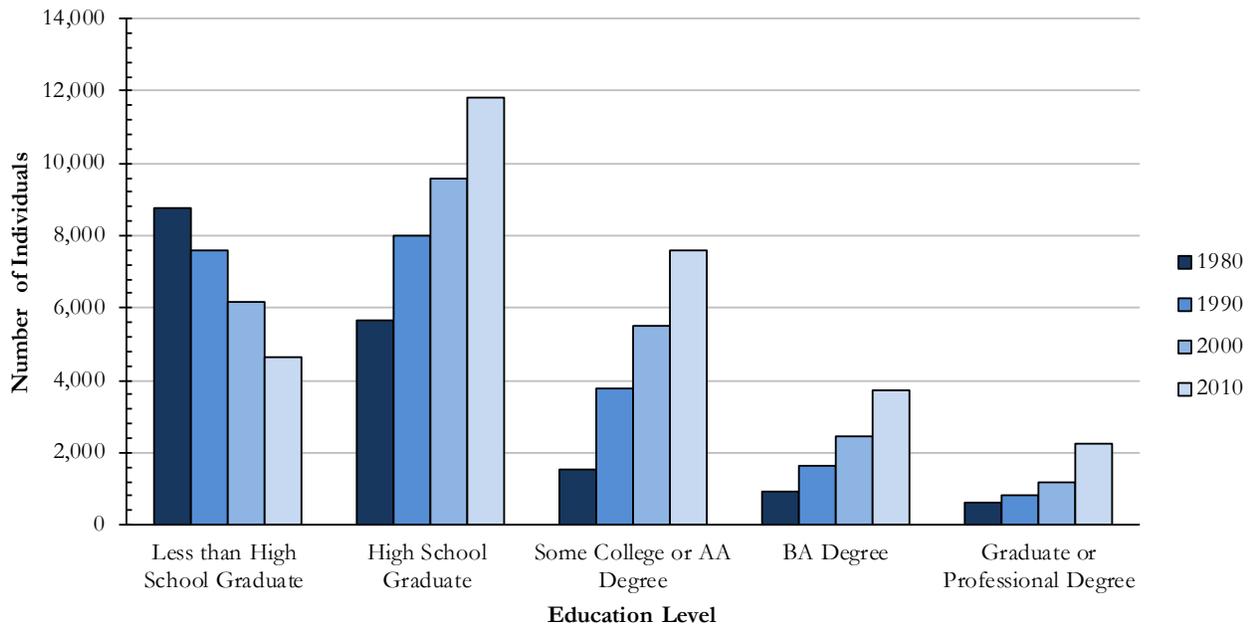
In 2010, 2,577 residents identified as Hispanic or Latino Origin. Of this group, 1,417 or 55% were of Mexican Origin; 334 or 13% were of Puerto Rican Origin; 44 or 1.7% were of Cuban Origin; and 782 or 30.3 percent were of Other Origin. The integration of new residents into the overall community, encouraging and assisting adults to learn english, and teaching english as a second language to school age children, are essential to creating an inclusive, welcoming environment in which new residents can thrive.

7.3 Languages Spoken at Home

In addition to Race, Ethnicity, and Hispanic or Latino Region, understanding what languages are spoken at home provides further information about the county’s diversity. Between 2009 and 2014, the American Community

Figure 5-V: Educational Attainment 1980-2010

Source: US Census Bureau



Survey 92.6% of the population only speaks English at home. 5.7% speak Spanish or Spanish Creole, 0.9% Speak Other Indo-European languages, and 0.8% speak Asian and Pacific Island languages at home. Figure 5-U illustrates this breakdown.

It is expected that the percentage of County households that speak a language other than English at home will increase slightly in the near and long term. As a result, the county may need to make changes to existing policies and procedures as well as tailor communication with members of the public to those who do not necessarily have a strong command of the English language.

7.4 Educational Attainment

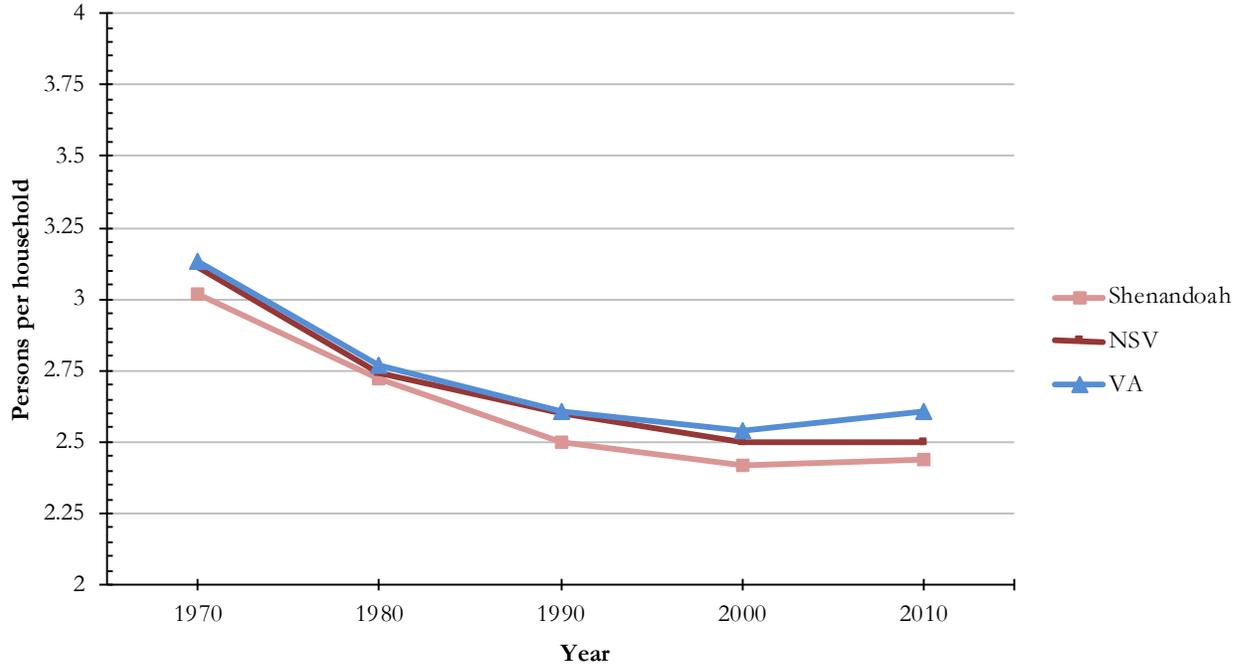
Educational attainment is an important indicator of local economic growth. In general, the higher a localities educational attainment, the more economic opportunities there are for local residents, higher household incomes, and more resilient local tax bases. The County’s historic employment emphasis in the past had been “blue collar” oriented, in which twelve years of schooling was not always necessary. Local, regional, and national economic trends have required residents to obtain higher education levels.

Figure 5-V depicts educational attainment for persons age 25 years or over from 1980 to 2010. During this period education attainment has improved dramatically. For example, in 1980 only 49.9% of County residents were high school graduates, compared to 84.6% in 2010.

Although educational attainment has increased substantially in recent decades and subsequent higher credentials have improved career prospects for County residents, changes to the labor market in recent years, however, have meant that completing an associates degree or bachelor’s degree have not necessarily translated into higher paying local employment opportunities. Further, a decline

Figure 5-W: Household Size 1970-2010

Source: US Census Bureau



in middle class jobs across the county and especially in rural areas, has led to a growth of low paying, previous employment opportunities for area residents. The economic implications of educational attainment will be discussed further in Chapter 4: Economy.

7.5 Household Size & Relationship Status

The number of persons per household, as defined by the Census Bureau, includes all persons living in a single dwelling unit. Figure 5-W shows the average household size for the County, the Northern Shenandoah Valley Region, and the State from 1970 to 2010. Across Virginia, household size has declined steadily. Figure 5-X illustrates the Household Relationship Status by Percentage of all households between 2009 and 2013. Shenandoah has a lower share of non-family and non-family-living alone households than other rural areas in the State.

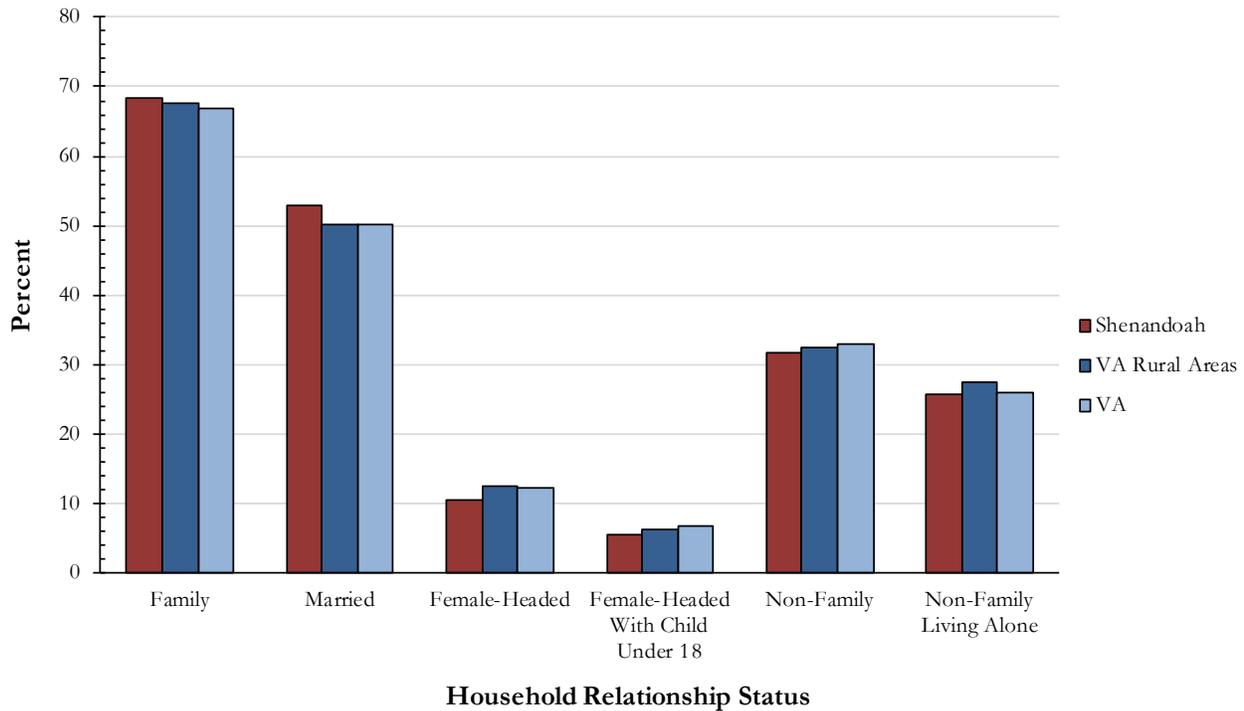
It is expected that Shenandoah will begin to move towards resembling other rural areas in the state due to declining fertility rates and a rapidly aging population. As a result of this trend, the demand for certain housing types, particularly apartments and multi-family units, will increase as households will not be large enough to afford or maintain single-family homes on large parcels of land. This is addressed further in the Chapter 6: Housing.

7.6 Grandparents Living with or Serving as Primary Caregivers

Nationally, the number of children living in grandparent-headed households has increased significantly since the 1990s. Regardless of the reason why grandparents have taken on this responsibility: parents struggling with

Figure 5-X: Household Relationship Status By Percentage 2009-2013

Source: Rural Data Center, Housing Assistance Council;
US Census Bureau, American Community Survey



substance abuse, mental illness, incarceration, economic hardship, divorce, domestic violence, or other challenges, grandparents provide a vital safety net to children inside and outside the foster care system in Virginia.

According to the American Community Survey five year estimates between 2009 and 2013, 2.9% of households in Shenandoah County (509) included a grandparent living with their own grandchild. 1% of households in the county (176) include a grandparent living with their own grandchild of which they are responsible. The County has a higher percentage of multi-generational households than Virginia, with 2.9% and 1.5% respectively. Compared to other small town and rural areas, however, Shenandoah has a smaller percentage, with 4.2% compared to 2.9%.

It is important to ensure that these caregivers are supported by the County’s policies and programs, the children’s needs are being met, and that the challenges faced by parents that may lead them to be unable to care for their children be addressed systematically across all County agencies and departments, the private sector, and/or faith based groups.

8.0 Socio-Economic Information

In addition to the indicators described above, any analysis of the County’s demographics must include information about the socio-economic status of its residents. The following section describes household income, earnings, individual and family poverty status, and the number of students receiving free or reduced lunch in County Schools. These indicators provide valuable information that

Figure 5-Y: Household Income

Source: US Census Bureau, American Community Survey 2009-2013
 Total Households: 17,397
 SC = Shenandoah County

Household Income Group (\$)	SC #	SC %	US%
<10,000	1,017	5.9	7.3
10,000 - 14,999	680	3.9	5.4
15,000 - 24,999	2,510	14.4	10.8
25,000 - 34,999	1,931	11.1	10.3
35,000 - 49,999	2,621	15.1	13.6
50,000 - 74,999	3,551	20.4	17.9
75,000 - 99,999	2,189	12.6	12.2
100,000 - 149,999	2,181	12.5	12.9
150,000 - 199,999	459	2.6	4.9
200,000 <	258	1.5	4.8
Median Household Income	49,625	100	100

Figure 5-Z: Household Earnings

Source: US Census Bureau, American Community Survey 2009-2013
 Total Households: 17,397
 SC = Shenandoah County

Households	SC #	SC %	US%
With Earnings	13,163	75.7	78.2
With Earnings From Social Security	6,463	37.2	28.9
With Earnings from Supplement Security Incomes	610	3.5	4.9
with Earnings from Public Assistance Income	391	2.3	2.8
With Earnings from Retirement Income	4,164	23.9	17.7

should be considered by development or future growth plans. The full gamut of economic conditions will be discussed in Chapter 4: Economy.

8.1 Household Income and Earnings

Income and earnings are different. The Census Bureau collects data on how much money households obtain from 50 different sources, all of which they label income. Earnings, primarily wages and salary from a job, are usually a big source of income. Other sources of income include Social Security payments, pensions, child support, public assistance, and annuities; money derived from rental properties, interest and dividends.

The county's median household income between 2009 and 2013 was \$49,625, which is \$3,421 lower than the national median of \$53,046. Figure 5-Y breaks down household income by income group. Shenandoah County has a higher concentration of households with incomes between \$15,000 and \$99,000 than the national average, but fewer households with incomes below \$14,999 and above \$100,00.

Figure 5-A1: Federal Poverty Level 2016*

Source: US Department of Health and Human Services

*2016 Poverty Guidelines for the 48 Contiguous States and the District of Columbia
For Families with more than 8 persons, add \$4,160 for each additional person

Number of People in Family	Income (\$)
1	11,880
2	16,200
3	20,160
4	24,300
5	28,440
6	32,580
7	36,730
8	40,890

Examining household earnings provides a more nuanced breakdown of how residents earn the necessary income to maintain their lifestyles. Figure 5-Z breaks down the sources of household earnings by source, including social security, supplement security income, public assistance income, and retirement income. The categories are not mutually exclusive; a household may fall into several categories. For example, a household could be receiving earnings from public assistant and social security while another receives retirement income and social security; these households would be double counted.

Despite this limitation, the data supports the general trend that county residents are older and many are retired. 37.2% of households in the county have some earnings from social security, 8.3% higher than the national average of 28.9%. Likewise 23.9% of households have some earnings from retirement income, which is 6.2% higher than the national average of 17.7%. These percentages can be expected to rise in the County as the population ages and the birth rate remains low.

8.2 Individuals and Families Living in Poverty

The number of individuals and families that live at or below the federal poverty threshold (as defined by Figure 5-A1: Federal Poverty Guidelines 2016) has a profound impact on the County's resources and development. Figure 5-A2 breaks down the poverty status of individuals.

The county's population in 2013 was 41,993, with 4,887 or 11.7% of individuals living below the poverty threshold. This is lower than the national average of 15.4%. There were 578 individuals over the age of 65 living in poverty as well as 1,533 children under the age of 18.

Figure A3 breaks down the poverty status of families living below the poverty line. In 2013 1,025 of the County's 12,209 families lived below the poverty line. Of these, 757 of the 5,159, or 14.8% families with a child under 18 live in poverty and 86 of the 815, or 10.6% families with children under 5 live in poverty. Both of these rates are below the national averages of 17.8 and 18.6% respectively.

Although the number of individuals and households living below the

Figure 5-A2: Select Individuals Living Below Poverty Threshold '09-'13

Source: US Census Bureau, American Community Survey 2009-2013

Total Individuals 2013: 41,993

SC = Shenandoah County

Individuals Living Below Poverty Threshold	SC #	SC %	US %
Overall County Total	4,887	11.7	15.4
Age 18 or Older (Total of 32,751)	3,275	10.0	13.4
Age 65 or Older (Total of 7,815)	578	7.4	9.4
Related Children Under 18 (Total of 8,950)	1,533	17.1	21.3
Related Children Ages 5-17 (Total of 6,587)	1,208	18.3	20.0

Figure 5-A3: Families Living Below Poverty Threshold '09-'13

Source: US Census Bureau, American Community Survey 2009-2013

Total Families 2013: 12,209

SC = Shenandoah County

Family Groups Living Below Poverty Threshold	SC #	SC %	US %
Total Families	1,025	8.4	11.3
With Child Under 18 (Total of 5,129)	757	14.8	17.8
With Child Under 5 (Total of 815)	86	10.6	18.6

Figure 5-A4: Students Receiving Free and Reduced Meals 07-15

Source: Shenandoah County Public Schools 2016

Year	Attendance*	Free & Reduced	Percent (%)
2007-2008	6,282	2,046	32.56
2008-2009	6,298	2,147	34.09
2009-2010	6,255	2,391	38.23
2010-2011	6,270	2,392	38.15
2011-2012	6,252	2,662	42.58
2012-2013	6,233	2,764	44.34
2013-2014	6,280	2,756	43.89
2014-2015	6,243	2,616	41.90
2015-2016	5,931	2,829	47.70

*Attendance is measured on the same day each year.

poverty threshold in the County are below national averages, there is still cause for concern. Especially when considering that families may be living just above the poverty level and their acute exposure to changes in local social policies.

8.3 Free or Reduced Meals in County Schools

The number of students receiving free and reduced lunches in school is another indicator of the socio-economic conditions present in the County. The United States and Virginia Departments of Education determine the guidelines

(which change annually) of the program but the County School Board administers the program at the local level. At the beginning of each school year, letters and meal applications are distributed to households of children attending school. This letter informs households that school nutrition programs are available and that free and reduced-price meals are available based on income criteria. Students are required to have a meal application on file.

In 2016, children from families with incomes at or below 130 percent of the poverty level are eligible for free meals. Those between 130 percent and 185 percent of the poverty level are eligible for reduced-price meals, for which students can be charged no more than 40 cents for lunch and 30 cents for breakfast.

Figure 5-A4 shows the percentages of students who received free or reduced meals from the 2007-2008 to the 2015-2016 school years. Since 2007, this percentage has increased dramatically, from 32.56 to 47.70 percent. This increase can be attributed to two separate, but equally concerning factors. First, school attendance dropped from a high of 6,298 in 2008-2009 to 5,931 in 2015-2016. Second, the number of students that qualified for free and reduced meals, increased every year, from 2,046 in 2007-2008 to 2,829 in 2015-2016.

While free and reduced lunches have financial costs, the raw numbers serve as an indicator of County's socio-economic health. An increasing share of students qualifying for free and reduced meals will not only have implications for the school system, but also on how the County should tailor policies and programs in the future to address the root causes of poverty affecting students and their families.

9.0 Health Statistics

Population change, density, and demographic characteristics are essential to developing a nuanced understanding of Shenandoah County's residents current and future needs. It is also important, however, to discuss the health characteristics of residents, as they also have an impact on government service provision. The conditions in which people are born, grow up, live, work, and age affect a wide range of health risks and outcomes. These are called social determinants of health.

These circumstances are shaped by the distribution of resources at the national, state, and local levels. By identifying these social determinants, as well as current health challenges and opportunities, the County can integrate health and other quality of life indicators into its long term development, to not only improve individual and population health but also advance health equity.

Due to data availability challenges, this section will provide a snapshot of current conditions; it will not describe past trends or project how the data will change in the future. There are two primary data sources.

First, the Center for Disease Control, and specifically the Community Health Status Indicators (CHSI) 2015 report. The CHSI is a program that produces health profiles for all 3,143 counties in the United States. Each profile includes key indicators of health outcomes, which describe the population health status of a county and factors that have the potential to influence health outcomes, such as health care access and quality, health behaviors, social factors and the physical

Figure 5-A5: Shenandoah County vs. Peer Counties*

Source: Center for Disease Control (2015).

Indicator	Shenandoah	Peer Counties
Geography		
Population Size	42,583	23,985 - 76,793
Population Density (per square mile)	83	13-113
Median Household Income	\$48,667	\$33,021 - \$58,673
Age & Sex Distribution		
Under 18	21.4%	17.6% - 25.0%
Age 18-64	59.1%	54.3% - 65.4%
Age Over 65	19.4%	13.8% - 25.7%
Female	51.1%	46.6% - 51.4%
Male	48.9%	48.6% - 53.4%
Race / Ethnicity Distribution		
American Indian or Alaska Native	0.4%	0.1% - 23.0%
Asian	0.6%	0.3% - 1.6%
Native Hawaiian or Other Pacific Islander	0.0%	0.0% - 0.2%
Black or African American	1.8%	0.2% - 32.3%
White	89.8%	57.6% - 96.9%
Hispanic or Latino	6.4%	0.7% - 20.8%
*Peer Counties are determined by an analysis of 19 county-level equivalent indicators, including those listed above, from all 3,143 counties in the United States. Shenandoah has 49 peer counties. Its peers in Virginia are Orange and Page counties.		

environment. The social determinants of health are especially important because they help identify areas where the County and partner organizations can efficiently allocate its resources to ensure the most impact on the health of residents.

Second, the Robert Wood Johnson Foundation County Health Rankings & Road Maps program in partnership with the University of Wisconsin Population Health Institute. The program helps communities identify and implement solutions that make it easier for people to be healthier in their homes, schools, workplaces, and neighborhoods. The measures look at a variety of measures that affect the future health of communities, such as high school graduation rates, access to health foods, rates of smoking, obesity, and teen births. The rankings also provide an opportunity to compare Shenandoah to other counties in the Commonwealth.

9.1 Community Health Rankings & Road maps

The CHSI Summary Comparison provides an “at a glance” summary of

Figure 5-A6: Shenandoah County vs. Peer Counties*

Source: Center for Disease Control (2015).

Data is from CDC Estimates for 2015. The numbers may differ slightly than those identified in earlier sections.

Indicator	Worse (Least favorable quartile)	Moderate (Middle two quartiles)	Better (Most favorable quartile)
How to read this chart: Consider the Example: Work related injuries	(Example) The county has more work related injuries than at least 75% of its peer counties	(Example) The county's number of work related injuries falls between 25% and 75% of the rate of peer counties.	(Example) The county has less work related injuries than at least 75% of its peer counties.
Mortality (Causes of Death)	Chronic Kidney Disease Deaths	Cancer deaths Disabilities deaths Female life expectancy Male life expectancy Stroke deaths	Alzheimer's disease deaths Chronic Lower Respiratory Disease (CLRD) deaths Coronary heart disease deaths Unintentional injury (including motor vehicle)
Morbidity (how often a disease occurs in a specific area)	Adult disabilities	Adult obesity Adult overall health status Alzheimer's disease / dementia Gonorrhea HIV Older adult depression Pre-term births	Older adult asthma Syphilis
Health Care Access and Quality	Older adult preventable Hospitalizations Uninsured	Cost barrier to care Primary care provider access	
Health Behaviors	Adult female routine pap tests Teen Births	Adult physical inactivity Adult Smoking	Adult binge drinking
Social Factors	Inadequate social support	Children in single-parent households High housing costs On time high school graduation	Poverty Unemployment Violent Crime
Physical Environment	Access to parks Annual average of PM2.5 concentration Living near highways	Housing stress Limited access to health food	

* CDC states that is important to caution against over-interpretation of the “Better”, “Moderate”, and “Worse” categorizations. In many cases, these categorizations and rankings are based on point estimates not considering the associated confidence intervals. The CDC advises users to examine all CHSI 2015 Primary and Associated indicators for their county of interest, including those that are rated as “Better” and “Moderate” compared to the set of peer counties. For example, a county’s stroke death rate ranked as “Better” compared to peers may compare unfavorably to the median for all U.S. counties. Additionally, the rate may be trending in an unhealthy direction or masking important disparities within subpopulations. Despite these data limitations, it is important to include these rankings and indicators in this chapter to provide a snapshot of Shenandoah’s public health.

Figure 5-A7: Obesity Rates by Percentage of Total Population 2004-2012

Source: Centers for Disease Control 2014

County	2004	2005	2006	2007	2008	2009	2010	2011	2012	% Change '04 - '12
Clarke	23.0	23.8	25.7	26.4	26.3	28.4	29.8	30.1	28.0	+5.0
Frederick	23.8	25.3	26.7	27.7	29.1	28.5	29.3	30.7	32.5	+8.7
Page	22.7	26.0	26.6	28.0	28.4	31.8	30.9	30.6	29.5	+8.7
Shenandoah	26.4	26.2	25.9	25.9	27.4	30.0	30.0	26.7	26.3	-0.1
Warren	22.5	24.9	27.5	29.7	27.8	28.6	26.0	27.3	27.5	+5.0
Winchester City	22.1	25.4	25.8	27.0	26.8	29.0	29.7	28.6	26.5	+4.4
Average	23.4	25.3	26.4	27.5	27.6	29.4	29.3	29.0	28.4	+5.3

Figure 5-A8: Diabetes Rates by Percentage of Total Population 2004-2012

Source: Centers for Disease Control 2014

County	2004	2005	2006	2007	2008	2009	2010	2011	2012	% Change '04 - '12
Clarke	8.6	9.0	9.3	10.1	10.3	10.5	10.9	11.1	11.0	+2.4
Frederick	7.4	8.2	8.6	9.0	9.1	8.9	9.0	9.1	9.4	+2.0
Page	8.2	9.0	8.6	9.3	9.5	10.4	10.5	11.4	11.0	+2.8
Shenandoah	8.8	8.6	10.2	10.2	11.5	10.4	11.9	11.7	12.1	+3.3
Warren	7.9	8.5	9.0	9.4	9.9	10.4	11.5	10.7	10.0	+2.1
Winchester City	7.6	8.2	8.7	9.2	9.9	10.2	10.0	10.1	9.8	+2.2
Average	8.1	8.6	9.1	9.5	10.0	10.1	10.6	10.7	10.6	+2.5

how Shenandoah County compares with peer counties on the full set of primary indicators. Peer groups or counties are defined by the following parameters shown in Figure 5-A6.

Within each parameter, the CHSI ranks Shenandoah with its peer groups. Peer county values for each indicator were ranked and then divided into quartiles. These quartiles are then split into three categories: better, moderate, and worse. Better is the most favorable quartile, meaning that the county has lower rates than peer counties; Moderate, is the middle two quartiles, which means that the County is performing similar to its peer counties; Worse, is the least favorable quartiles, which means that county is performing worse than peer counties on these indicators. Figure 5-A6 illustrates how the County compares to its Peer group across these various indicators.

The county has mixed results when its health indicators are compared to its peer counties. It performs better on several key indicators including: adult binge drinking, poverty, unemployment, and unintentional injury. It performs in the moderate range on the majority of indicators; including, but not limited to cancer deaths, adult overall health status, primary care providers' access, and limited access to healthy food. While overall the County performs well, there are some

challenges to residents' public health. The county performs in the lower quartile on the following indicators: adult diabetes, older adult preventable hospitalizations, teen births, inadequate social support, and living near highways.

In the future, the County's performance on indicators like the CHSI should be taken into consideration when developing and implementing programs to ensure that tax dollars are allocated to initiatives that have the greatest impact on the health of residents. As the population ages and population growth slows, these indicators will become increasingly important and illustrate greater costs on the county's public, private, and non-profit sectors.

9.2 The Costs of Ill-Health

According to the Harvard School of Public Health, ill health – like obesity, diabetes, and poor social support – can harm virtually every aspect of health. Preventing obesity, diabetes, and other poor health outcomes should begin at an early age and extend across a lifespan to vastly improve individual and public health, reduce suffering, and save millions of dollars each year in health care and the indirect related economic costs such as value of lost work, insurance, and wages. Public Health must be considered when examining development decisions across the county in the near and long term.

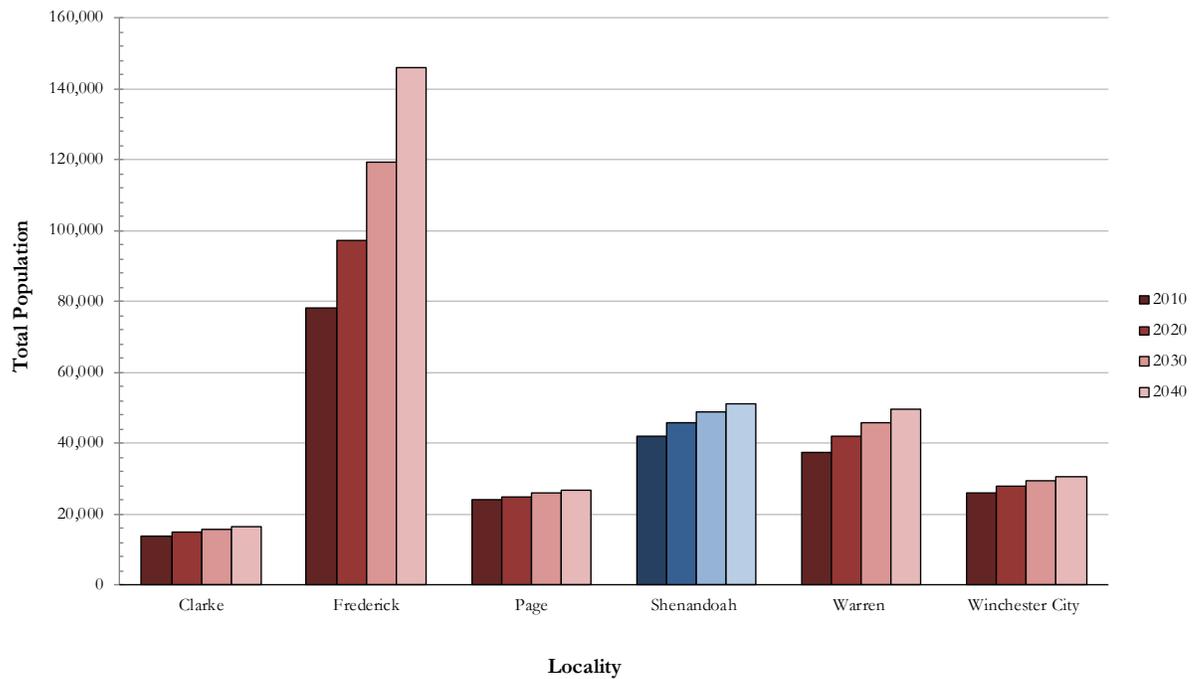
One example of a public health indicator that the county is performing well on is obesity. The most recent data available illustrates that Shenandoah County saw a decrease in obesity rates from 2004 to 2012 by 0.1%. This is in stark contrast to the trend in the Northern Shenandoah Valley, where counties experienced an average increase of 5.0% during the same period. Figure 5-A7 breaks down obesity rates in the region. Frederick and Page Counties saw the largest increases with 8.7% and 6.8% respectively. However, with an obesity rate of 26.3% or more than 1 in 4 residents, Obesity remains a public health concern for the County.

At the same time, however, diabetes rates in the county have increased by 3.3 percent. As of 2012, the County had the highest level of diagnosed diabetes in the region, with 12.1% of the population living with the disease. Figure 5-A8 illustrates how diabetes rates changed in the Northern Shenandoah Valley between 2004 and 2012. In 2012, the national average of individuals with diabetes was 9.3% nearly 3% lower than Shenandoah's.

According to the CDC, both the prevalence and incidence of diabetes have increased rapidly since the mid-1990s, with minority racial/ethnic groups and socioeconomically disadvantaged groups experiencing the steepest increases and most substantial effects from the disease. It is important to monitor diabetes and obesity rates moving forward and to tailor growth and policy decisions to face the challenges that may arise from increased ill-health as well as the acute social and economic impacts these conditions may present.

Figure 5-A9: Population Projections 2020-2040

Source: Weldon Cooper Center, University of Virginia, 2012



10. Population Projections

Population projections are necessary for planning future public improvements and programs. For the purpose of this comprehensive plan, project data are taken from the Demographics Research Group at the Weldon Cooper Center at the University of Virginia; the Commonwealth's official source of demographic information. By using the Commonwealth's official projection, the County can more accurately compare itself to similar localities both within and outside of the Valley. The most recent population projections were developed in 2012 and extend to 2040. The Cooper Center is scheduled to revise their projections again by the end of 2016. As new projections become available, this section of the chapter will be revised accordingly to accommodate changes that may impact public policies.

All projections are developed based on current assumptions about the future. They rely heavily on past demographic trends, economic conditions, and local factors; such as housing availability or planned industrial development or closures. Because they make statements about the future, however, projections may prove to be inaccurate due to unforeseen factors such as cultural, economic, environmental, and/or political shifts or events. Despite the inherent limitations of projections, they remain essential for informing evidence-based long term policy decisions.

The Center projects that Shenandoah County's population will increase by 18% between 2010 and 2040, to a total population of 51,104. This marks a considerable slowdown in growth compared to previous decades where double

digit growth was common. Between 1970 and 1980, for example, the county grew 20.6% alone. Several decades of double digit growth followed, with 2000-2010 seeing an increase of 19.7%.

The predicted decline of the growth rate after 2010 despite major recent trends is indicative of the wider regional and national trends described earlier, primarily the slowdown in Northern Virginia since 2010. While the Center projects that Shenandoah will continue to grow beyond 2040, the growth rate itself will change, decreasing from 8% between 2010-2020, to 7% between 2020-2030, and finally down to 4% between 2030-2040. This slowly growth rate is particularly important to consider in long range planning.

During the same period, Warren County is projected to grow at a faster rate than Shenandoah County, but remain slightly less populated, increasing 24% from 37,575 to 49,709. Winchester City and Clarke County are projected to grow at similar rates, increasing by 15% and 16% from 26,203 in 2010 to 30,781 in 2040 and from 14,034 in 2010 to 16,631 respectively. Page County is projected to increase by 10% from 24,042 to 26,716, which is the lowest overall growth rate in the region. Regardless of these rates of change, the Center predicts a tapering down of growth for all localities in the Northern Shenandoah Valley, except for Frederick County.

Frederick County is expected to see the significant growth, increasing 46% from 2010 levels to a total population of 145,938. It is projected that Frederick will grow approximately 19% each decade. This large influx of new residents will have an effect on Shenandoah's overall population as some of these new residents may choose to live in Shenandoah while they work in Frederick. The extent of this type of potential commuting, however, cannot be measured at this time. It will be important to regularly evaluate the conditions in the northern part of the county in order to ensure development decisions are meeting the needs of current residents and accommodate the possible migration of residents from Frederick County.

10.1 School Age Projections

According to the Weldon Cooper Center, since the mid-2000s the State of Virginia has experienced a dramatic shift in demographic changes. As described in earlier sections of this chapter, while many young couples in the past have started families while they lived in urban areas, a good number would move to suburban counties before enrolling their children in school. Today many parents are staying put in urban areas, thanks to stricter mortgage regulations that make it harder to secure resources for homes, and the combination of a difficult, precarious labor environment and declining wages.

The Cooper Center estimates that by 2018, 40% of Virginia public school enrollment will decline, with the largest decreases occurring in rural areas due to low birth rates and fewer families moving to these areas, like Shenandoah County. The declining enrollment in rural school divisions will be more challenging when taking into consideration that many of the schools with declining enrollment are also those most dependent on state funding. Since state funding is in large part tied to the number of students in a division, many divisions face the prospect of less state funding.

11. Summary

Shenandoah County's policies, service delivery, and growth strategy are determined by current and projected demographics and socio-economic conditions. Despite rapid growth between 1980 and 2010, the County's population has stabilized and is expected to experience marginal growth or decline in the coming decades. While the population has stabilized, however, the age-break down of county residents has shifted dramatically. If current trends continue, in coming years and decades, the school age population is expected to continue its decline while the average age of county residents continues to rise. Further as an agricultural county, replacing aging farmers will prove vital to the County's future economic growth.

These opposing trends can be attributed to three factors: first, that current residents are aging and not having as many children as they once did; Second, young people are not moving to the county like they were in the 2000s and therefore are not starting families here; and third, retirees moving to the county have different needs of services than younger populations. An older population with fewer school aged children presents unique policy and service delivery challenges and opportunities for the public, private, faith based, and non-profit sectors.

The county remains well over 90 percent Caucasian, despite increases of individuals who identify as Latino or of Hispanic Origin. Further, 92 percent of households speak English at home, whereas 6% speak Spanish. If these trends continue, efforts should be made by private and public sector stakeholders to reduce barriers of participation in local communities.

As the county rapidly ages and in-migration slows and natural increase slows, socio-economic conditions also affect how the County develops and allocates resources in the future. According to the American Community Survey data from 2009 to 2013, 10 percent of the County's population aged 18 or Older and 18.3% of children under 18 live below the federal poverty level. Yet, other data indicate that a significant number of county residents are living at or just above the federal poverty line, and thus are also in a precarious socio-economic position. For example, from 2007 to 2016, the percentage of students receiving free and reduced meals increased from 32.56 to 47.70. It is imperative that county policies and services take into account the socio-economic conditions faced by county residents when allocating funds.

Despite socio-economic and demographic changes, the county is well positioned to remain a beautiful place to live and raise a family in the coming decades.

12. Sources

Cai, Qian. June 2011. A Decade of Change in Virginia's Population, Weldon Cooper Center for Public Service, Accessed December 2015, <http://www.coopercenter.org/publications/VANsltr0611>

Cromartie, John, Christiane von Reichert, and Ryan Arthun, May 2015, Factors Affecting Former Resident's Returning to Rural Communities, Economic Research Report Number 185, United States Department of Agriculture, <http://www.ers.usda.gov/publications/err-economic-research-report/err185.aspx>

Housing Assistance Council, 2016, The Rural Data Portal: Taking Stock of People, Poverty, and Housing Your Community. <http://www.ruraldataportal.org/>

Pew Research Center, September 4, 2013, Grandparents Living with or Serving as Primary Caregivers or their Grandchildren, Accessed March 2016. <http://www.pewsocialtrends.org/2013/09/04>

Robert Wood Johnson Foundation and University of Wisconsin Population Health Institute, 2016, County Health Rankings & Roadmaps: Building a Culture of Health, County by County: 2015 Virginia County Health Rankings, <http://www.countyhealthrankings.org/app/virginia/2015/overview>

United States Census Bureau, 2015, <http://www.census.gov/>

University of Virginia Demographics Research Group, March 2014, Statch@t: Virginia's immigrants: Where do they come from and where are they now?, Accessed December 2015, <http://statchatva.org/2014/03/04>

-April 2014, Statch@t: As more families choose cities, governments are returning to the drawing board, Accessed March 2016, <http://statchatva.org/2014/04/08>

-June 2014, Statch@t: What's Driving the Rise in High School Graduation Rates?, Accessed March 2016, <http://statchatva.org/2014/06/09>

-June 2014, Virginia's Regions, Accessed December 2015, <http://www.coopercenter.org/demographics/publications/virginias-regions-updated-june-2014>

-July 2014, Statch@t: Virginia is getting older, Accessed December 2015, <http://statchatva.org/2014/07/15>

-September 2014, Statch@t: High Cotton: When Virginia's counties hit their peak, Accessed December 2015, <http://statchatva.org/2014/09/23>

-November 2014, Census Brief: Public School enrollment trends in Virginia, Accessed December 2015, <http://www.coopercenter.org/demographics>

-November 2014, Statch@t: The Goldilocks problem: Enrollment trends are not being kind to Virginia's schools, Accessed March 2016, <http://statchatva.org/2014/11/20>

-January 2015, Statech@t: The 2010s are not shaping up to be anything like recent decades, Accessed December 2015, <http://statchatva.org/2015/01/27>

-February 2015, Statech@t: Birth rates: Comparing Virginia's counties with countries, Accessed December 2015, <http://statchatva.org/2015/02/05/>

The Weldon Cooper Center for Public Service at the University of Virginia, 2016, <http://www.coopercenter.org/>

The Weldon Cooper Center for Public Service at the University of Virginia, January 2015, Virginia's Population Growth Slows to Decades' Low: Cities Rebound, Accessed January 2015, <http://www.coopercenter.org/demographics>