WILLIAMSBURG Health FOUNDATION

The Status of Citizen Health in Greater Williamsburg

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Kylie McKee Wheeler, M.P.P., William & Mary, 2019

Paulette Parker, M.A., Senior Program Officer, Williamsburg Health Foundation

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Executive Summary

Objectives

This report presents key findings from the most recent publicly-available, locality-level health data from Greater Williamsburg, and uses these data to tell the story of where the community has been, where it is, and where it is going. The report focuses challenges and opportunities in health in light of a changing population. Here you will find a picture of the community health landscape, health-related trends, and the impact of socioeconomic factors on overall well-being. The report is intended to facilitate targeted community dialogue, inform decision makers, and serve as a catalyst for collaborative approaches and ultimately, improve the health of the citizens of Greater Williamsburg.

Scope

The area of analysis for this report is Greater Williamsburg which is comprised of three localities: James City County, York County, and the City of Williamsburg. As of 2019, Greater Williamsburg has a population of approximately 160,000.

Structure

The report is comprised of three sections:

1. **Demographic Profile**: a description and analysis of population data. This section includes growth and growth trends looking back over two decades and projecting forward for two decades.
2. **Health Profile**: a multi-faceted illustration of community health status. The section includes common risk factors, unhealthy behaviors, chronic illness prevalence, mental/behavioral health, maternal and child health, and trends in access to care.
3. **Social Determinants of Health**: a view of health in the community through the lens of the social determinants of health. It includes analyses of impacts of economic stability including household income, employment, utilization of public assistance and food security (among other factors) on health outcomes and overall wellbeing. It also includes the rankings of Greater Williamsburg's three localities in the Virginia Health Opportunity Index (HOI).

Selected Key Findings

This report reveals a community with many strengths and positive attributes as well as a number of challenges. The appeal of Greater Williamsburg is illustrated in a number of ways including the rate of population growth which is significantly higher than the state. Highlighted below are a few notable trends and findings. We hope the reader will peruse the report to find additional information and data based on specific areas of interest.

- Since 2000, the population of Greater Williamsburg has grown by 33% compared with 20% for Virginia overall.
- The Greater Williamsburg area is home to a proportion of older adults than is typical for Virginia. Moreover, the older adult population is the fastest growing age segment of the community and is projected to grow to approximately 33% of the population by 2030 and remain close to that proportion until at least 2040. James City County is skewed most heavily toward a large older adult population.
- Population growth and aging will continue to contribute to a growing demand for health and human services.
- While prevalence of chronic illnesses in the overall population is generally on par with Virginia averages, the vulnerable low-income population served by safety-net clinics experiences chronic illnesses at much higher rates than the local general population.
- Over one quarter of the adult population is obese compared to 46% of safety-net patients. Approximately 9% of the adult population has diabetes compared to 30% of the safety-net population. Healthcare costs for a person with diabetes are roughly 2.3 times higher than for a person without the disease.
- A baby who is African American is twice as likely as a baby who is White to be born at low birthweight.
- The City of Williamsburg continues a decade-long trend of higher rates of adult and child poverty compared to James City County and York County.
- Approximately 21% of older adults live by themselves, with women being more likely than men to live alone. For older adults, living alone is a marker for social isolation and poorer health outcomes.
- Census tract mapping illustrates a correlation between lower median household income and shorter life expectancy.
- Healthcare, particularly for low-income vulnerable adults is in flux due to the expansion of Medicaid eligibility in Virginia. As of January 2020, approximately 4,400 adults in Greater Williamsburg have newly-enrolled in Medicaid since January, 2019.
- Although locality-level data are not available, the rate of uninsurance for oral healthcare in Virginia is 45%; that proportion can likely be extrapolated to Greater Williamsburg.

Conclusion

The findings included in this report are presented with the intent of transforming data into actionable knowledge. It is the intent of the Williamsburg Health Foundation to continue to work with our community partners in the healthcare, human services and local government spheres and continue to promote collaboration across sectors. The Foundation looks forward to engaging in the dialogue we hope this report will foster. Ultimately and most importantly, the hope is that this dialogue and collaborative action will contribute to stronger systems of care, better health outcomes, and brighter futures for the citizens of Greater Williamsburg.

Section 1: Demographic Profile

This section focuses on trends in the demography of Greater Williamsburg. This will highlight population growth, age distribution, and racial and ethnic profiles of the Greater Williamsburg population. [1]

Section 1.1: Population Trends

Population Growth

As of 2018, the combined population of Greater Williamsburg -James City County, York County and the City of Williamsburg was 159,745. The population grew at a faster rate than Virginia as a whole from 200 to 2018.[2] However, this growth was unevenly distributed among the different localities within Greater Williamsburg. From 2000 to 2018, the population of James City County increased by 57.7%; the population of the City of Williamsburg increased by 26.5%; and the population of York County increased by 22.1%. In response to this trend, local health care and human service providers are providing care and services to a growing number of residents.

Figure 1.1A: Population Growth of Greater Williamsburg by Locality (2000 to 2018)
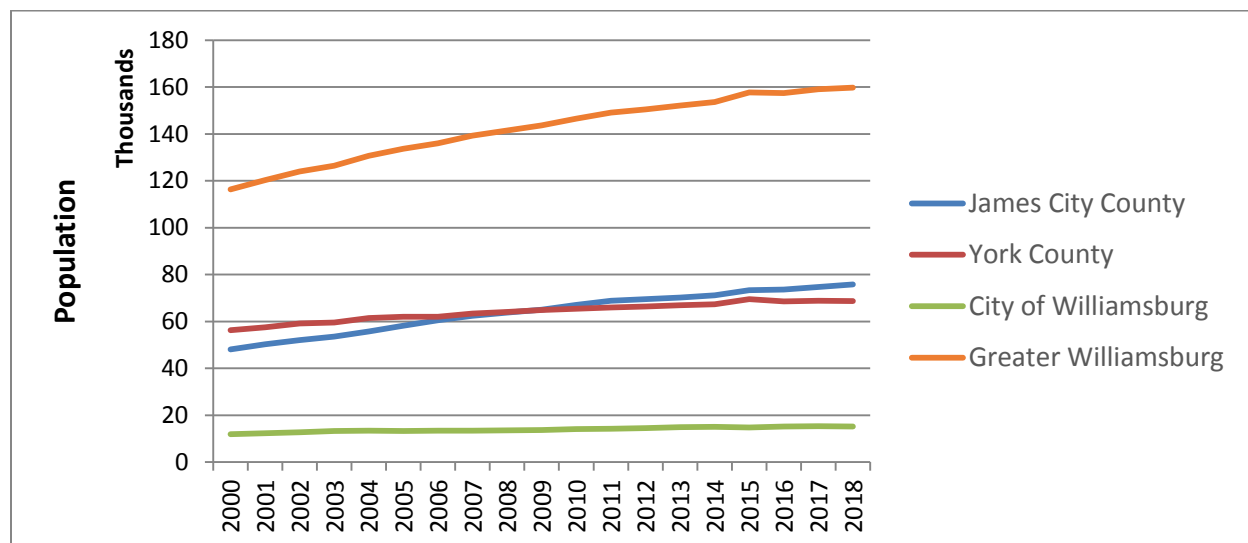
Source: Weldon Cooper Center for Public Service; Demographics Research Group 2018 Virginia Population Estimates

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[1] As described in the Executive Summary the area of analysis for this report is Greater Williamsburg, comprised of the localities: James City County, York County and the City of Williamsburg.

[2] According to population estimates compiled by the Weldon Cooper Center for Public Service from the American Community Survey (ACS) produced by the U.S. Census Bureau. As illustrated by Figure 1.1, between 2000 and 2018, the population of Greater Williamsburg increased from 116,397 persons to 159,745 persons – a change of roughly 32.9%, compared to only 20.3% for Virginia overall.

Table 1.1A: Rate of Growth in the Population of Greater Williamsburg and Virginia (2000 to 2018)

	Est. % Growth	Avg. Rate of Growth per Year
James City County	57.7%	3.2%
York County	22.1%	1.2%
City of Williamsburg	26.5%	1.5%
Greater Williamsburg	32.9%	1.8%
Virginia	20.3%	1.1%

Source: Weldon Cooper Center for Public Service; Demographics Research Group 2018 Virginia Population Estimates

Population Projections

Population growth is expected to continue as the population of Greater Williamsburg is projected to grow from 168,151 persons in 2020 to a 217,214 by 2040.[3] As illustrated by Figure 1.1B, much of this growth will be fueled by James City County, where the population is expected to increase by 38.6% between 2020 and 2040, or an average of 1.9% per year. By contrast, the City of Williamsburg and York County are expected to grow at still substantial but somewhat lower rates. From 2020 to 2040, the population of the City of Williamsburg is expected to grow by 21.1%, or an average of 1.1% per year, while the population of York County is expected to grow by 20.7%, or an average of 1.0% per year.

Figure 1.1B: Population Projections for Greater Williamsburg (2020, 2030, and 2040)
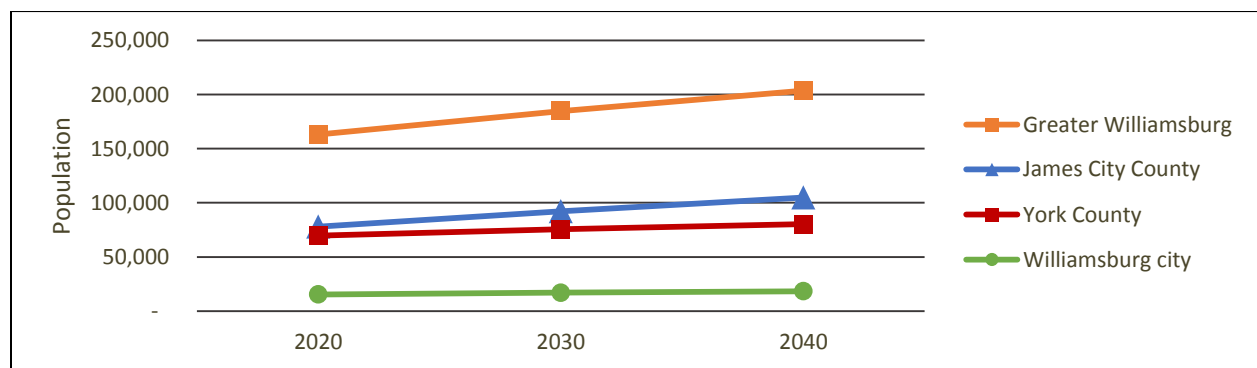
Source: Weldon Cooper Center for Public Service; Demographics Research Group 2017 Virginia Population Projections

Table 1.1B: Numeric Growth Projections for Greater Williamsburg (2020, 2030, and 2040)

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[3] This is a change of 29.2%, or about 1.5% per year on average, according to the Weldon Cooper Center for Public Service using data from the U.S. Census Bureau.

Locality	2020	2030	2040
James City County	79,404	95,549	110,044
York County	73,161	81,370	88,288
City of Williamsburg	15,586	17,372	18,882
Greater Williamsburg	168,151	194,291	217,214

Table 1.1C: Percentage Growth Projections for Greater Williamsburg and Virginia (2020, 2030, and 2040)

	Projected Rate of Growth	Avg. Rate of Growth per Year
James City County	38.6%	1.9%
York County	20.7%	1.0%
City of Williamsburg	21.1%	1.1%
Greater Williamsburg	29.2%	1.5%
Virginia	16.7%	0.8%

Source: Weldon Cooper Center for Public Service; Demographics Research Group 2017 Virginia Population Projections

Section 1.2: Age Distribution

According to the U.S. Census Bureau's 2018 Census Estimates:

- 5.0% of the population of Greater Williamsburg is under age 5.
- 20.8% of the population of Greater Williamsburg is under age 18.[4]
- 14.2% of the population of Greater Williamsburg is between the ages of 15 and 24.
- 48.3% of the population of Greater Williamsburg is between the ages of 25 and 64.
- 20.5% of the population of Greater Williamsburg is age 65 or older.[5]
- 2.4% of the population of Greater Williamsburg is age 85 or older.

When compared to Virginia, the population of Greater Williamsburg is relatively older, considering that 20.5% of the population of Greater Williamsburg is age 65 or older, while only 15.4% of the population of Virginia as a whole is age 65 or older. Looking at adults 85 years or older, 1.7% of Virginians are 85 or older, compared to 2.4% of people in Greater Williamsburg and 3.0% of people in James City County.

Figure 1.2 Age Distribution in Greater Williamsburg (2018)

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[4] These data include the under 5 population.
[5] These data include the over 85 population.
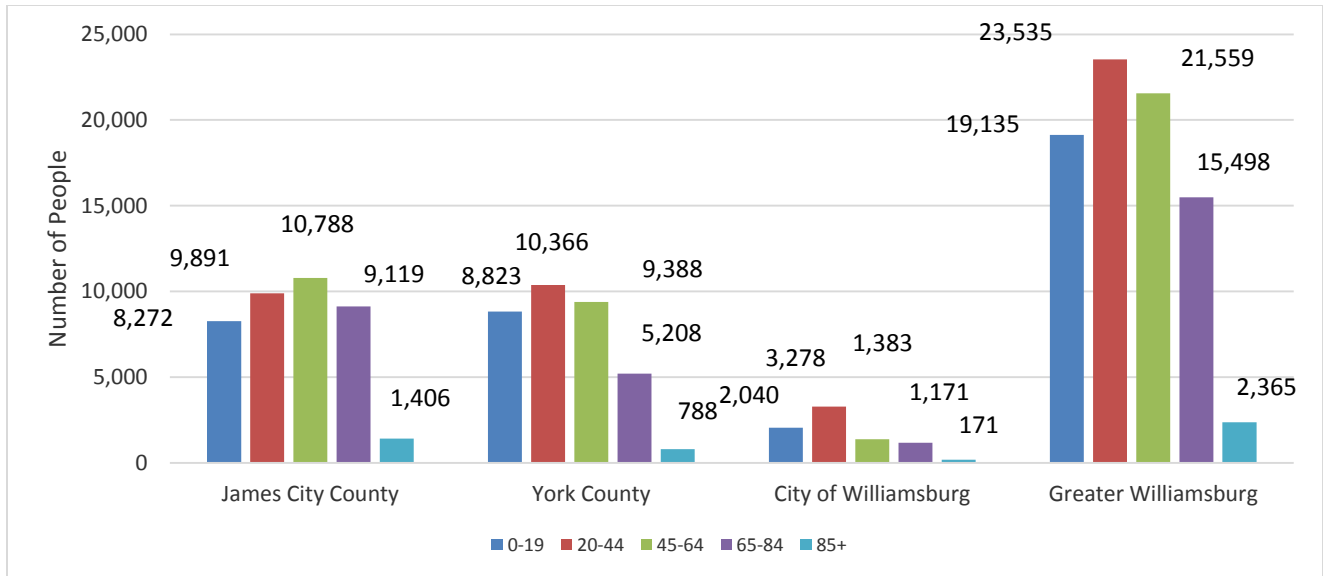
SOURCE: Weldon Cooper Center for Public Service; Demographics Research Group, 2018 Population Estimates for Age & Sex, Race & Hispanic, and Towns

The age profiles of James City County, the City of Williamsburg, and York County have some substantial differences. The City of Williamsburg stands out with a higher proportion of young adults—due in part to the location of the College of William & Mary.   While 54.7% of James City County residents and 60% of York County residents are between the ages of 18 and 64, 72.2% of Williamsburg residents are in that age bracket.

Another source of age variation is the growing older adult population in Greater Williamsburg, which is concentrated in James City County. For example:

- 21.7% of the James City County population is between the ages of 65 and 84, compared to 13.8% of York County, and 13.7% of the City of Williamsburg.
- 3.0% of the population of James City County is over the age of 85 compared to 1.9% for the City of Williamsburg and 1.2% for York County.

Looking toward the future, the Greater Williamsburg area will be home to a larger number of older adults, as that age group is projected to grow to approximately 33% by 2030 and remain close to that proportion until at least 2040.

Projected Growth of the Older Adult Population

As we've seen, a large proportion of projected population growth in Greater Williamsburg will come from increases in the population age 60[6] and over. As Figure 1.1C illustrates, by 2030, people age 60 and over will comprise about 33.1% of the total population and by 2040, the number of persons age 60 and over living in Greater Williamsburg will increase to 68,509, or about 31.5% of the overall population. However, the growth of the aging population will affect certain localities more than others. In particular, the percent of the population age 60 and over is expected to remain constant in the City of Williamsburg

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[6] The threshold age for the older adult population varies in different data sets at either age 60 or 65. All the data relating to older adults in this report include notations indicating the threshold age.

at about 20% and in York County at 24.5% between 2016 and 2040. On the other hand, the percent of the population age 60 and over is expected to increase to 43,199 or 39.3% in James City County. Again, as with population growth more generally, the process of aging and the growth of the aging population may place a larger burden on local healthcare and human service providers as they seek to meet the needs of a larger and older population.

Figure 1.2B: Older Adult (60+) Population Projections for Greater Williamsburg (2020, 2030, and 2040)
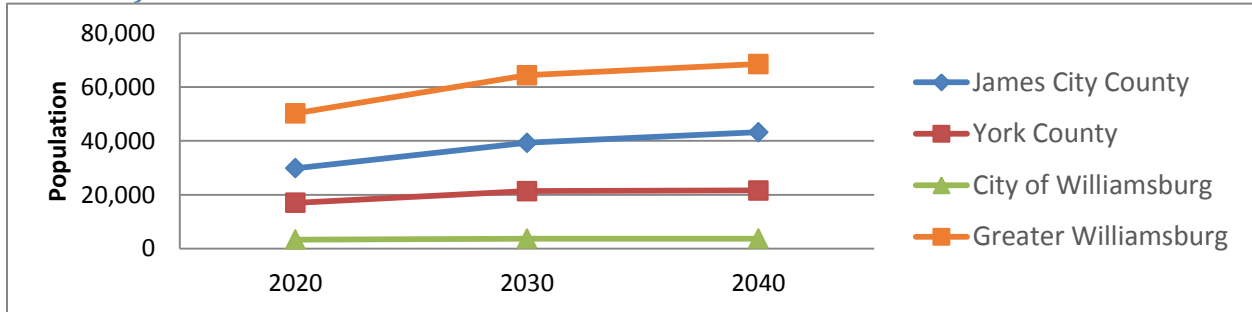
Source: Weldon Cooper Center for Public Service; Demographics Research Group 2017 Virginia 2020-2040 Population Projections

Table 1.2B: Older Adult (60+) Population Projections for Greater Williamsburg (2020, 2030, and 2040)

Locality	2020	2030	2040
James City County	29,835	39,277	43,199
York County	17,028	21,347	21,591
City of Williamsburg	3,369	3,738	3,719
Greater Williamsburg	50,233	64,363	68,509

Table 1.2C: Older Adult (60+) Population Projections for Greater Williamsburg and Virginia (2020, 2030, and 2040)

	Projected Growth (2020-2040)	Avg. Growth per Year
James City County	44.8%	2.2%
York County	26.8%	1.3%
City of Williamsburg	10.4%	0.5%
Greater Williamsburg	36.4%	1.8%
Virginia	24.7%	1.2%

Source: Weldon Cooper Center for Public Service; Demographics Research Group 2017 Virginia 2020-2040 Population Projections

Figure 1.2C: Older Adult (60+) Projections as a Percentage of Overall Population for Greater Williamsburg (2020, 2030, and 2040)
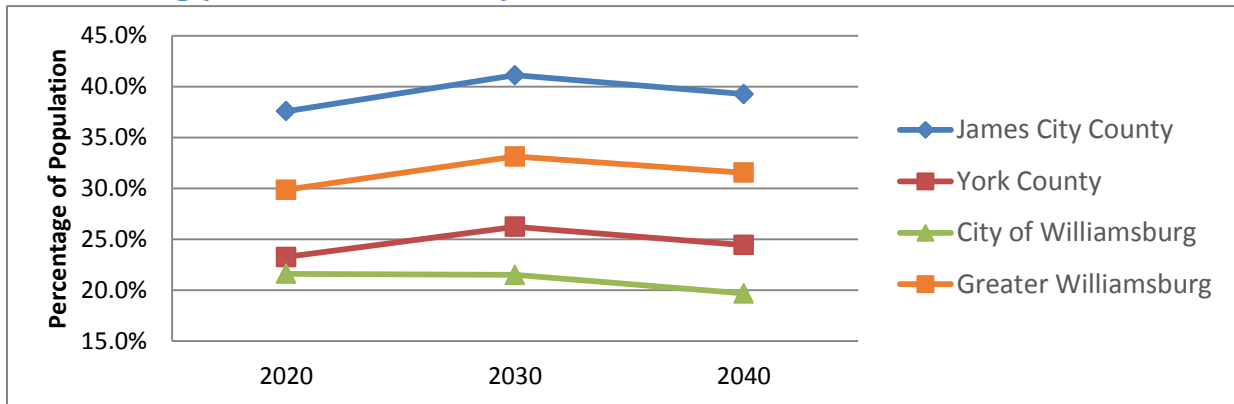
Table 1.2D: Older Adult (60+) Projections as a Percentage of Overall Population for Greater Williamsburg (2020, 2030, and 2040)

Locality	2020	2030	2040
James City County	37.6%	41.1%	39.3%
York County	23.3%	26.2%	24.5%
City of Williamsburg	21.6%	21.5%	19.7%
Greater Williamsburg	29.9%	33.1%	31.5%

The Relationship between Aging and the Demand for Health and Human Services

The latest 5-year estimates from the U.S. Census Bureau's 2013-2017 American Community Survey posit that one in three Virginians over the age of 65 has a at least one disability[7]. With this age group comprising about 15% of the Virginia's overall population and projected to grow, as we noted above, Virginia will see a proportional growth of the population of older adults with disabilities. As this occurs, it is likely that Virginia's communities will see increased demand for health and human services. This increase in demand could affect the Greater Williamsburg area disproportionately because of our relatively older population. For example, based on the 2030 population projections for older adults in Greater Williamsburg, we estimate that in roughly ten years, Greater Williamsburg will be serving over 21,000 older adults with at least one disability out of the projected 64,363 older adults.

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[7] United States Census Bureau American Community Survey 5-Year Estimates. "Population 65 Years and Over in the United States: 2013-2017 American Community Survey 5-Year Estimates." https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF Disability among older adults is defined as the inability to perform one or more of the five Activities of Daily Living (ADL's): Bathing, Dressing, Transferring, Toileting or Eating. https://www.seniorhousingnet.com/assisted-living/adlsandiadls Also see the Administration for Community Living https://acl.gov/

Section 1.3: Race and Ethnicity

Approximately 77.6% of people in Greater Williamsburg are White, according to the U.S. Census Bureau's 2018 Census Estimates, and as illustrated by Figure 1.3A and Table 1.3A. African Americans comprise the second largest group, accounting for 13.9% of the population of Greater Williamsburg. The City of Williamsburg has the largest minority presence as a percentage of the population of among the localities within Greater Williamsburg.

Figure 1.3A: Race in Greater Williamsburg by Locality (2018)
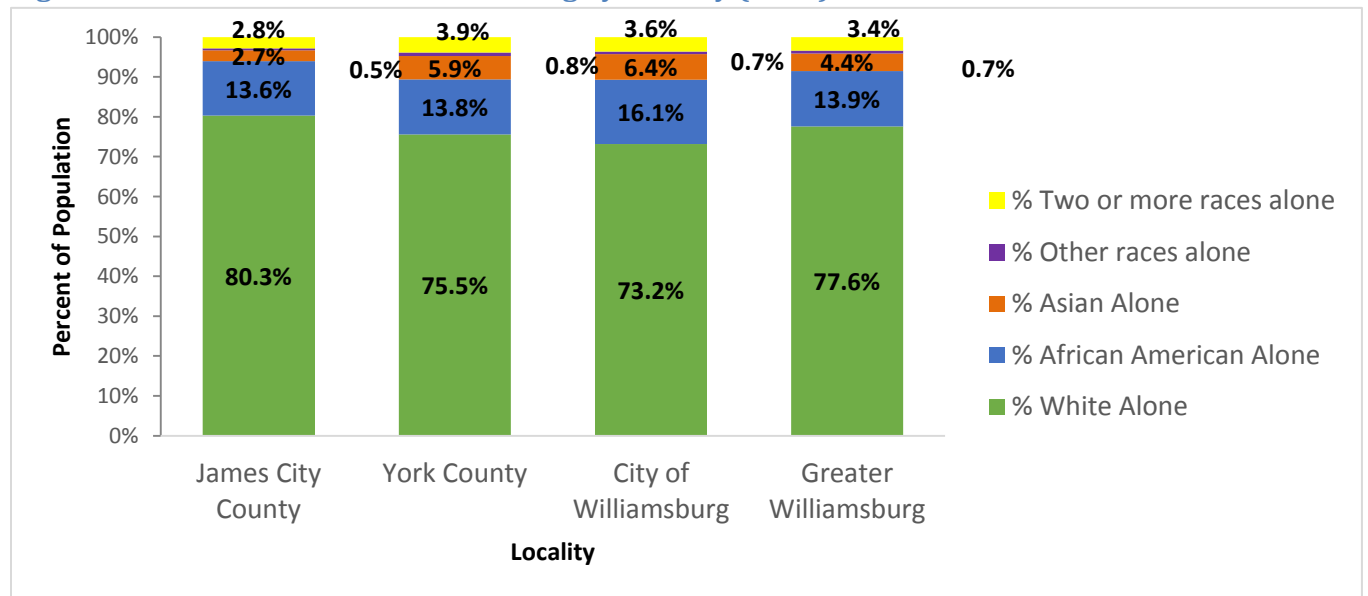
Source: Weldon Cooper Center for Public Service; Demographics Research Group 2018 Virginia Population Estimates

Table 1.3A: Population in Greater Williamsburg by Race and Locality (2018)

Locality	% White Alone	% African American Alone	% Asian Alone	% Other races alone	% Two or more races alone
Virginia	69.5%	19.9%	6.9%	0.7%	3.1%
James City County	80.3%	13.6%	2.7%	0.5%	2.8%
York County	75.5%	13.8%	5.9%	0.8%	3.9%
City of Williamsburg	73.2%	16.1%	6.4%	0.7%	3.6%

Source: Weldon Cooper Center for Public Service; Demographics Research Group 2018 Population Estimates for Age & Sex, Race & Hispanic, and Towns

While we have seen minor fluctuations in the racial makeup of Greater Williamsburg in recent years, Figure 1.3B demonstrates that the composition has remained fairly static over time.

Figure 1.3B: Racial Breakdown of Population in Greater Williamsburg (2011-2018)
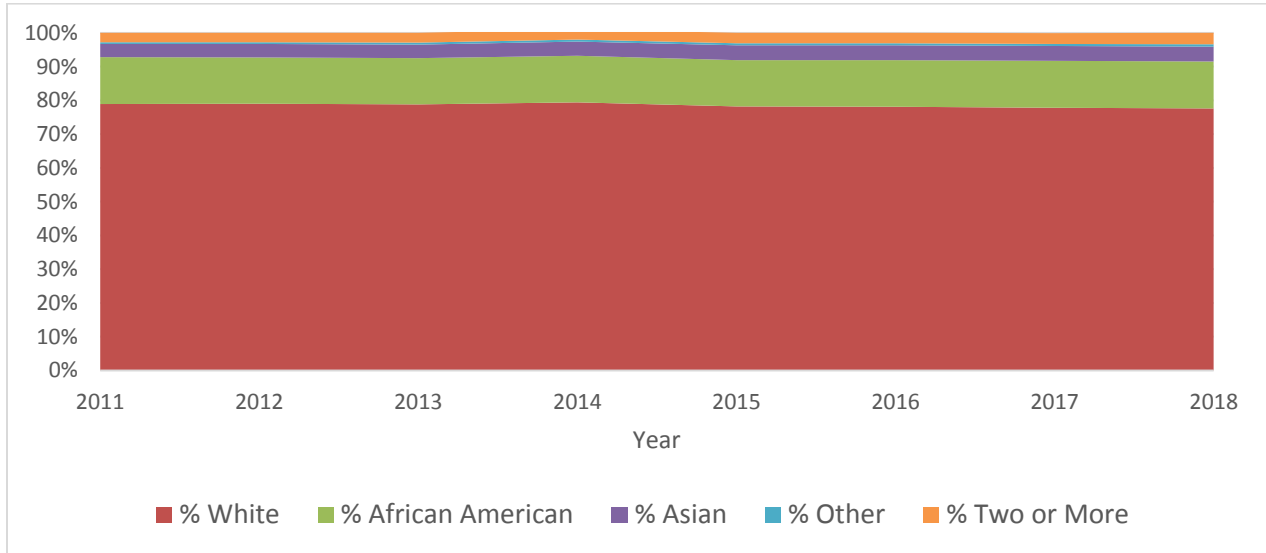
Source: Weldon Cooper Center for Public Service; Demographics Research Group 2018 Population Estimates for Age & Sex, Race & Hispanic, and Towns

Table 1.3B: Racial Breakdown of the Greater Williamsburg Population (2011-2018)

Year	% White	% African American	% Asian	% Other	% Two or More
2011	78.9%	13.9%	3.9%	0.5%	2.8%
2012	79.0%	13.7%	4.0%	0.5%	2.8%
2013	78.8%	13.7%	4.0%	0.6%	2.9%
2014	79.4%	13.8%	4.2%	0.6%	3.0%
2015	78.2%	13.7%	4.4%	0.6%	3.1%
2016	78.1%	13.8%	4.4%	0.6%	3.1%
2017	77.8%	13.9%	4.4%	0.6%	3.2%
2018	77.6%	13.9%	4.4%	0.7%	3.4%

Source: Weldon Cooper Center for Public Service; Demographics Research Group 2018 Population Estimates for Age & Sex, Race & Hispanic, and Towns

People that identify as Latino are not included in the data collection by race because the data source defines Latino as an ethnicity. Table 1.3B highlights Census data on the total growth of the Latino population in each of the localities, as well as the rate of growth between April 1, 2010 and July 1, 2018.

Table 1.3B: Population Growth of the Latino Population (2010 –2018)

	Total Latino Growth	(% Increase)
Greater Williamsburg	3,137	24.9%
James City County	1,451	48.0%
York County	1,580	54.6%
City of Williamsburg	106	11.5%

Source: Weldon Cooper Center for Public Service; Demographics Research Group 2018 Population Estimates for Age & Sex, Race & Hispanic, and Towns

As we see in Table 1.3B, the Latino population has expanded in Greater Williamsburg since 2010. While that table reflects the change in the number of people who report Latino ethnicity, the proportion of the Latino population relative to that of Greater Williamsburg overall has changed less dramatically over time (see Figure and Table 1.3C). Since 2010, the Latino population has increased by about 24.9% in Greater Williamsburg.

Figure 1.3C: Change in Latino as a Percentage of the Total Population (2010-2018)
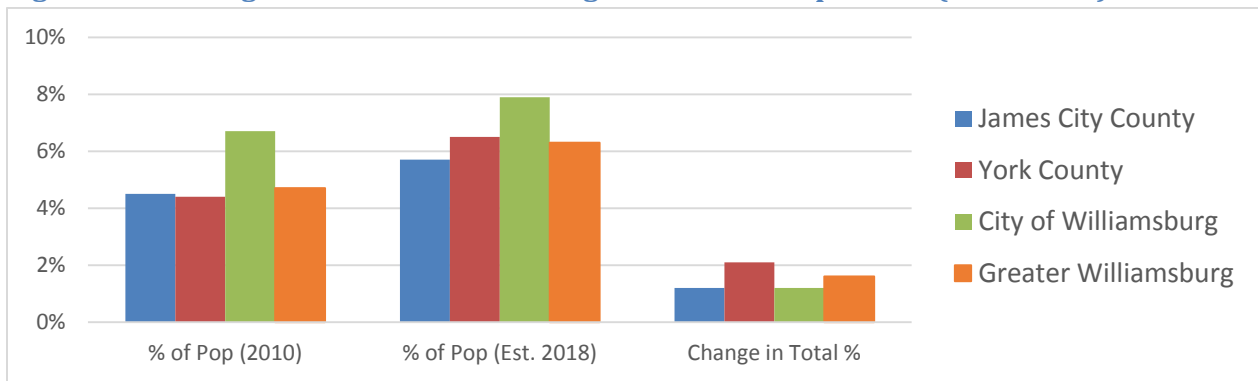
Source: Weldon Cooper Center for Public Service; Demographics Research Group 2018 Population Estimates for Age & Sex, Race & Hispanic, and Towns

Table 1.3C: Change in Latinos as a % of the Total Population (2010-2018)

Locality	% of Pop (2010)	% of Pop (Est. 2018)	Change in Total %
James City County	4.50%	5.70%	1.20%
York County	4.40%	6.50%	2.10%
City of Williamsburg	6.70%	7.90%	1.20%
Greater Williamsburg	4.70%	6.30%	1.60%

Source: Weldon Cooper Center for Public Service; Demographics Research Group 2018 Population Estimates for Age & Sex, Race & Hispanic, and Towns

Section 2: Health Profile

The following section contains important population health measures that help illustrate the status of community health, as well as the quality and use of healthcare in Greater Williamsburg.

Section 2.1: Harmful Health Behaviors and Risk Factors

According to estimates from the 2019 County Health Rankings for Virginia, as illustrated by Figure 2.1, it is estimated that thousands of Greater Williamsburg residents display risk factors for poor health and potentially avoidable chronic illnesses. Addressing the following risk factors would reduce the prevalence of chronic illnesses and improve community overall health and wellbeing: [8,9]

- **Smoking:** An estimated 16% of the over-18 adult population of the City of Williamsburg smoke tobacco, compared to 13% in both James City County and York County. These findings are on par with data for Virginia overall (which report that 15% of Virginians are smokers).
- **Physical Inactivity:** This metric reflects the percentage of adults age 20 and over who report no leisure-time physical activity. 17% of the population of James City County reported being physically inactive, compared to 19% and 22% in York County and the City of Williamsburg, respectively. These numbers are down uniformly from when they were last reported in 2015, when the City of Williamsburg reported 23%, York County reported 22%, and James City County reported 20% physical inactivity—showing promising improvement.
- **Obesity:** Obesity is diagnosed in people with a BMI of 30 or greater; obesity is a nationwide problem from which Greater Williamsburg is not exempt.[10] According to 2019 County Health Rankings, 28% of the over-20 population in James City County is obese, 29% in York County, and 27% in the City of Williamsburg. This is consistent with the Virginia average of 29%.

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[8] With reported levels of smoking and physical inactivity, it is important to remember that self-reporting of adverse health behaviors may be biased downward.

[9] Data on Smoking, Obesity and Physical Inactivity come from County Health Ranking's data extrapolation of the CDC's Behavioral Risk Factor Surveillance System (BRFSS) and the Diabetes Surveillance System, which assess risky behaviors and risk factors for and prevalence of diabetes in the 20+ adult population. It is important to remember that these data are estimates, and are based on surveys collected 2 to 3 years prior to the release of reports. Data on smoking, which comes from the BRFSS, covers the 18+ adult population. For the purpose of Greater Williamsburg prevalence calculations, this section of the report uses the 20+ population as a baseline. This results in more conservative estimates for adult smoking in the community.

[10] https://www.who.int/topics/obesity/en/ According to the World Health Organization, "Overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health. One measure of obesity is the body mass index (BMI), a person's weight divided by the square of his or her height. A person with a BMI of 30 or more is generally considered obese. A person with a BMI equal to or more than 25 is considered overweight. Overweight and obesity are major risk factors for a number of chronic diseases, including diabetes, cardiovascular diseases and cancer. Once considered a problem only in high income countries, overweight and obesity are now dramatically on the rise in low- and middle-income countries, particularly in urban settings."

Figure 2.1: Unhealthy Behaviors in Adults (20+) in the Greater Williamsburg Localities (2019 [11])
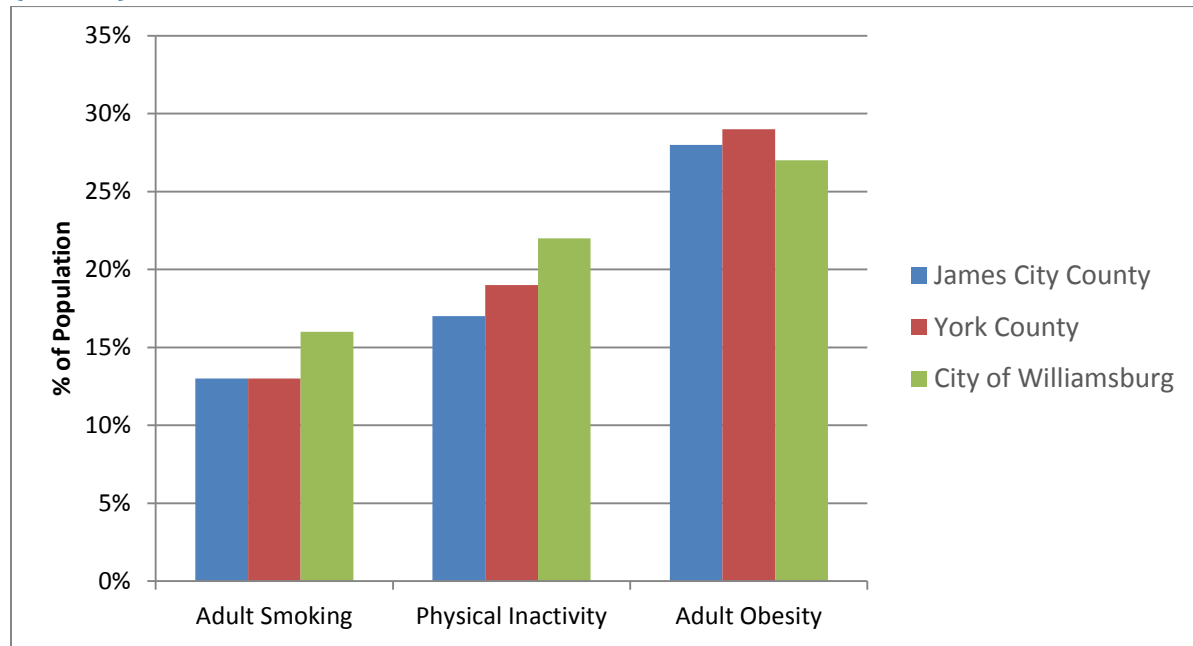
SOURCE: 2019 County Health Rankings Virginia Data

Table 2.1: Approximate Number of Adults (20+) in Greater Williamsburg with Increased Health Risks

Locality	Est. over-20 Population (2018)	Approx. # of Smokers	% of Smokers	Approx. # of Inactive Adults	% of Inactive Adults	Approx. # of Obese Adults	% of Obese Adults
James City County	53,919	9,859	13.0%	9,166	17.0%	15,097	28.0%
York County	53,182	6,914	13.0%	10,105	19.0%	15,423	29.0%
City of Williamsburg	11,197	1,792	16.0%	2,463	22.0%	3,203	27.0%
Greater Williamsburg	118,298	18,565	15.7%	21,734	18.4%	33,723	28.5%

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[11] County Health Rankings releases a data report every year in March. Since the report involves collecting and collating national-level data, the data included in each year's report have typically been collected two to three years prior. In figure 2.1, data on Adult Smoking were collected in 2016; data on Physical Inactivity were collected in 2015; data on Excessive Drinking were collected in 2016. See footnote 9.

Section 2.2: Chronic Illness and Poor Health

According to the CDC, 90% of all healthcare spending in the United States covers the costs of treating physical and mental chronic illnesses—and that share of spending is growing.[12] Smoking, physical inactivity and obesity all pose major risks to long-term health and are significant contributors to the development of chronic illnesses. What are the most prevalent chronic illnesses? National-level data report the following estimated prevalence rates:

- **Obesity:** The CDC estimates that nationally 1 in 5 children and 1 in 3 adults are obese. Obesity is a risk factor for and often co-occurs with other chronic illnesses such as cardiovascular disease, diabetes, hypertension (high blood pressure), and dyslipidemia (high cholesterol).[13],[14]
- **Diabetes:** 114 million Americans are either diabetic or prediabetic, according to the CDC. In addition to being expensive and sometimes difficult to treat, diabetes is also a risk factor for cardiovascular and kidney diseases, among others.

- **Cardiovascular disease:** One-third of all deaths in the United States annually are a result of heart disease or stroke. By 2035, the cost of treating cardiovascular diseases is expected to reach $1.1 trillion per year.[15]
- **Oral Health:** Cavities, or dental caries, are common in both youth (1 in 5 people between the ages of 6 and 11 have an untreated cavity) and adults (1 in 4 adults have an untreated cavity), according to the CDC (in Virginia and nationally). Tooth decay is the most common chronic illness among children and adolescents and results in 250,000 lost school hours each year nationally, despite being largely preventable. Tooth decay is also an important concern within the older adult population, where it is estimated that 18% of adults age 65 and over have untreated tooth decay, and 5% have no teeth (edentulism).[16,17,18] Tooth loss is a serious problem, as lower income older adults who lose their teeth often do not have dental insurance and cannot afford corrective work like bridges, implants, partial or full dentures—much of which is not covered by traditional Medicare.[19] Losing teeth without corrective dental work can lead to difficulty chewing and poor nutrition[20]. Edentulism, regardless of whether it is corrected with

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[12] Centers for Disease Control and Prevention (CDC), "Health and Economic Costs of Chronic Diseases." Last updated February 2019. Accessed May 21, 2019.

[13] Obesity is defined as having a Body Mass Index (BMI) of 30 or greater.

[14] Feingold KR, Grunfeld C. Obesity and Dyslipidemia. [Updated 2018 Apr 10]. In: Feingold KR, Anawalt B, Boyce A, et al., editors. [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK305895/

[15] Benjamin et. Al. Heart Disease and Stroke Statistics—2018 Update: A Report from the American Heart Association. March 20, 2018. *Circulation.* 2018;137-e67-3492. P. e7. Accessed May 21, 2019.

[16] National Institute of Dental and Craniofacial Research. "Dental Caries and Tooth Decay in Seniors (Age 65 and Older). Last updated July 2018; Accessed May 21, 2019.

[17] Tooth decay and oral health are mentioned here, but as of May 2019 there is insufficient data to further analyze the Greater Williamsburg area.

[18] For more information and data exploring oral health in Virginia, see Virginia's Oral Health Report Card and other resources provided by the Virginia Oral Health Coalition.

[19] Andrews, Michelle. "Seniors' Teeth Need Dental Care, But Insurance Coverage is Rare." October 27, 2016. NPR.

[20] Zelig, et al. "Dentition and Malnutrition Risk in Community-Dwelling Older Adults" (2018). *The Journal of Aging Research and Practice (JARCP).* http://dx.doi.org/10.14283/jarcp.2018.19

dentures, has been found to be associated with increased risk of cardiovascular disease and mortality in women.[21] All of this makes promoting access to oral healthcare an important part of public health efforts in Greater Williamsburg.

Obesity in Greater Williamsburg

Obesity is a diagnosable and treatable condition that is indicated by a body mass index (BMI) of 30 or more. Obesity is associated with a variety of factors, including but not limited to: diet, lifestyle, genetics, food insecurity, hormonal imbalances, and certain prescription medications. While some people who are considered obese are clinically healthy, obesity often co-occurs and contributes to chronic illnesses like diabetes, heart disease, and some types of cancer.

Thirty percent of all Virginians reported being obese.[22] Nearly 57% of Virginians with diabetes self-reported being obese in 2016.[23] There was an upward trend in adult obesity in Greater Williamsburg from 2004-2015 (See Figure 2.2A).[24] (What these figures do not reflect is the additional portion of the population considered overweight—determined by a BMI greater than or equal to 25 and less than 30. Unfortunately, there are no recent data on overweight status of the population at the locality level. As of 2016, age-adjusted prevalence of adult overweight or obese status in Virginia overall was 65.1%.[25])

Figure 2.2A: Obese adults (20+) as a Percentage in the Greater Williamsburg Localities
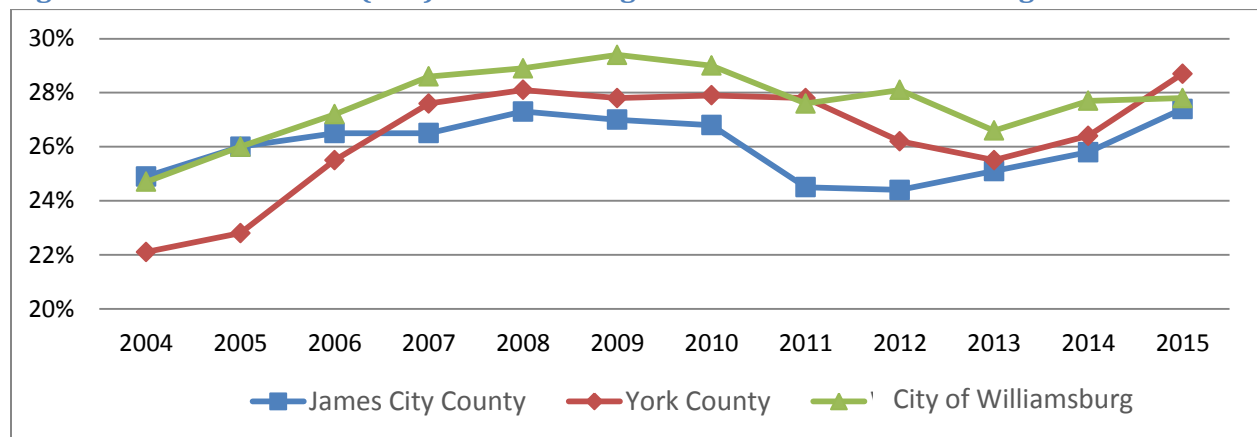
SOURCE: 2019 County Health Rankings Virginia Data

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[21] LaMonte, et al. "History of Periodontitis Diagnosis and Edentulism as Predictors of Cardiovascular Disease, Stroke, and Mortality in Postmenopausal Women" (2017). *Journal of the American Heart Association.* Vol 6, Issue 4.

[22] The State of Obesity. State of Obesity in Virginia. Accessed May 21, 2019. https://www.stateofobesity.org/states/va/

[23] Centers for Disease Control and Prevention (CDC). United States Diabetes Surveillance System. Obesity, Total, Adults with Diabetes, Age-Adjusted Percentage, Virginia. Accessed May 21, 2019

[24] Centers for Disease Control and Prevention (2015). United States Diabetes Surveillance System. Obesity, Total, Adults Aged 20+ Years, Age-Adjusted Percentage. Data for James City County, York County, and the city of Williamsburg. Accessed May 22, 2019. https://gis.cdc.gov/grasp/diabetes/DiabetesAtlas.html

[25] Centers for Disease Control and Prevention. Division of Population Health. Chronic Disease Indicators. "Virginia: Category: Nutrition, Physical Activity and Weight Status."

Adult Obesity in Greater Williamsburg (2015)

Source: 2019 County Health Rankings
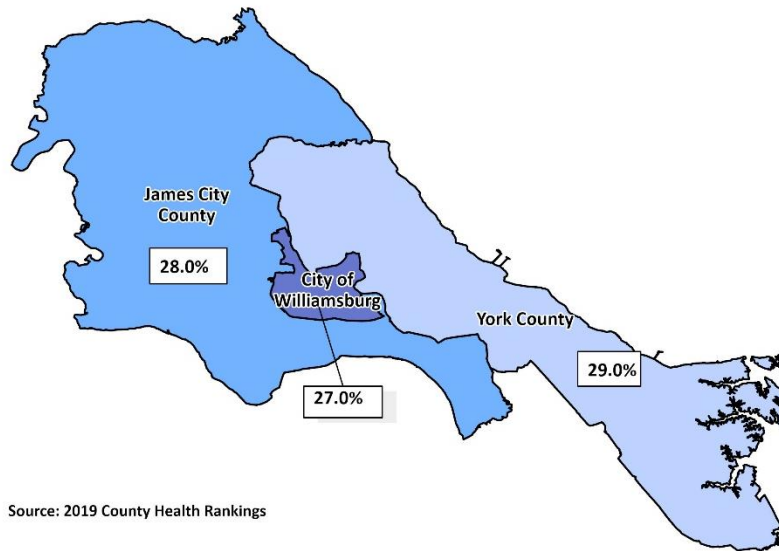
Diabetes in Greater Williamsburg

Table 2.2C illustrates estimated diabetes prevalence in the three localities of Greater Williamsburg. At 12%, the prevalence of diabetes in James City County is slightly higher than in the other localities, as well as in Virginia as a whole, where 10% of the population has diabetes. As Table 2.3A displays, 10% of the population of York County has diabetes, and 9% of the population of the City of Williamsburg has diabetes. These data do not include people who are prediabetic and thus at greater risk for developing Type 2 diabetes. Without lifestyle changes, anywhere from 15-30% of people with prediabetes will develop diabetes within five years.[26,27] Diabetes is an expensive chronic illness because it is often associated with two or three other chronic disease diagnoses. Average medical expenditures for people diagnosed with diabetes are roughly 2.3 times greater than the medical expenditures of people without diabetes.[28]

Table 2.2C: Diabetes Prevalence by Locality (2019[29])

Locality	Diabetes Prevalence

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[26] CDC "Prediabetes: Could it be You?" Infographic. https://www.cdc.gov/diabetes/pubs/images/prediabetes-inforgraphic.jpg
[27] New York State Department of Health. "Prediabetes." https://www.health.ny.gov/diseases/conditions/diabetes/prediabetes/ Accessed May 29, 2019.
[28] American Diabetes Association. "Statistics about Diabetes." Accessed June 3, 2019.
[29] County Health Rankings releases a data report every March; however much of the compiled data were collected in prior years. The most recent data on diabetes prevalence were collected in 2015.

Virginia	10%
James City County	12%
York County	10%
City of Williamsburg	9%

SOURCE: 2019 County Health Rankings Virginia Data

Figure 2.2C displays trends in diabetes prevalence over time among adults 20 years of age and older using the latest available data (2010-2015).

Figure 2.2C: Diabetes Prevalence in Greater Williamsburg over Time
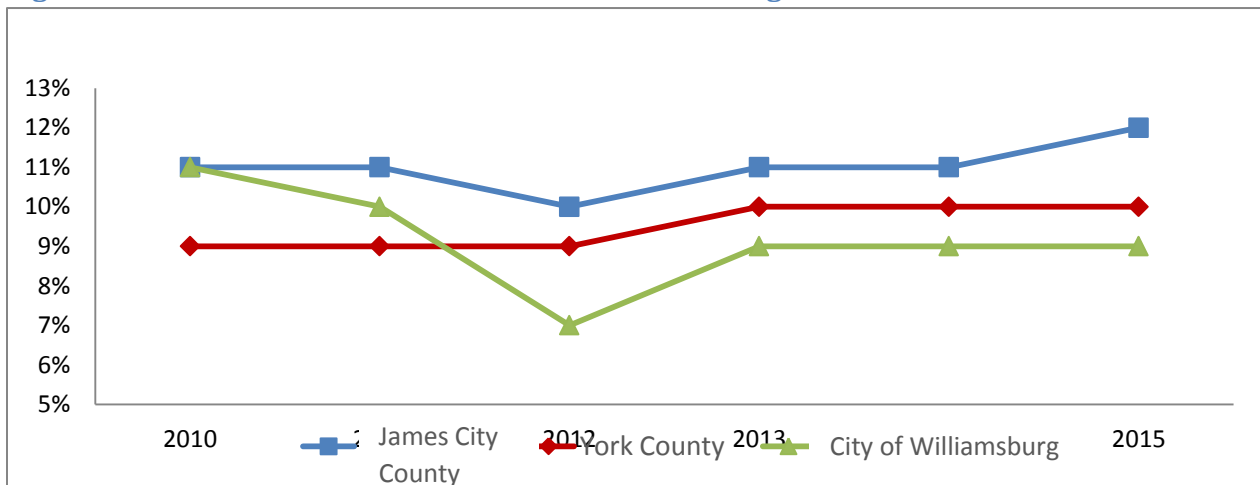
Table 2.2D: Diabetes Prevalence Trends in Greater Williamsburg

Year	James City	York County	City of Williamsburg
2010	11%	9%	11%
2011	11%	9%	10%
2012	10%	9%	7%
2013	11%	10%	9%
2014	11%	10%	9%

Figure 2.2D: Total Cardiovascular Disease Mortality Rate

2015	12%	10%	9%

Cardiovascular Disease in the Greater Williamsburg Area

According to 2014-2016 data provided by the CDC, total cardiovascular death rates in Greater Williamsburg for people of all ages, genders, and ethnicities are relatively low compared with other Virginia cities and counties (See Figure 2.2D). This relatively low rate of death also extends to the 65 and over population. In terms of overall prevalence, the Virginia Department of Health estimated in 2011 that 5.9% of Virginians suffer from at least one type of heart disease, with male gender, advanced age, race, and income, being strong predictors of a heart disease diagnosis.[30]

Total Cardiovascular Disease Mortality Rate per 100,000

Total Cardiovascular Mortality Rate (per 100,000)

- < 150
- 150.1-200
- ≤ 250
- 250.1-300
- 300.1-350
- 350-400
- > 400
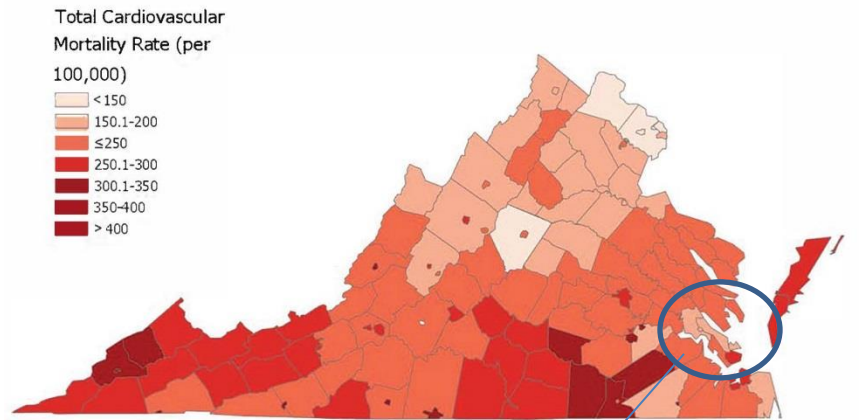
Source: CDC. Interactive Atlas of Heart Disease and Stroke. Total Cardiovascular Disease Death Rate per 100,000. All Ages, All Races/Ethnicities, Both Genders 2014-2016
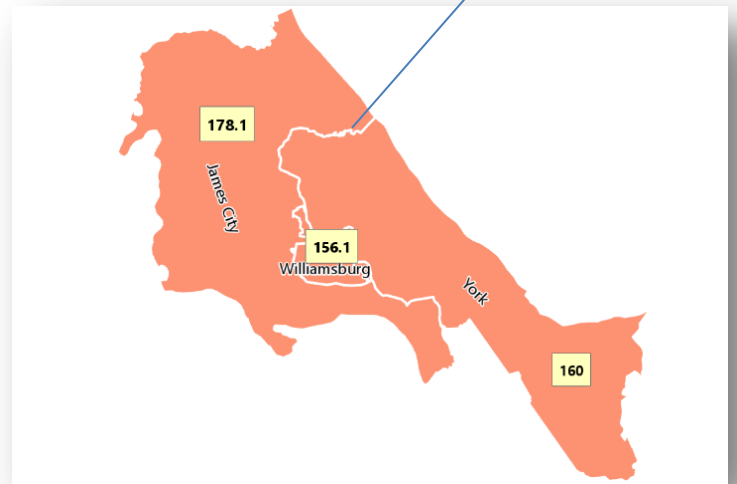
While the age-adjusted death rate from cardiovascular disease in Virginia has declined since 2010, the number of deaths has increased (due to the growth of the population). See Table 2.2E for estimates of total deaths for Greater Williamsburg from cardiovascular disease using 2018 population data.

Table 2.2E: Estimated Total Deaths from Cardiovascular Disease, 2018

| Locality	Population (2018)	TCV Mortality Rate (2014-2016)	Est. Deaths (2018)
James City County	75,837	178.1	135
York County	68,725	160.0	110
City of Williamsburg	15,183	156.1	23.7
Greater Williamsburg	159,745	164.7	268.7

Comparative Prevalence Rates for Chronic Diseases among the Population-at-Large versus the Safety-Net Population

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[30] Virginia Department of Health. "Cardiovascular Disease in Virginia." Uploaded December 2016. Accessed May 21, 2019.

Chronic disease is the major driver of healthcare spending in the U.S. and the costs in terms of reduced employment opportunities and quality of life are also considerable. The prevalence rates of common chronic diseases in the Greater Williamsburg community are on par with prevalence rates for the state. By comparison, the prevalence rates are substantially higher among patients at area safety net clinics. In addition, the patient populations of these clinics are often dealing with various economic constraints and associated social and environmental factors which negatively impact health status. These factors point to the value of safety net clinics for vulnerable populations.

Prevalence of Chronic Diseases	Estimated Prevalence for Greater Williamsburg[31]	Estimated Prevalence for Safety-Net Clinic Patients[32]
Diabetes	9%	30%
Asthma	9%	23%
High Blood Pressure	36%	61%
High Cholesterol	36%	54%
Obesity[33]	28%	46%

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[31] 2019 County Health Rankings for Virginia Localities
https://www.countyhealthrankings.org/app/virginia/2019/rankings/james-city/county/outcomes/overall/snapshot
[32] These data are collected in the Williamsburg Health Foundation's Patient Profile Report. The prevalence rates are aggregated from the four clinics of the Chronic Care Collaborative: Angels of Mercy, Gloucester-Mathews Care Clinic, Lackey Clinic and Olde Towne Medical and Dental Center. The study population for the Patient Profile Report includes 1,994 active patients seen at least once during the period January 1 through June 30, 2019.
[33] Obesity does not include the rate of people who are overweight.

Childhood Health

Health and wellness in childhood are strong predictors of positive future health outcomes. Whether it is forming healthy habits, having access to clinical care, going to the dentist, eating nutritiously, or engaging in plenty of physical activity, starting early yields strong benefits. Since the U.S. Census Bureau estimates that 20.9% of people in Greater Williamsburg are under the age of 18, it is vital to help facilitate a healthy start for this significant portion of the population. In order to do that, it is critical to understand the current state of pediatric health in Greater Williamsburg—starting at birth.

Table 2.2F shows the percentage of babies born at low birthweight out of all live births by locality. Low birthweight is a predictor of the health of a person for the rest of their lives. Low birthweight is also an indicator for the health of the mother due to social determinants that can contribute to malnourishment and illness. James City County has the highest low birthweight birth rate at 7%, followed by York County at 6.3%, and the City of Williamsburg at 5.9%. We also find disparities in low birthweight percentages by race in Greater Williamsburg as seen in Figure 2.2F.

Table 2.2F: Low Birthweight Births by Locality and Race

Locality	% LBW Overall	% LBW-Black	% LBW-Hispanic	% LBW-White
James City County	7.0	11.9	7.5	5.8
York County	6.3	11.3	4.2	5.4
City of Williamsburg	5.9	9.9	Unavailable	3.8

SOURCE: 2019 County Health Rankings Virginia Data[34]

Maternal and Child Data on Birth Outcomes

The Virginia Department of Health has published data through 2017 on a number of maternal health metrics for the Greater Williamsburg area. Table 2.2G displays the most recently available data. [35]

Table 2.2G: Maternal and Child Health Indicators (2017)

	James City County	York County	City of Williamsburg
% Infants Born Preterm	9.1%	6.9%	4.1%
% Late/No Prenatal Care	4.8%	3.2%	18.9%
% Maternal Smoking	6.1%	5.6%	5.4%

SOURCE: Virginia Department of Health, "Maternal and Child Health"- 2017

Mental Health in Childhood and Adolescence

This report covers mental and behavioral health[36] more generally later in this section, but it is important to distinguish the state of mental health in childhood and adolescence from that of adulthood.

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[34] County Health Rankings releases a data report every March; however much of the compiled data were collected in prior years. Data on Low Birthweight were collected 2011-2017.
[35] Virginia Department of Health. Maternal and Child Health – 2017. Accessed May 24, 2019. http://www.vdh.virginia.gov/data/maternal-child-health/
[36] This report refers to mental health and behavioral health interchangeably.

The majority of lifetime mental, emotional, and behavioral (MEB) disorders manifest before age 25, and recognizing and treating the symptoms early boosts the likelihood of improved social adjustment and school performance and reduces the likelihood of future contact with law enforcement.[37] Diagnosis and treatment of issues like major depressive disorder in childhood or adolescence is critical to improving present and future quality of life.

The National Institute of Mental Health estimates that 31.9% of adolescents ages 13through 18 have or have had diagnosable anxiety disorder .[38,39] Demographic data from the US Census Bureau and 2017 Virginia Youth Risk Behavior Survey Prevalence Estimates estimate that 12.6% of the 2,380 12 to 17 year-olds in Greater Williamsburg experienced a major depressive episode during the previous year.[40, 41] Data from Voices for Virginia's Children campaign for mental health care state that only about 1 in 5 children and adolescents with a mental health disorder receive diagnosis and appropriate treatment. [42]

Section 2.3: Behavioral and Mental Health

Mental illnesses and behavioral disorders occur at levels in Greater Williamsburg similar to the state-level prevalence rates. Although approximately one in five Americans suffer from some form of mental health disorder each year and one in 20 suffer from a serious mental illness,[43] fewer than half of the population who suffer from mental disorders receive diagnoses and appropriate treatment.[44] The problem is exacerbated by the fact that poor mental or behavioral health often contributes to other chronic illnesses.

Table 2.3 shows both the average number of poor mental health days of the prior 30 days reported by locality as well as the percentage of the population that experienced frequent mental distress (defined as experiencing 14 or more poor mental health days in a month).[45] The City of Williamsburg shows the highest average of poor mental health days at 3.8 and the highest percentage of reports of frequent mental distress at 12%. James City and York County both fall slightly below the state averages for these mental health indicators.

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[37] Kutcher and Venn. "Why Youth Mental Health is So Important." (2008). *Medscape J Med:* Volume 10, No. 12. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2644010/

[38] National Institute of Mental Health. "Mental Illness." Accessed June 4, 2019.

[39] Serious mental illness is associated with a 10-20-year reduction in life expectancy. See: University of Oxford and Science Daily (2014). "Many mental illnesses reduce life expectancy more than heavy smoking." Accessed June 4, 2019.

[40] A major depressive episode is classified as experiencing symptoms of major depression (feelings of sadness, hopelessness, fatigue, weight changes, changes in sleep habits, loss of interest, and suicidal thoughts) for two weeks or longer. See: https://www.bridgestorecovery.com/major-depression/what-is-a-major-depressive-episode/ ; Community Health Solutions analysis of 2015-2016 National Surveys on Drug Use and Health State Prevalence Estimates, 2012-2015 https://cbhi.wpengine.com/2018-community-indicators/

[41] https://www.cdc.gov/childrensmentalhealth/data.html

[42] https://vakids.org/our-work/mental-health

[43] "Mental Health Conditions," *National Alliance on Mental Illness*. Accessed May 29, 2019 at https://www.nami.org/Learn-More/Mental-Health-Conditions

[44] "Nearly Half of Americans with Severe Mental Illness Do Not Seek Treatment," *Cardiovascular News*. Accessed May 29, 2019 at http://circ.ahajournals.org/content/101/5/e66.full.pdf+html

[45] County Health Rankings releases a data report every March; however much of the compiled data were collected in prior years. 2019 data on Poor Mental Health Days… and % Frequent Mental Distress were collected in 2016.

Table 2.3: Average Number of Poor Mental Health Days Over the Past 30 Days and Percent of Population that Experienced Frequent Mental Distress in the Past 30 Days

Locality	Average Number of Poor Mental Health Days in Last 30 Days	% of Population with Frequent Mental Distress
Virginia	3.5	11%
James City County	3.2	10%
York County	3.4	10%
City of Williamsburg	3.8	12%

SOURCE: 2019 County Health Rankings Virginia Data

Section 2.4: Access to Care

Access to healthcare is defined as "the timely use of personal health services to achieve the best possible health outcomes."[46] Access to quality healthcare is important for promoting and maintaining health as well as for preventing and managing disease.[47] Having access means that individuals are able to enter the healthcare system in a way that is affordable both in terms of financial cost and the opportunity cost of taking the time to obtain care. A major determinant of access is having health insurance coverage.

After the state approved the expansion of Virginia's Medicaid program to serve individuals up to 138% of the Federal Poverty Level the application process for newly-eligible citizens began in November 2018 with covered benefits beginning in January 2019. At the writing of this report, things remain in flux with the Department of Medical Assistance Services continuing to administer the program and local Departments of Social Services finalizing enrollment of new Medicaid recipients. Clinics already accepting Medicaid are seeing an increase in the proportion of patients with that coverage while free clinics are grappling with business model decisions including whether or not to become a Medicaid-licensed hybrid (seeing both uninsured and insured patients). As of January 2020 approximately 4,400 previously uninsured adults in Greater Williamsburg had enrolled in Medicaid. Challenges around newly-enrolled Medicaid recipients include assignation to an appropriate provider, availability of a Medicaid provider within a reasonable geographic radius, and assisting the newly-enrolled with understanding and accessing the array of benefits for which they are now eligible.

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[46] Institute of Medicine, Committee on Monitoring Access to Personal Health Care Services. Access to Health Care in America. Washington, DC: National Academy Press; 1993.
[47] https://www.healthypeople.gov/2020/topics-objectives/topic/Access-to-Health-Services

Section 3: Social Determinants of Health

Social Determinants of Health (SDOH) are social, economic and environmental factors that affect people in everyday life and impact health outcomes. Often viewed as "root causes," the SDOH provide a lens for understanding disparities in health status among different racial, ethnic and economic groups. This section presents the latest data from sources including the Virginia Department of Social Services (VDSS), the U.S. Department of Labor Statistics, the Virginia Department of Health (VDH), American Community Survey (ACS) 2018 5-year estimates, and the 2018 Small Area Health Insurance Estimates (SAHIE). It is important to note that the SDOH encompass a broad range of factors about which even experts sometimes disagree. For the purpose of this report the focus is on those social determinants where locality-level data are available and that are particularly relevant for the status of health in the Greater Williamsburg community.

 To provide a discrete framework for the discussion of social determinants, this report utilizes the Healthy People 2020 campaign's five SDOH categories:[48]

1. **Economic Stability[49]***
2. **Education[50]**
3. **Social and Community Context[51]***
4. **Health and Health Care [52]**
5. **Neighborhood and Built Environment [53]***

*an asterisk denotes a category that will be part of this section of the report.

Item 4, Health and Health Care is covered in Section 2. For the purposes of an analysis of Greater Williamsburg in the HealthyPeople.Gov framework, this section of report will focus on Economic Stability, Social and Community Context, and Neighborhood and Built Environment.

Section 3.1: Economic Stability

HealthyPeople.Gov specifies four key areas that contribute to economic stability: *Employment, Food Insecurity, Housing Instability, and Poverty*. In this report, we will focus on employment and poverty.

3.1A Employment

Defined as the percent of the labor force that is not working but is actively searching for work, employment can have significant impacts on mental and physical health. Multiple studies find that unemployment is associated with increases in adverse health outcomes such as cardiovascular disease

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[48] U.S. Office of Disease Prevention and Health Promotion. Healthy People.Gov.

[49] Economic Stability, according to HealthyPeople.gov, entails employment, food insecurity, housing instability and poverty.

[50] Education, a SDOH that is outside the scope of this report, involves early childhood education and development, enrollment in higher education, high school graduation, and language and literacy.

[51] Social and Community Context involves civic participation, discrimination, incarceration, and social cohesion.

[52] Health and Healthcare includes issues of access to healthcare, access to primary care, and health literacy.

[53] Neighborhood and Built Environment incorporates the issues of access to foods that support healthy eating patterns, crime and violence, environmental conditions, and quality of housing. Most of these dimensions, with the exception of crime and violence, are captured by the Virginia Health Opportunity Index and are covered later in this section.

and suicide.[54] It is important to note, however, that both scholars and public health professionals see negative health outcomes associated with unemployment as both results and contributing causes of negative health outcomes.[55]

As illustrated by Figure 3.1Aa, the unemployment rate for the City of Williamsburg has historically surpassed James City County, York County and Virginia overall. York County data include the City of Poquoson because it shares a Department of Social Services with York County.[56] In the City of Williamsburg, the unemployment rate increased from 5.6% in 2007 to 15.3% in 2009 during the Great Recession before declining to 5.3% by 2017—thus returning to pre-recession levels.

Figure 3.1Aa: Annual Unemployment Rate for Greater Williamsburg by Locality (2007-2017)
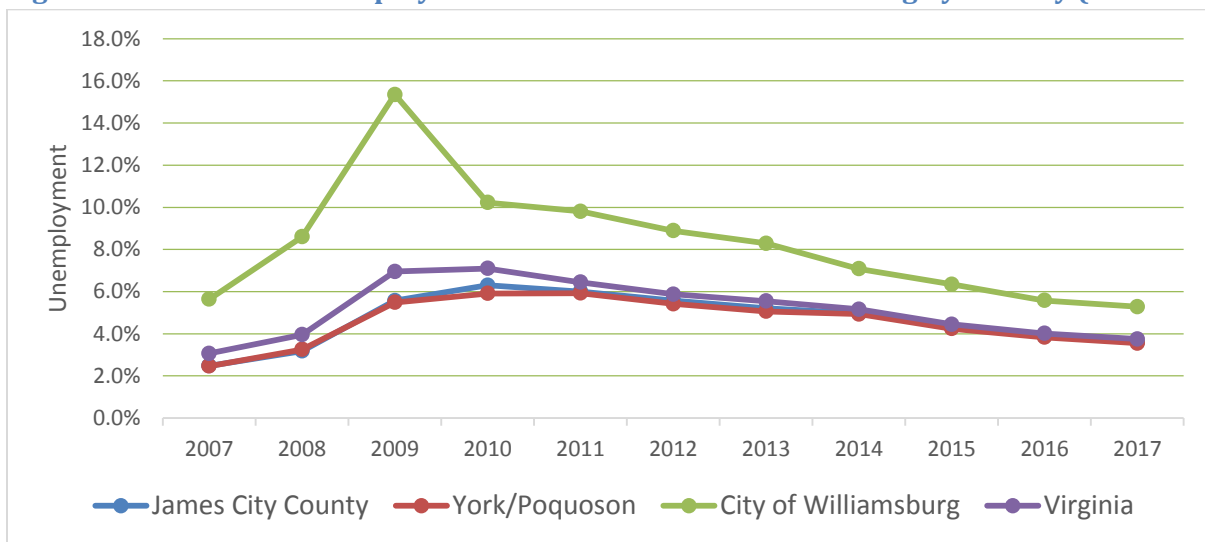
SOURCE: VDSS Local Department of Social Services Profile Report, SFY 2018[57]

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[54] Jin, R L et al. "The impact of unemployment on health: a review of the evidence." CMAJ : Canadian Medical Association journal = journal de l 'Association medicale canadienne vol. 153,5 (1995): 529-40.
To be covered in Section 3 of the report
[55] Dooley et al. "Health and unemployment." Annu. Rev. Public Health. 1996 17:449-65.
[56] https://www.yorkcounty.gov/159/Social-Services
[57] State Fiscal Year (SFY) refers to the 12-month time period that the state uses for accounting and financial purposes. This period does not align with the calendar year. The SFY starts on July 1 and ends on June 30.

Table 3.1Aa: Unemployment Rate, 2007-2017

Locality	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
James City County	2.5%	3.2%	5.6%	6.3%	6.0%	5.6%	5.2%	5.0%	4.3%	3.9%	3.6%
York/Poquoson	2.5%	3.3%	5.5%	5.9%	5.9%	5.4%	5.1%	4.9%	4.2%	3.8%	3.6%
City of Williamsburg	5.6%	8.6%	15.3%	10.2%	9.8%	8.9%	8.3%	7.1%	6.3%	5.6%	5.3%
Greater Williamsburg	2.7%	3.6%	6.3%	6.4%	6.2%	5.8%	5.4%	5.1%	4.4%	4.0%	3.7%

SOURCE: VDSS Local Department of Social Services Profile Report, SFY 2018[58]

3.1B Poverty

This section displays data on indicators of poverty. This includes poverty rates based on household income both overall and for children, Supplemental Nutrition Assistance Program (SNAP) enrollment, and Temporary Assistance for Needy Families (TANF) enrollment. Enrollment in public assistance programs is included because defined levels of household income, are required for enrollment.[59]

Poverty Rate

As illustrated by Figure 3.1Ba, the poverty rate for the City of Williamsburg has increased gradually, rising from 17.7% in 2000 to 22.5% in 2017. This level of poverty is troublesome, as many studies demonstrate a strong association between poverty and poor health outcomes, such as chronic diseases, disability, and behavioral health.[60, 61, 62] See Figure 3.1Bc for the child poverty rate
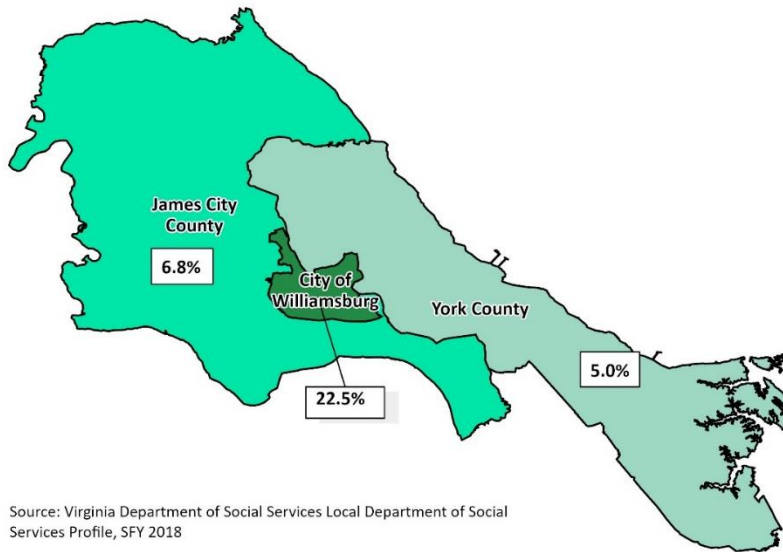
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[59] https://aspe.hhs.gov/poverty-guidelines

[60] Plantinga, Laura C., Kirsten L. Johansen, Dean Schillinger, and Neil R. Powe. "Lower Socioeconomic Status and Disability among US Adults with Chronic Kidney Disease, 1999-2008." *Preventing Chronic Disease* 9 (2012): 1-11.

[61] Sabanayagam, Charumathi and Anoop Shankar. "Income Is a Stronger Predictor of Mortality than Education in a National Sample of US Adults." *Journal of Health, Population, and Nutrition* 1 (2012): 82-86.

[62] Yoshikawa, Hirokazu, J. Lawrence Aber, and William R. Beardslee. "The Effects of Poverty on the Mental, Emotional, and Behavioral Health of Children and Youth." *American Psychologist* 67, no. 4 (2012): 272-284.

Poverty in Greater Williamsburg (2017)

Source: Virginia Department of Social Services Local Department of Social Services Profile, SFY 2018

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[63] Federal Poverty Guidelines for 2019, published by Department of Health and Human Services
https://aspe.hhs.gov/poverty-guidelines

Figure 3.1Bb: Percent of Population Living Below 100% Poverty (2000-2017)
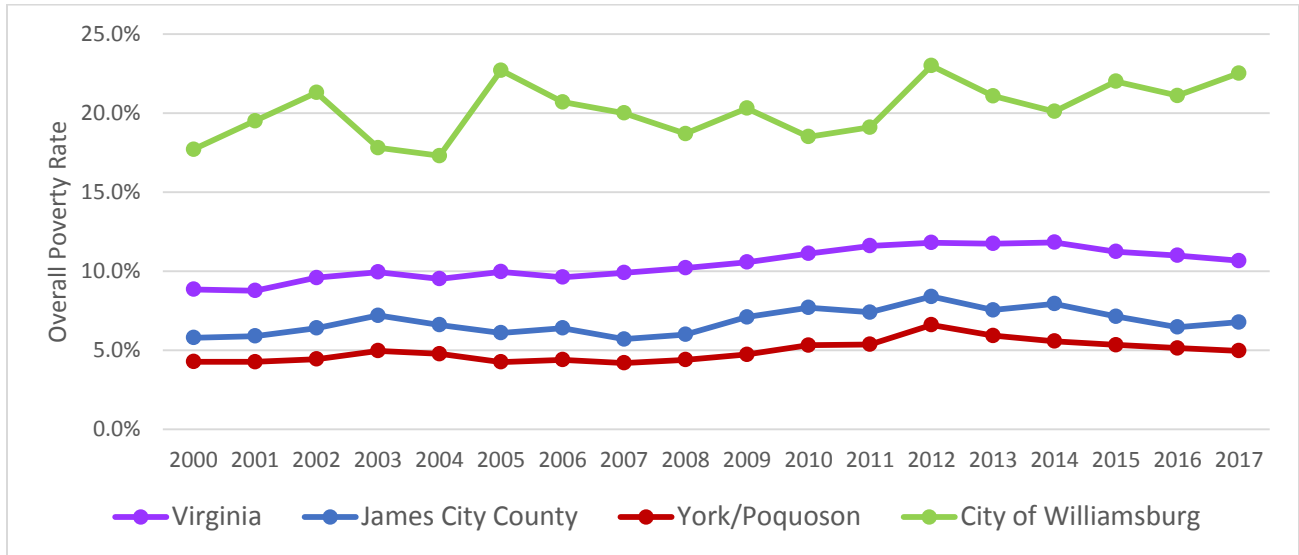
SOURCE: VDSS Local Department of Social Services Profile Report, SFY 2018

Child Poverty Rate

As illustrated by Figure 3.1Bc, James City County and York/Poquoson both show child poverty rates that are lower than Virginia's overall rate. However, the City of Williamsburg's child poverty rate is consistently nearly twice that of Virginia overall and three times the rate of the other Greater Williamsburg localities. As of 2017, for instance, Williamsburg's child poverty rate was 23.0%, compared to 14.0% for Virginia overall, and 9.1% and 5.9% for James City County and York/Poquoson, respectively.
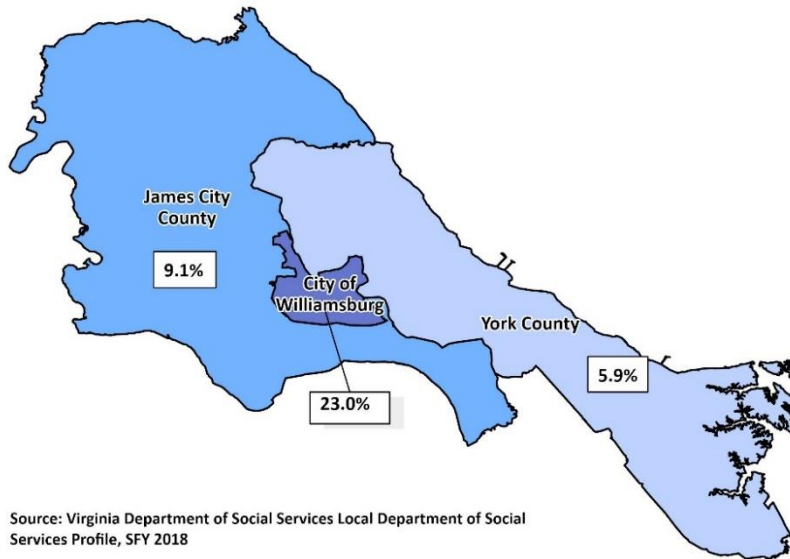
Figure 3.1Bc: Percent of Children (0-17 Years) Living Below 100% Poverty (2000-2017)
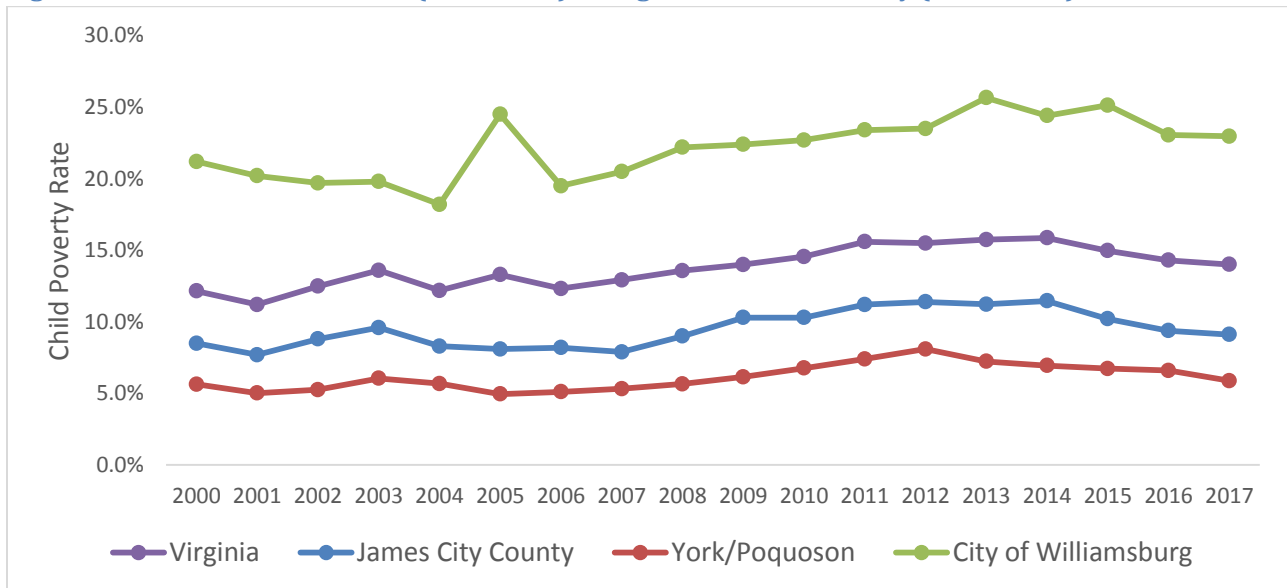
SOURCE: VDSS Local Department of Social Services Profile Report, SFY 2018

Table 3.1Ba: Estimated Child Poverty Numbers and Percentage across Greater Williamsburg (2018)[64]

Child Poverty in Greater Williamsburg

Source: Virginia Department of Social Services Local Department of Social Services Profile, SFY 2018

Locality	# of People Under 18 in SAIPE Poverty Universe[65]	Est. # of People Under 18 Below 100% Poverty	Est. % of People Under 18 Below 100% Poverty
City of Williamsburg	1.663	382	23%
James City County	15,037	1,371	9.1%
York County	18,666	1,099	5.9%
Greater Williamsburg	35,366	2,686	7.6%

SOURCE: VDSS Local Department of Social Services Profile Report, SFY 2018

3.1C: SNAP Enrollment

Between SFY 2017 and 2018, all three Greater Williamsburg localities saw a drop in Active SNAP clients as a percentage of overall population. This is consistent with the modest but persistent downward trend since 2012 for James City County and York/Poquoson. The City of Williamsburg's enrollment has remained steady and saw an increase between 2016 and 2017.

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[64] **Important note:** All poverty estimates are subject to a significant margin of error, as they are extrapolated from projected modeling by the US Census Bureau.

[65] The SAIPE Poverty Universe refers to population estimates as conceived by the Small Area Income and Poverty Estimates provided by the Census Bureau. Learn more about SAIPE estimates here.

Figure 3.1Ca: Number of Active SNAP Clients by SFY (2012-2018)
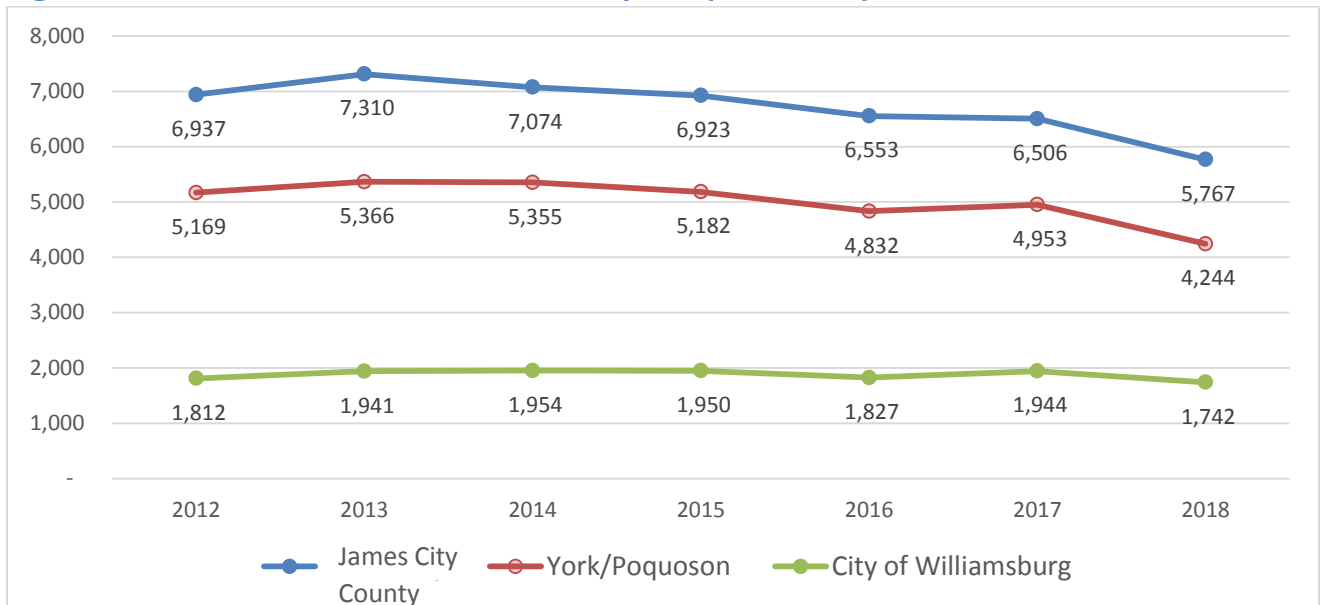
SOURCE: VDSS Local Department of Social Services Profile Report, SFY 2018

Figure 3.1Cb: Active SNAP Clients as a Percentage of Locality by SFY (2012-2018)
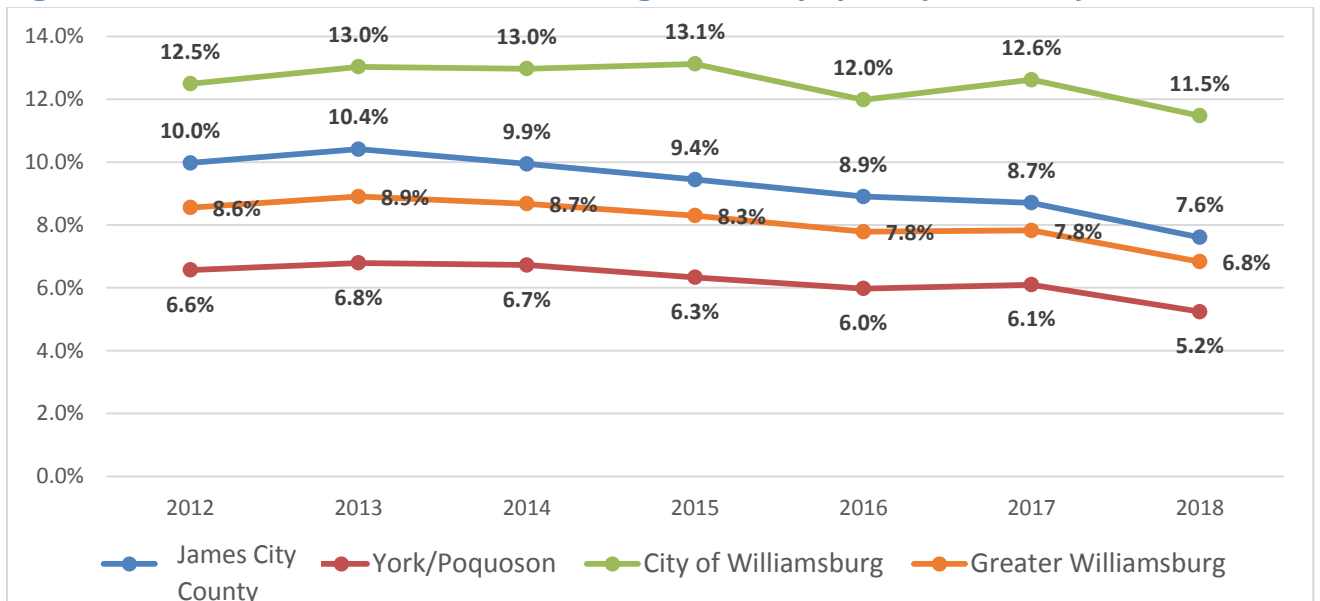
SOURCE: VDSS Local Department of Social Services Profile Report, SFY 2018

3.1D: TANF Enrollment

The number of TANF recipients in Greater Williamsburg has fluctuated over time, reaching a six year low in SFY 2017, when all three localities saw the lowest percentages of their overall populations receiving TANF benefits (See Figure 3.1Db). That trend seems to have reversed between 2017 and 2018, with TANF enrollment increasing slightly.

Figure 3.1Da: Number of Active TANF Recipients by SFY (2012-2018)

SOURCE: VDSS Local Department of Social Services Profile Report, SFY 2018

Figure 3.1Db: Active TANF Recipients as a Percentage of Population by SFY (2012-2018)

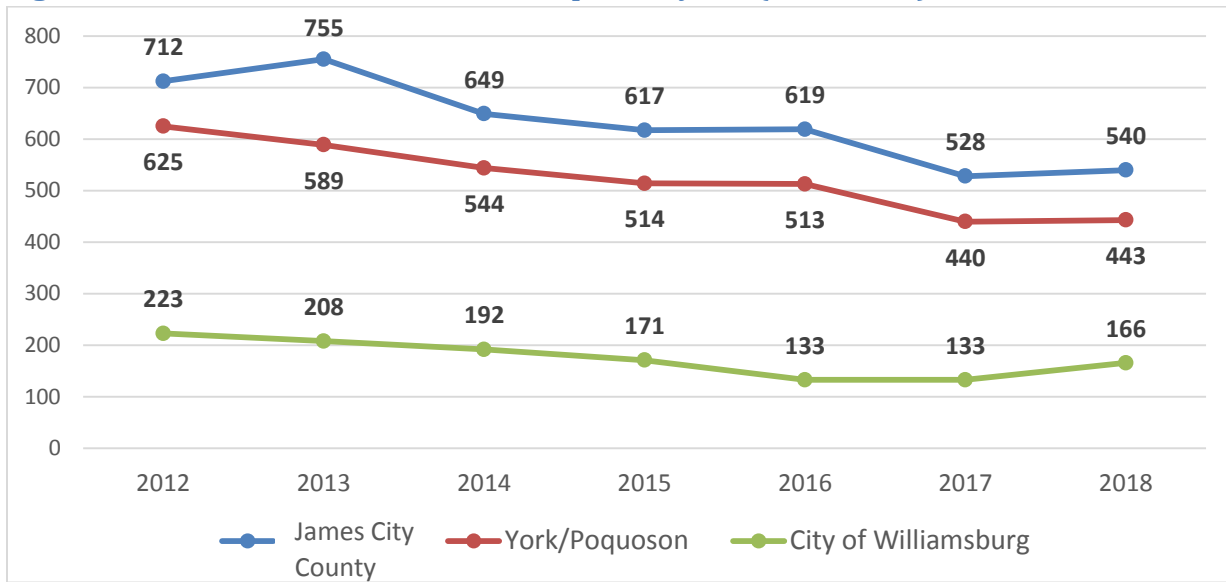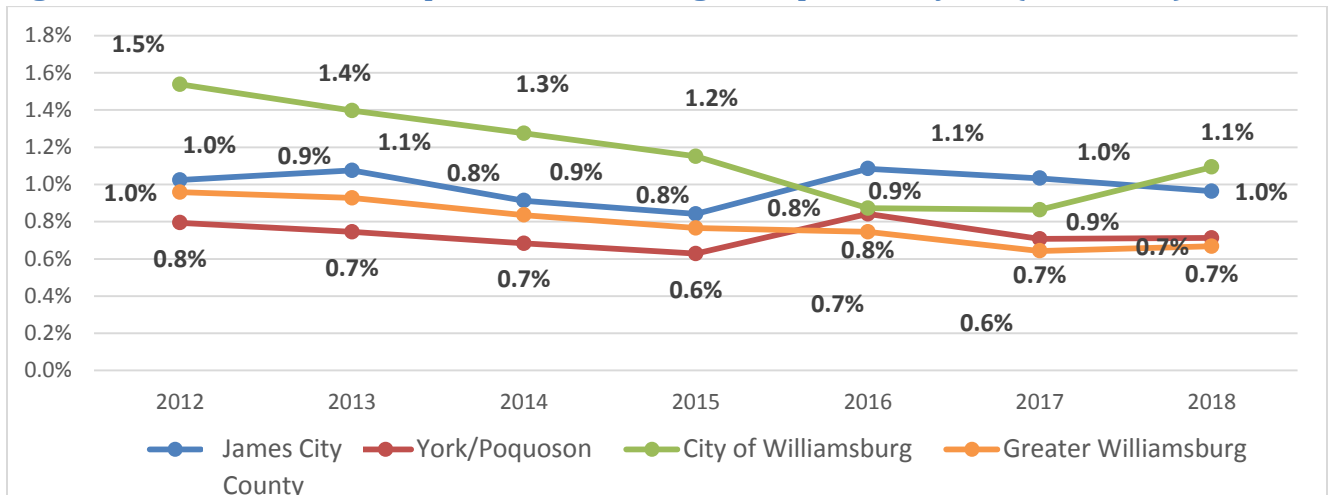SOURCE: VDSS Local Department of Social Services Profile Report, SFY 2018

Section 3.2: Social and Community Context

HealthyPeople.gov characterizes an area's social and community context by four factors: 1) civic participation, 2) discrimination, 3) incarceration, and 4) social cohesion. The data below cover different aspects of these factors with the exception of incarceration. The importance of the social and community context, the degree to which a community offers or facilitates social support and meaningful connections to its residents, is hard to overstate. In addition to mental health benefits, strong social support networks are associated with lower mortality rates for cardiovascular disease and better

immune function.[66] It is critical to assess the strength of social support networks in Greater Williamsburg in order to more fully understand the status of health and health opportunities.

3.2A: Civic Participation and Social Associations

When considering civic participation, the first thing that may come to mind is the act of voting. Participating in democratic decision-making at the ballot box by voting is certainly an important activity that is related to social connectedness[67], but it is, of course, not the only way to participate in a community. Other examples of civic participation include volunteering, membership in civic organizations, and joining recreational sports teams or other clubs. Studies have found diverse sets of benefits to be associated with the different types of participation. A longitudinal study of older adults (60 years of age and older) found that those who volunteered regularly over the course of the fourteen-year study period between 1998 and 2012 saw significant decreases in the risks of cognitive impairment.[68] The authors of that study suggest that there could be a measurable public health benefit of health providers finding ways to encourage older adult patients to seek out volunteer opportunities—going so far as to suggest "prescriptions to volunteer." This finding has potentially important implications for the rapidly growing older adult population in Greater Williamsburg.

One way to assess civic participation in the community is to examine opportunities for participation in membership-based organizations. 2019 County Health Rankings uses the U.S. Census Bureau's 2016 County Business Patterns data on the number of membership-based organizations such as "civic organizations, bowling centers, golf clubs, fitness centers, sports organizations, religious organizations, political organizations, labor organizations, business organizations and professional organizations" in counties across the nation.[69] They measure it as a rate—the number of membership associations per 10,000 population.

Table 3.2Aa: Social Associations per 10,000 Population

Locality	# of Associations	Association Rate
Virginia[70]	9,437	11.2%
James City County	74	9.9%
York County	58	8.5%
City of Williamsburg	23	15.1%

SOURCE: 2019 County Health Rankings

It is worth noting that this measure only reflects the number of organizations with potential for membership and not the number of people who belong to said organizations.[71]

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[66] Uchino, Bert N. "Social Support and Health: A Review of Physiological Processes Potentially Underlying links to Disease Outcomes." *Journal of Behavioral Medicine.* Vol. 29, No. 4, August 2006. DOI: 10.1007/s10865-006-9056-5
[67] See Kim et al (2015). Their study found that people who vote self-report better health. Via multi-level analysis of 44 countries, researchers identified a statistically significant relationship between social participation and subjective health that was particularly strong in OECD countries—including in the United States.
[68] Infurna, F.J., Okun, M.A., and Grimm, K.J. (2016). "Volunteering is Associated with Lower Risk of Cognitive Impairment." *Journal of the American Geriatric Society.* 2016 Nov;64(11):2263-2269.
[69] County Health Rankings & Roadmaps. "Social associations."

3.2B: Racial Segregation

While there are many ways for discriminatory practices to manifest in a community, de facto segregation in residential areas is one of the most common and quantifiable. Researchers have found a relationship between segregation and increasing mortality, increased risk of preterm birth for Black women, low birthweight independent of socioeconomic status, among others.[72,73,74] Kramer and Hogue (2009) establish four possible pathways by which residential segregation may affect health outcomes.[75]

1. **Individual socioeconomic status**: education, employment, and income
2. **Neighborhood socioeconomic status:** poverty concentration, crime, infrastructure decay
3. **Social capital:** Political influence of the Black community, social support networks
4. **Individual exposure and behaviors**[76]: stress, discrimination, substance use, nutrition

The basic idea of Kramer and Hogue's theory is that residential segregation, whether by race/ethnicity or by isolation, helps to determine the qualities of each of the four pathways to health outcomes in a geographic area. How racially segregated is the Greater Williamsburg area? The 2019 County Health Rankings utilize a "segregation index," which measures the "degree to which two or more groups live separately from one another in a geographic area."[77] The score is interpreted as the percentage of residents (either Black/White or Non-White/White) that would need to move from a census tract to another census tract in order to match the larger makeup of the county. A score of 0 means complete integration, while a score of 100 means completely segregated.

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[71] Virginia's association rate reflects the rate of association in Virginia overall, and not on average between counties.

[72] Laveist, T. A. (2003), Racial Segregation and Longevity among African Americans: An Individual-Level Analysis. Health Services Research, 38: 1719-1734. doi:10.1111/j.1475-6773.2003.00199.x

[73] Osypuk, T.L., Acevedo-Garcia, D. Are Racial Disparities in Preterm Birth Larger in Hypersegregated Areas?, *American Journal of Epidemiology*, Volume 167, Issue 11, 1 June 2008, Pages 1295–1304, https://doi.org/10.1093/aje/kwn043

[74] Grady, Sue C. Racial disparities in low birthweight and the contribution of residential segregation: A multilevel analysis, Social Science & Medicine, Volume 63, Issue 12, 2006.

[75] Kramer, Michael R; Hogue, Carol R. Is Segregation Bad for Your Health?, *Epidemiologic Reviews*, Volume 31, Issue 1, 1 November 2009, Pages 178–194, https://doi.org/10.1093/epirev/mxp001

[77] County Health Rankings & Roadmaps. "Residential segregation – Black/White" Virginia, 2019.

Table 3.2Ba: Segregation in Greater Williamsburg

Locality	Black/White Segregation Index	Non-White/White Segregation Index[78]
James City County	32%	26%
York County	32%	25%
City of Williamsburg	22%	22%
Virginia	50%	41%

Based on this index, the level of residential segregation in Greater Williamsburg is relatively low compared to the statewide average of 50 for Black/White Segregation and 41 for White/Nonwhite Segregation.

Figure 3.2Ba: Black/White Residential Segregation in Greater Williamsburg

Where in our community does the racial makeup of the census tract (neighborhood) deviate significantly from the racial makeup of the larger county? The map to the right reflects the percentage of people, black or white, who would need to move to a different census tract in order for the racial makeup of that tract to be consistent with that of the larger county. Again, values closer to zero represent greater integration, while values closer to 100 represent greater segregation. No census tract in Greater Williamsburg scores above 29, which reflects a relatively low rate of segregation compared to other localities in Virginia.

Black/White Segregation in Greater Williamsburg
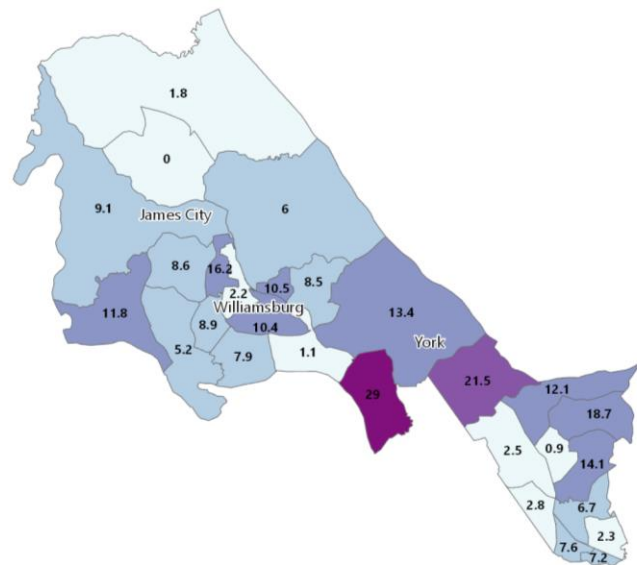
SOURCE: 2017 American Community Survey 5-year estimates

Racial segregation reflected in residential community patterns is an important factor to consider when assessing equality of opportunity across a community, but it is one part of the conversation. For a broader look at social disparities in Greater Williamsburg, this report references the Virginia Health Opportunity Index, which will be addressed later in this section.

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[78] The Non-white/White segregation index refers to the percent of the White *or* non-White population that would need to move from a census tract to another census tract in order to match the larger makeup of the county. This includes all races and ethnicities that are considered non-White, versus the measure in column 2 of Table 3.2Ba which only measures the residential segregation of the Black population relative to the White population.

3.2C: Social Cohesion

Relationships are at the heart of any discussion of the social context of a community. Social cohesion is one way that researchers conceptualize the role of relationships in mental and physical wellness. Whether marriage relationships, relationships with a significant other, work colleagues, family support systems, or friendships, having a solid set of social connections is correlated with better physical, mental, and emotional wellbeing.[79,80,81] There are various ways to quantify social support on the individual and community levels. This report will assess cohesion based upon teen pregnancy rates, prevalence of single parent households, and census-tract level data on older adults living alone in Greater Williamsburg. While these are all important indicators of social support in the community, the authors recognize that there are other viable and instructive measures. This is by no means an exhaustive analysis of social support networks in Greater Williamsburg.

Teen Pregnancy

The teen birth rate varies both within the Greater Williamsburg area and over time. As of 2016, the teen birth rate was 6.3 in James City County, 5.1 in the City of Williamsburg, 3.7 in York County, and 4.9 per 1,000 teen women (aged 10-19) in Greater Williamsburg overall. Between 2000 and 2016, the teenage birth rate in Greater Williamsburg decreased from 11.4 to 4.9—a 57% decrease.

Figure 3.2Ca: Teen Birth Rate (per 1,000 pop.) by Year (2000-2016)
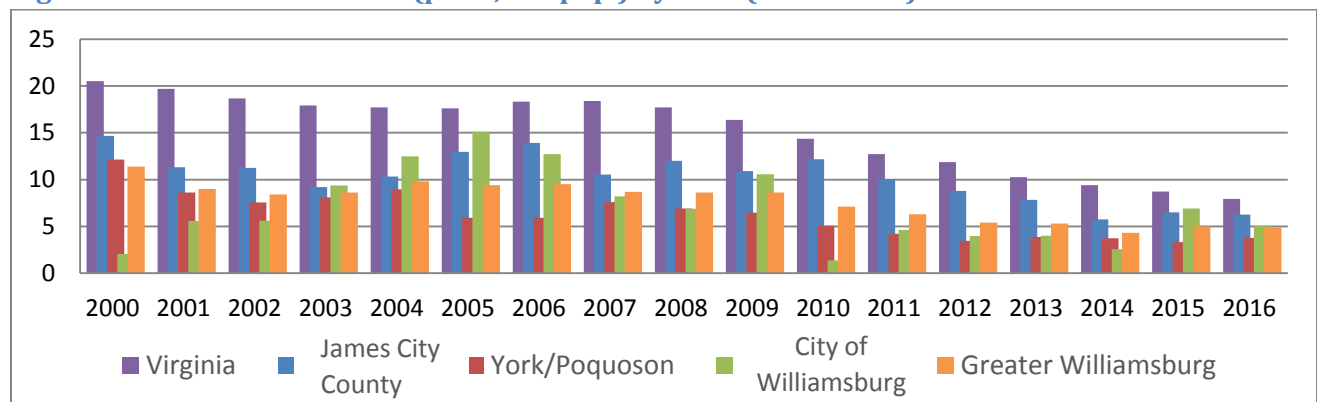
SOURCE: VDSS Local Department of Social Services Profile Report, SFY 2018

As illustrated by Figure 3.2Cb, the teen birth rate also varies by race. In particular, the teen birth rate for the non-White population is consistently and substantially higher than for the White population. As of 2016, the teen birth rate for the White population in Greater Williamsburg was 3.1 births per 1,000

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[79] Berkman and Syme find that stronger social networks are associated with reduced mortality over time. See Berkman LF, Syme SL. Social networks, host resistance, and mortality: a nine-year follow-up study of Alameda County residents. Am J Epidemiol. 1979;109(2):186–204.

[80] Social support networks contribute to stress resilience. See: Ozbay, F., Johnson, D. C., Dimoulas, E., Morgan, C. A., Charney, D., & Southwick, S. (). Social support and resilience to stress: from neurobiology to clinical practice. Psychiatry (Edgmont (Pa. : Township)), 4(5), 35–40.

[81] When people experienced involuntary job loss, those with stronger social support networks had fewer changes in cholesterol and fewer increases in symptoms of illness. This suggests that social support can mitigate the health effects of unemployment.
See: Gore, Susan. "The Effect of Social Support in Moderating the Health Consequences of Unemployment." Journal of Health and Social Behavior, vol. 19, no. 2, 1978, pp. 157–165. JSTOR, www.jstor.org/stable/2136531.

women between the ages of 10 and 19 compared to 14.6 for the Black population and 3.6 for those belonging to a race other than White or Black. Gaps between White and Black teen birthrates within localities are striking. For instance, there is a gap of 11.8 points between the White and Black teen birthrates in James City County and a gap of 15.3 points in Williamsburg.

Figure 3.2Cb: Teen Birth Rate (per 1,000 pop.) by Race and Locality (2016)
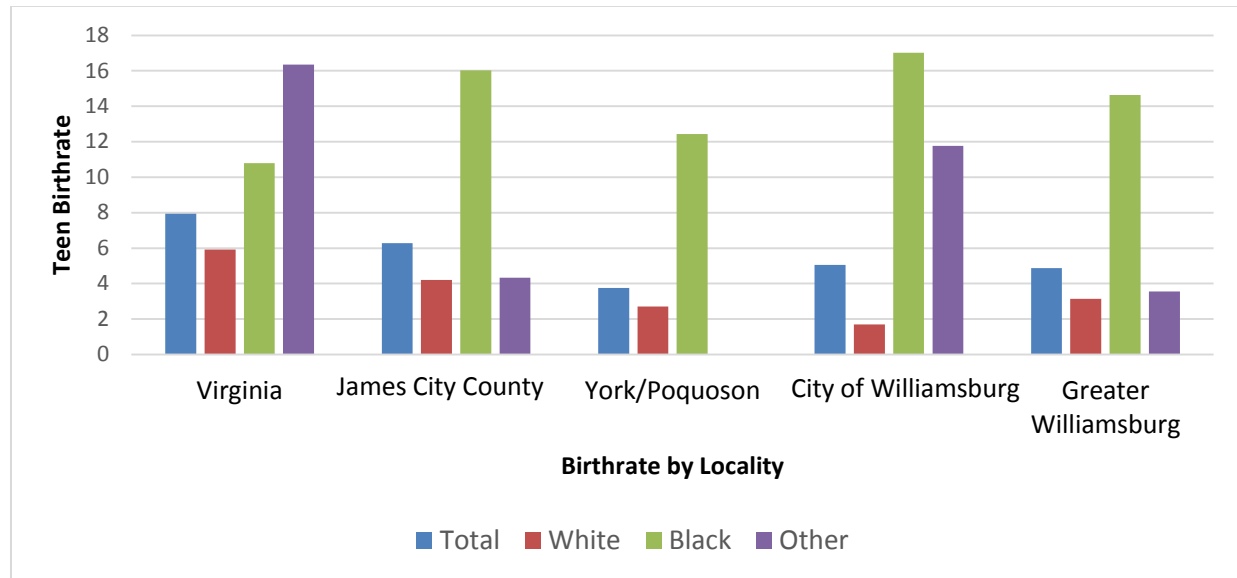
SOURCE: VDSS Local Department of Social Services Profile Report, SFY 2018

Observing trends in teen birth rates is important from a health policy perspective because teen mothers tend to have lower household incomes, are more likely to be eligible for public assistance, demonstrate lower educational attainment, are less likely to be married, and have children that lag in standards of early development. In turn, the children of teen mothers are at higher risk of experiencing poorer educational, behavioral, and health outcomes over the course of their lives[82].

Children in Single Parent Households
In Greater Williamsburg, an estimated 25,450 children (77.5% of children) live in a married couple household compared to 7,381 (22.5% of children) in a single parent household. Of those 7,381 children, 1,854 (25.1%) children live in father-only households while 5,527 (74.9%) live in mother-only households.

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[82] Pinzon, Jorge L.; Jones, Veronnie F.; COMMITTEE ON ADOLESCENCE, COMMITTEE ON EARLY CHILDHOOD, "Care of Adolescent Parents and Their Children," *Pediatrics* December 2012, VOLUME 130 / ISSUE 6 From the American Academy of Pediatrics Clinical Report

Figure 3.2Cc: Children Living in Single Parent Households vs Children Living in Married Couple Households by Locality
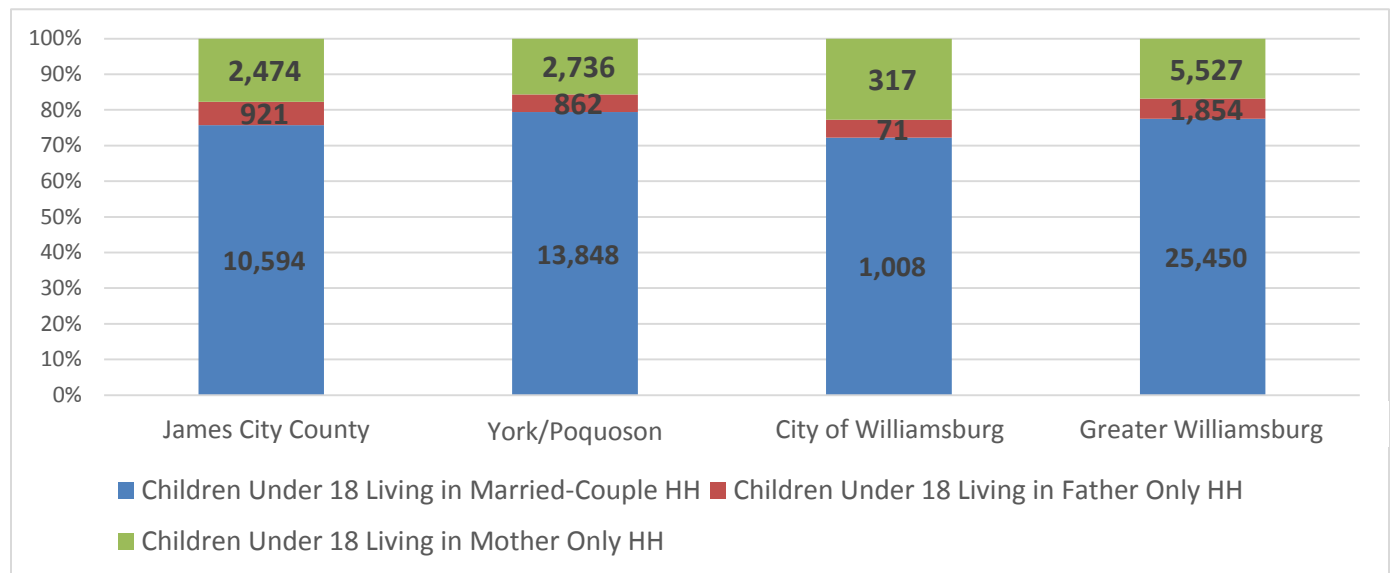
SOURCE: VDSS Local Department of Social Services Profile Report, SFY 2018

Social Isolation and Loneliness: Older Adults Living Alone

As per this section's discussion of segregation and single parent family units, social connection and household composition impact quality of life and health outcomes. Older adults who live alone in one-person households are particularly vulnerable to isolation and poor social connection. With Greater Williamsburg's older adult population growing quickly (see population projections in Section 1), it is critical to acknowledge the potential effects of social isolation and the loneliness that can come along with it. Numerous studies have identified social isolation and loneliness as markers for poorer health status among older adults.[83]

First, it is worth noting that social isolation and loneliness are not one and the same. Neuroscientist and loneliness researcher Dr. John T. Cacioppo differentiates the two by asserting that social isolation is the objective state of being or living alone. Loneliness, on the other hand, is the subjective feeling of distress associated with being separated from other people.[84] People who are objectively socially isolated by living alone are at a greater risk for loneliness, and it is loneliness that can have measurable adverse impacts on health.[85,86] The impact of loneliness on health can be especially harmful for older adults. In a

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[83] Singer, Clifford. "Health Effects of Social Isolation and Loneliness." Journal of Aging Life Care. Spring 2019. https://www.aginglifecarejournal.org/health-effects-of-social-isolation-and-loneliness/

[84] Cacioppo, John T et al. "The neuroendocrinology of social isolation." Annual review of psychology vol. 66 (2015): 733-67. doi:10.1146/annurev-psych-010814-015240

[85] Ibid.

[86] Smith, Kimberley, J., and Christina Victor. "Typologies of Loneliness, Living Alone and Social Isolation, and Their Associations with Physical and Mental Health." Ageing and Society, 2018, pp. 1–22., doi:10.1017/S0144686X18000132.

2011 longitudinal study, researchers found that loneliness was associated with physical inactivity, smoking, high blood pressure and high levels of inflammation indicators.[87] Another study found that older adults who reported social isolation or loneliness demonstrated poorer cognitive function.[88] Further documenting the potential negative health impacts of loneliness, a study found that over a five-year period, loneliness was associated with meaningful increases in systolic blood pressure. The increase in systolic blood pressure attributed to loneliness was "independent of age, gender, race/ethnicity, cardiovascular risk factors, medications, health conditions…the effects of depressive symptoms, social support, perceived stress, and hostility."[89] This implies that addressing loneliness by itself as a risk factor for poor health outcomes is an important public health concern, especially for the older adult population.

According to a recent report from the Pew Research Center, the share of older adults living alone in the United States declined slightly between 1990 and 2014[90] This decline follows nearly a century of persistent growth in the share of the older adult population living alone. Pew finds that the group that has driven the decline, women ages 65 to 84, are increasingly living with spouses or children as they age.[91] This is a positive, though small development. How does the older adult population in Greater Williamsburg compare?

Table 3.2Ca: Selected Housing Characteristics of the 65+ Population

Locality	65+ Living Alone	65+ Living with Spouse	65+ Living with Unmarried Partner	65+ Living with Other Relatives	65+ Living with Non-Relatives
James City County	3,545 (21.0%)	12,336 (70.0%)	299 (1.7%)	1,295 (7.5%)	86 (0.5%)
York County	1,857 (20.0%)	6,586 (66.5%)	89 (0.9%)	1,139 (11.5%)	109 (1.1%)
City of Williamsburg	635 (30.8%)	1,217 (59.1%)	35 (1.7%)	107 (5.2%)	47 (2.3%)
Greater Williamsburg	6,037 (21.3%)	4,105 (68.0%)	6 (1.0%)	525 (8.7%)	48 (0.8%)

SOURCE: 2017 American Community Survey 5-Year Estimates

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[87] Shankar, A., McMunn, A., Banks, J., & Steptoe, A. (2011). Loneliness, social isolation, and behavioral and biological health indicators in older adults. Health Psychology, 30(4), 377-385. http://dx.doi.org/10.1037/a0022826

[88] Cacioppo J.T., Cacioppo, S. Older adults reporting social isolation or loneliness show poorer cognitive function 4 years later Evidence-Based Nursing 2014;17:59-60.

[89] Hawkley, Louise C et al. "Loneliness predicts increased blood pressure: 5-year cross-lagged analyses in middle-aged and older adults." Psychology and aging vol. 25,1 (2010): 132-41. doi:10.1037/a0017805

[90] The total percentage of older adults (65+) living alone decreased from 29% to 26% from 1990-2014. See: Stepler, Renee (2016). "Smaller Share of Women Ages 65 and Older are Living Alone: More are living with spouse or children." Pew Research Center.

[91] In part due to the increased life expectancy of men, which decreases the likelihood of women being widowed.

Figure 3.2Cb: Selected Housing Characteristics of the 65+ Population
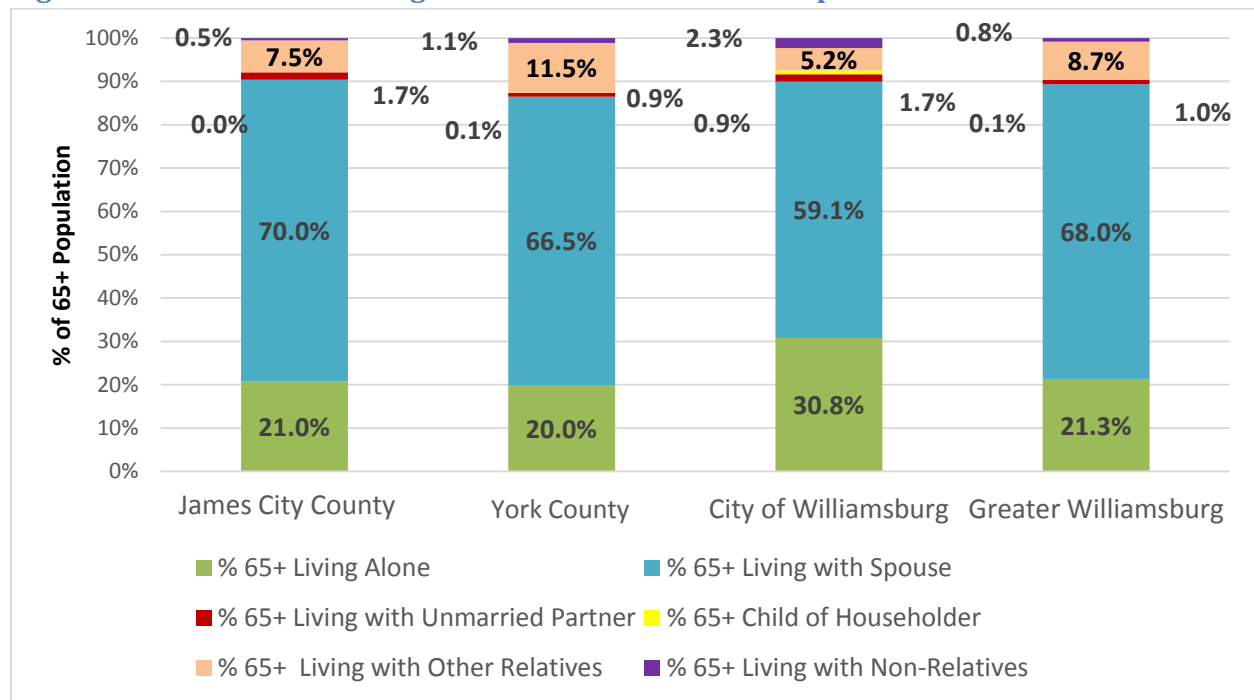
SOURCE: 2017 American Community Survey 5-Year Estimates

As of 2014 in the United States, 26% of older adults lived alone.[92]   An estimated 32% of women age 65+ lived alone compared to 18% of men in the same age group. Within the population of older adults who live alone, women have historically made up a disproportionate share—69% of older adults who lived alone were women in 2014—a 31 percentage point gap. The gap between men and women living alone in Greater Williamsburg is even greater. Of the 21.3% of the 65+ population that lives alone in Greater Williamsburg, 75.5% are women compared to 24.5% men. The Pew report speculates that the gender disparity stems from a few possible sources including women's longer life expectancy and the relatively greater propensity of divorced or widowed older adult men to remarry.

Table 3.2Cc: Older Adults (65+) Living Alone in Greater Williamsburg

Locality	% of Total 65+ Males Living Alone	% of Total 65+ Females Living Alone	Older Adults Living Alone	% of Older Adults Living Alone
James City County	9.9%	29.7%	3,545	21.0%
York County	10.7%	28.2%	1,957	20.0%
City of Williamsburg	25.7%	32.4%	635	30.8%
Greater Williamsburg	11.3%	29.4%	6,137	21.3%

SOURCE: 2017 American Community Survey 5-year Estimates

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[92] Stepler, 2016.

Older Adults Living Alone in Greater Williamsburg

Source: 2017 American Community Survey 5-year Estimates
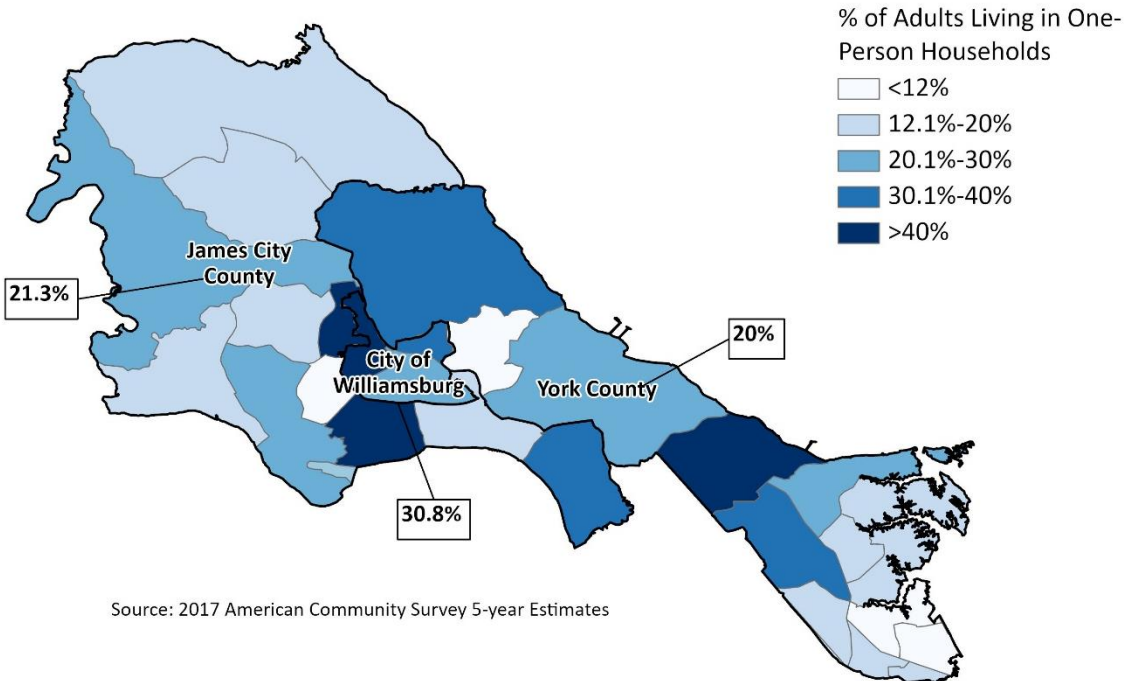
Correlation between Life Expectancy and Geography

More and more, researchers are recognizing the importance of where people live as it relates to health outcomes and overall life expectancy. This is one illustration of the practical impact of the Social Determinants of Health. A 2017 study in *The Lancet* tracked changes in life expectancy by neighborhood/census tract in King County, Washington, from 1990 to 2014. Researchers found that county-level estimates of life expectancy tended to mask inequalities at the census tract level and that the correlation between geography on life expectancy were persistent over time.[93] This means that it is important to look at communities in pieces in order to see variations in life expectancy and other health outcomes that may have place-based determinants. Often, disparities can be addressed by considering barriers to access to care, services, and even healthy food at the neighborhood level.

Average life expectancy in the state of Virginia is 79.4. This compares to an average of 81.0 in James City County, 83.3 in York County, and 89.9 in the City of Williamsburg.[94] As researchers found in King County, WA, however, there are significant census tract level variations that make up these county level averages. See Figure 3.2Cf below for life expectancy by census tract in Greater Williamsburg.

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[93] Dwyer-Lindgren, L et al. Variation in life expectancy and mortality by cause among neighborhoods in King County, WA, USA, 1990–2014: a census tract-level analysis for the Global Burden of Disease Study 2015, The Lancet Public Health, Volume 2, Issue 9, 2017, Pages e400-e410, ISSN 2468-2667, https://doi.org/10.1016/S2468-2667(17)30165-2.

[94] 2019 County Health Rankings. Researchers used data from 2015-2017 to construct this estimate.

Life Expectancy

Average life expectancy (years)

< 77

77 - 81

82 - 85

> 85

James City County

Tract 80304

Williamsburg

Tract 80102

York County

86

74

Source: VDH Division of Health Statistics (2014)

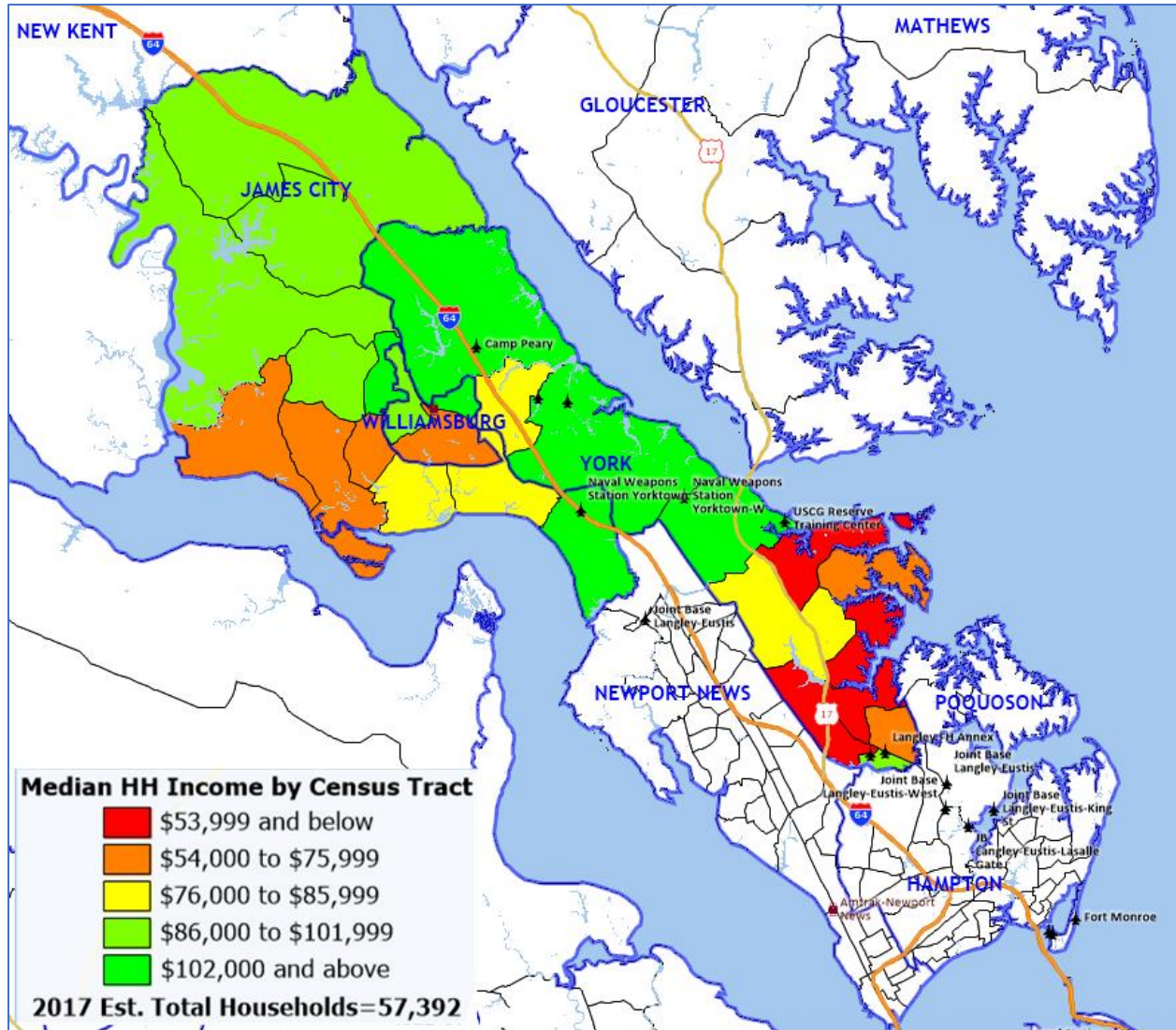## Estimated Median Household Income by Census Tract

Looking at median household income by census tract also gives an idea of the specific areas within localities where there are higher proportions of low-income households.

Figure 3.3b: Estimated Median Household Income by Census Tract [95]

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[95] Community Health Solutions analysis of U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates.

Estimated Percentage of Households below the Federal Poverty Level by Census Tract

The estimated percentage of households below poverty reflects a similar pattern as the map of median household income. Once again, this reflects specific census tracts within the localities where citizens are dealing with a very influential Social Determinant of health, i.e. household income.

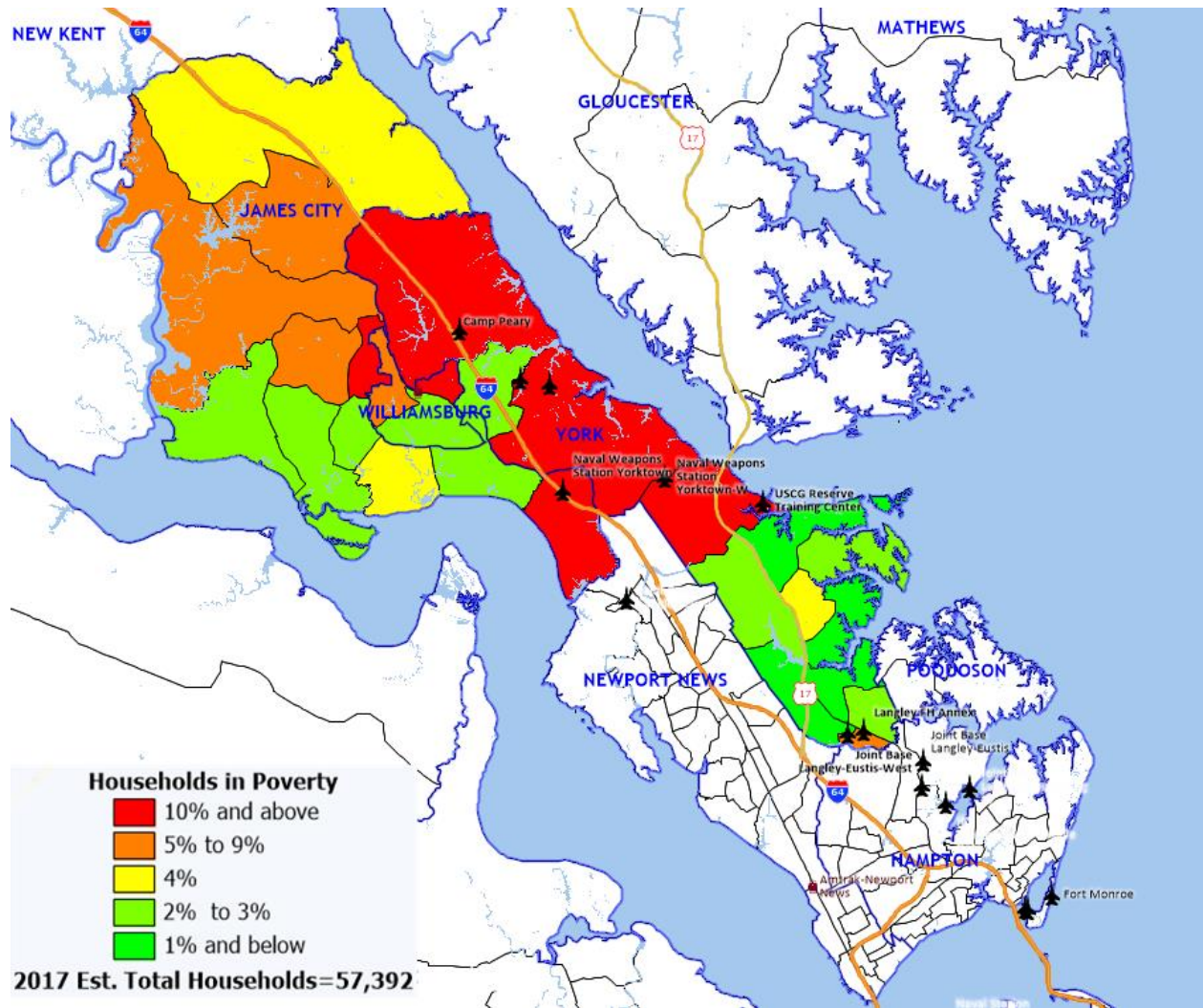**Figure 3.3c: Estimated Percentage of Households below the Federal Poverty Level by Census Tract[96]**

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[96] Community Health Solutions analysis of U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates.

Section 3.4: Neighborhood and Built Environment

The physical neighborhood or "built" environment refers to the resources that a community has to provide physically safe places that promote opportunities for healthy growth. The Healthy People 2020 assigns four factor indicators to the Neighborhood and Built Environment category: 1) Access to Foods that Support Healthy Eating Patterns, 2) Crime and Violence, 3) Environmental Conditions, and 4) Quality of Housing. This portion of the report will address the first category, Access to Foods that Support Healthy Eating Patterns, as the other three factors are outside of the scope of this report.

3.4A: Access to Foods that Support Healthy Eating Patterns

Food insecurity is something people and households experience when they lack access to an adequate amount of nutritious food because of limited financial resources and/or geographic access to healthy food sources. According to the Economic Research Service, 11.8% of U.S. households were food insecure in 2017.[97] People in households that are food insecure report varying degrees of worry about having enough food. The importance of having access to an adequate amount of healthy food cannot be overstated, as there are significant negative health consequences associated with food insecurity. A 2015 *Health Affairs* report consolidates recent research findings on the health effects of food insecurity for three age groups: Children, "Nonsenior" Adults, and "Senior" (Older Adults).[98]

- For children, food insecurity is associated with iron deficiency anemia, behavioral problems, asthma, adolescent suicidal ideation, and increased risk of tooth decay.
- For nonsenior adults, food insecurity is associated with higher rates of depression among mothers, oral health problems, iron deficiency in pregnant women, higher rates of diabetes, and increased risk of hypertension and hyperlipidemia.
- For senior (older) adults, food insecurity is associated with lower nutrient intake, more difficulty with functional activities of daily living, and increased likelihood of reporting "poor" health status. [99]

What is the level of food security in Greater Williamsburg? This report uses the USDA's Map the Meal Gap Food Environment Index and food insecurity measure to assess the degree to which the Greater Williamsburg population has inadequate access to healthy food.[100]

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[97] United States Department of Agriculture, Economic Research Service. Food Security in the U.S. Key Statistics and Graphs. Accessed June 14, 2019. https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics/

[98] The *Health Affairs* article does not specify a single threshold for older adulthood, as the pieces of research cited within vary in their choice of threshold.

[99] Ziliak, James P. and Gundersen, Craig. "Food Insecurity and Health Outcomes." November 2015. https://doi.org/10.1377/hlthaff.2015.0645

[100] These figures come directly from the 2019 County Health Rankings data and cover the time period between 2015 and 2016.

Table 3.4Aa: Greater Williamsburg Food Environment Index, % of Population that is Food Insecure, and % of Population with Limited Access to Healthy Foods

Locality	% Food Insecure	% with Limited Access to Healthy Foods	Food Environment Index Score
Virginia	11%	4%	8.9
James City County	8%	7%	8.6
York County	8%	4%	8.9
City of Williamsburg	16%	4%	7.5

The Food Environment Index score ranges from 0 (worst) and 10 (best) and considers both the percentage of the population that is food insecure (% Food Insecure in Table 3.3Aa) and the percentage of low income households (annual family income that is below 200% FPL) with low access to healthy foods (those who do not live within a certain distance of a grocery store or supermarket).[101] Greater Williamsburg localities do not deviate significantly from the Virginia average for any of the three food insecurity metrics.

Table 3.4Ab: Percentage of Selected Populations with Low Access to Grocery Stores (2015)

	James City County	York County	City of Williamsburg
Overall Population (%)	35.0%	31.7%	15.7%
Older Adults (60+) (%)	7.6%	5.3%	3.6%
White (%)	27.7%	25.5%	13.3%
Black (%)	5.1%	3.8%	1.0%
Hispanic (%)	1.6%	1.1%	0.7%
Asian (%)	0.7%	1.3%	0.8%
American Indian or Alaska Native (%),	0.1%	0.1%	0.0%
Hawaiian or Pacific Islander (%)	0.0%	0.1%	0.0%
Multiracial (%)	1.4%	1.0%	0.6%

SOURCE: USDA Food Environment Atlas, "Low Income and Low Access to Store, 2015"

Section 3.5: The Virginia Health Opportunity Index (HOI)

Whereas Healthy People 2020 is the framework established and used by the U.S. Department of Health and Human Services[102], the Virginia Health Opportunity Index is a state-specific framework compiled by the Virginia Department of Health, and which sets up comparative indices to rank how Virginia localities are doing relative to each other on a number of dimensions. [103]

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[101] The threshold for closeness to a grocery store varies for rural and urban areas. In rural areas, it means living less than 10 miles from a store, while in urban areas it means living less than a mile away. See County Health Rankings and Roadmaps. "Food environment index." https://www.countyhealthrankings.org/explore-health-rankings/measures-data-sources/county-health-rankings-model/health-factors/health-behaviors/diet-exercise/food-environment-index

[102] https://www.healthypeople.gov/

[103] http://www.vdh.virginia.gov/health-equity/virginia-health-opportunity-index-hoi/

The HOI methodology incorporates thirteen indicators that are organized into four categories: economic opportunity[104], consumer opportunity[105], community environment[106], and wellness disparity[107]. The ranking levels range from 1 to 134, using a comparative ranking of the 134 localities in the state. The HOI aims to provide a holistic view of local-level wellbeing in Virginia through the lens of equity. We use HOI rankings to identify how Greater Williamsburg localities are doing compared to each other and compared to the rest of Virginia.

Table 3.4Aa displays the Virginia HOI rankings and the indicator ranks of the three localities of Greater Williamsburg relative to other localities, as of June 2019. York County is considered to have a "very high" opportunity level which leads to its overall HOI rank at 16th in the state. This ranking is impacted by "very high" consumer opportunity and economic opportunity levels and "high" community environment opportunity and wellness disparity ranking. York County is followed by the City of Williamsburg, which is considered to have a "high" opportunity level at 34th in the state. This ranking is helped by a "very high" community environment ranking and hurt by "very low" economic opportunity and wellness disparity rankings. Next, James City County has a "high" opportunity level at 43rd in the state. This ranking is impacted by a "very low" ranking in wellness disparity but offset by "high" rankings in consumer opportunity.

Table 3.5Aa: Health Opportunity Index

	HOI Rank	Economic Opportunity	Consumer Opportunity	Community Environment	Wellness Disparity
James City County	43	59	25	53	122
York County	16	21	11	49	48
City of Williamsburg	34	123	22	9	112

SOURCE: VDH Virginia HOI (2019)

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[104] Economic Opportunity: Includes an employment accessibility indicator based on distance of possible employment from residential areas; an income inequality indicator which measures income distribution; and a job participation indicator, which measures the percent of those aged 16-64 years that are in the labor force.

[105] Consumer Opportunity: Measures access to basic consumer resources. Includes an affordability indicator which measures the proportion of income that is spent on housing and transportation; an education indicator which measures the average years of school that members of the community participate in; a food accessibility indicator which measures the accessibility of vulnerable populations to food; and a material deprivation indicator, which measures overcrowding, unemployment, percentage of people with no vehicle, and the percentage of persons who rent instead of buy homes.

[106] Community Environment: Measurements that include an Air Quality Indicator that considers EPA measures of air pollution; a population churning indicator that measures population turnover; a population density indicator; and a walkability indicator based on residential density, employment density, land use diversity, and accessibility.

[107] Wellness Disparity: Measures inequalities through: an access to care indicator that considers access to primary care, and means to pay for care; and a segregation indicator, which measures community diversity and distance between areas with different racial and ethnic profiles.

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