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# EDUCATION

2005-2009 AMERICAN COMMUNITY SURVEY

May 2011



ARLINGTON  
VIRGINIA

Department of Community Planning, Housing and Development  
Planning Division  
Planning Research and Analysis Team

# ***Arlington Vision***

**“Arlington will be a diverse and inclusive world-class urban community with secure, attractive residential and commercial neighborhoods where people unite to form a caring, learning, participating, sustainable community in which each person is important.”**

**— Arlington County Board**

# INTRODUCTION

## 2009 American Community Survey

This report, *Education, 2005-2009 American Community Survey*, is the second in a series to examine the 2005-2009 American Community Survey (ACS) 5-Year Estimates for Arlington County, Virginia. This report compares the estimates of the 5-Year ACS to the 2000 Census long form survey. Other report topics in this series include: age, households and families, race and ethnicity, income, employment, poverty, housing, language, commuting, and foreign population.

The ACS is an annual survey, administered by the U.S. Census Bureau, that samples 3 million residential addresses throughout the United States. It replaces the long-form survey previously used in the decennial census. The 2005-2009 ACS is not an average of five years nor 60 months, rather the data collected are aggregated and spread evenly across the entire period represented without over-representing any particular month or year.

### Availability

The ACS provides time period estimates on population characteristics that were collected over one, three, and five years. Figure 1 shows the collection dates for each of the published ACS data products. The data produced in the one-year estimate are most current to the year of collection. However, the 5-year estimate provides data that are not as current but more precise and reliable, due to a larger sample size.

Also shown in Figure 1, each period estimate is only published for areas with minimum population requirements. For example, the one-year estimate provides data annually for city/county geographic areas with populations of at least 65,000. The 2005-2009 ACS 5-year estimate, released in December 2010, is the first set of ACS data released at the Census tract and block group geographic level since the 2000 Census.

**Figure 1: ACS Published Data**

ACS Estimate	Data Collected	Published for Areas
2009 ACS (1-Year)	1/1/2009-12/31/2009	Populations 65,000+
2009 ACS (3-Year)	1/1/2007-12/31/2009	Populations 20,000+
2009 ACS (5-Year)	1/1/2005-12/31/2009	Almost any size

### Sample Size

While the ACS replaces the decennial census long form, it is administered to a much smaller sample of the population. The 2005-2009 ACS 5-Year Estimate, data used for this and subsequent topic reports, sampled 12,285 individuals out of an estimated 206,405 Arlington residents. This sample size represents about 5.95 percent of Arlington's population. The sample size for the 2000 Census long form was more than double the ACS sample at 12.8 percent.

### Margin of Error and Coefficients of Variation

Since the period estimates are based on a sample of the population, there is a margin of error (MOE) associated with each estimate. The MOE provides information on how much sampling error is associated with each estimate. A larger MOE indicates a less reliable estimate, relative to the size of the estimate. Since estimates vary, it can be difficult to decipher whether an estimate is reliable using the MOE.

Coefficients of variation (CV) are values that represent a percentage of variability and determine the reliability for an estimate. The CV is a ratio of the standard error to the estimated value. Estimates with lower CV are more reliable. For this series of reports, the CV will be used to determine if the estimates are reliable. Estimates with CV values below 5.00 are considered to be very reliable. For this and subsequent topic reports, estimates with CV values between 5.00 and 15.00 are considered slightly less reliable. Estimates with CV values higher than 15.00 are not considered reliable.

### Significance Testing

Significance testing is important for determining whether the difference between the 2000 Census and 2005-2009 ACS 5-Year estimates are likely due to random chance (sampling error) or likely represent a true difference that exists in the population as a whole. This report identifies the statistical significance of the change in the estimates at a 90 percent confidence level. The U.S. Census Bureau uses standards set by the U.S. Office of Management and Budget for the categories of race and ethnicity listed on the survey.

# EDUCATION - OVERVIEW

2005-2009 American Community Survey

The U.S. Census Bureau collects information on school enrollment and educational attainment to assess the socioeconomic condition of the population. The information obtained by asking the respondent if they have attended school in the last three months and what is the highest degree obtained is used for educational, governmental, and employment purposes. School districts use these data to plan for resources to provide classes to adults who have not completed high school. Employers can use this educational information to determine where to locate new jobs, ultimately stimulating economic growth.

The 2005-2009 ACS 5-Year Estimate reports that 43,953 residents age 3 years and over are enrolled in school. This represents 21.3 percent of the total population. Figure 2 shows the school enrollment by education level. Over half (56.2 percent) of the enrolled students are in grade levels Pre-K through High School. Of these students the largest share

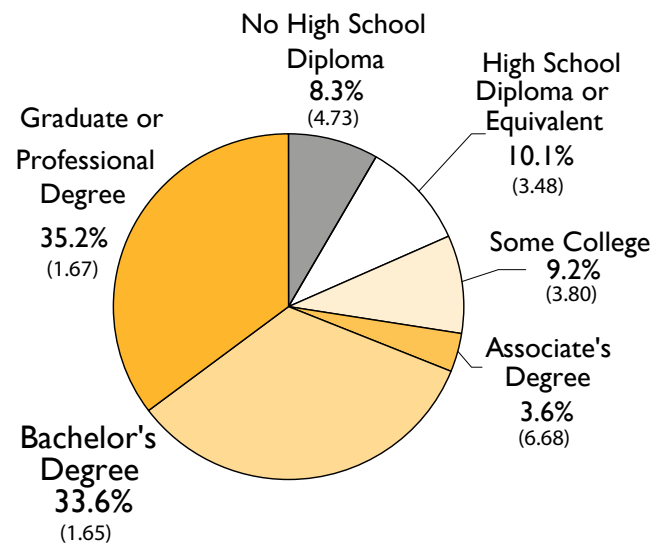
is elementary and middle school combined making up 32.3 percent of the enrolled population. Pre-K and High School enrollment represent 8.2 and 15.7 percent respectively. The remaining students are those who are enrolled in college. Undergraduate and graduate enrollment combined represents 43.7 percent of enrolled students. All enrollment estimates are considered reliable, based on low CV values.

Educational attainment estimates are produced for the population age 25 and over. The largest share of this population are those that have a graduate or professional degree at 35.2 percent. When the population that has attained graduate or professional degrees is combined with those that hold a bachelors degree, they make up almost 70 percent of residents age 25 and over. Figure 3 shows that only 8.3 percent of residents have no High School diploma. All educational attainment estimates are considered reliable, due to low CV values.

Figure 2: School Enrollment (3 Years and Over)

School Enrollment	Students	Percentage	CV
Pre-K	3,612	8.2%	(5.97)
Elementary/Middle(K-8)	14,218	32.3%	(3.45)
High School (9-12)	6,915	15.7%	(4.40)
College - Undergraduate	9,628	21.9%	(4.65)
College - Graduate	9,580	21.8%	(4.82)
Total Enrolled	43,953	100.0%	(0.52)

Figure 3: Educational Attainment



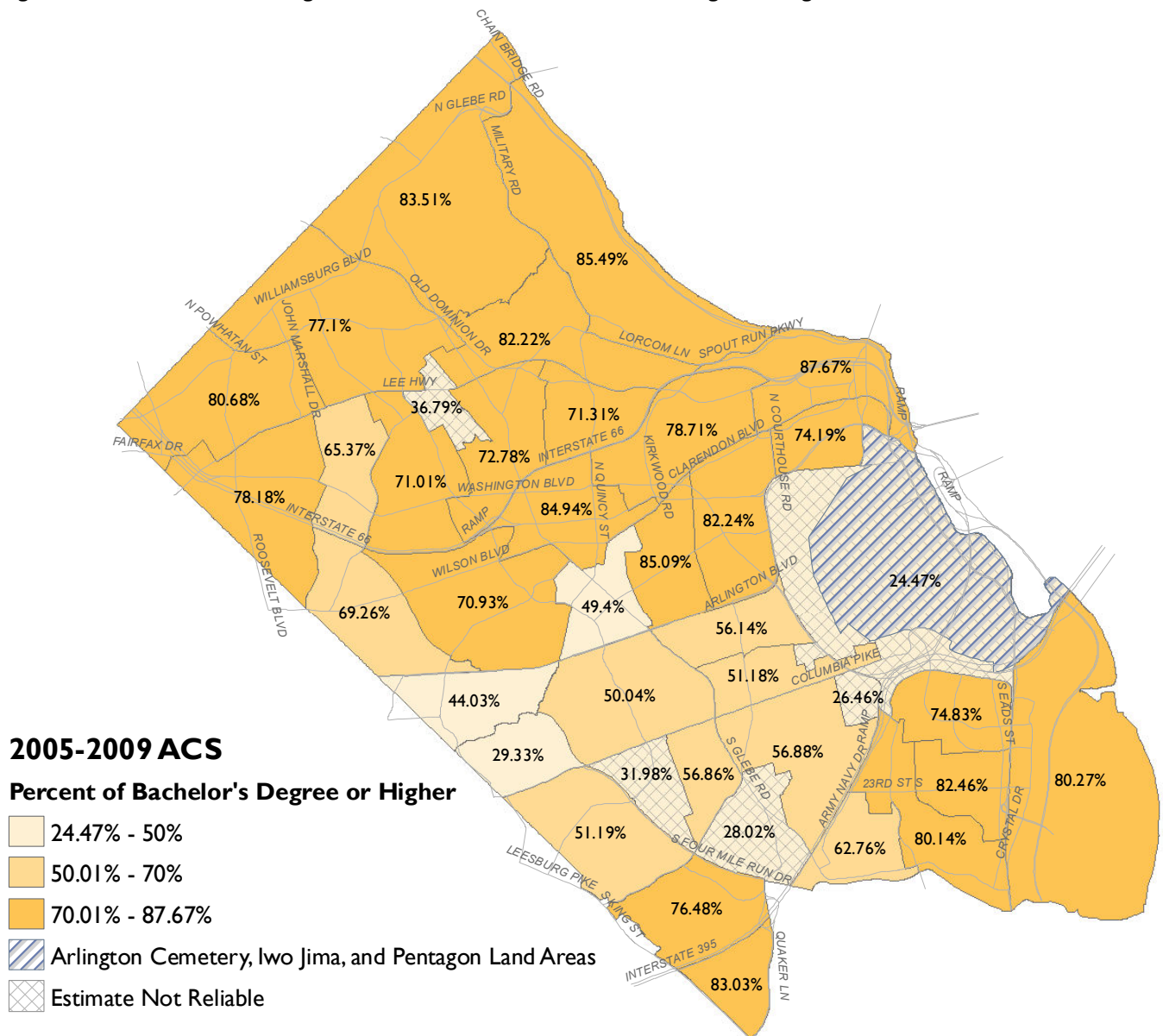
# EDUCATIONAL ATTAINMENT

2005-2009 American Community Survey

According to the 2005-2009 ACS estimate, 68.8 percent of residents age 25 years and older attained a bachelor's degree or higher. The map below shows the percentage of residents that have a bachelor's degree or higher per census tract. A large portion of census tracts have 70 percent of their population with a bachelor's degree or higher.

The lowest educational attainment areas include the tracts surrounding Columbia Pike. The tract adjacent to Langston Brown Community Center, in North Arlington, also has a low percentage of those that have attained a bachelor's degree or higher. However, due to a high CV value, the estimate of 36.79 percent is not considered reliable.

Figure 4: Percent of Residents Age 25 Years and Older with a Bachelor's Degree or Higher



Coefficient of Variation (CV) = Percent of Variability  
 Reliable = CV < 5.00    Less Reliable = 5.00 < CV < 15.00    Not Reliable = CV > 15.00

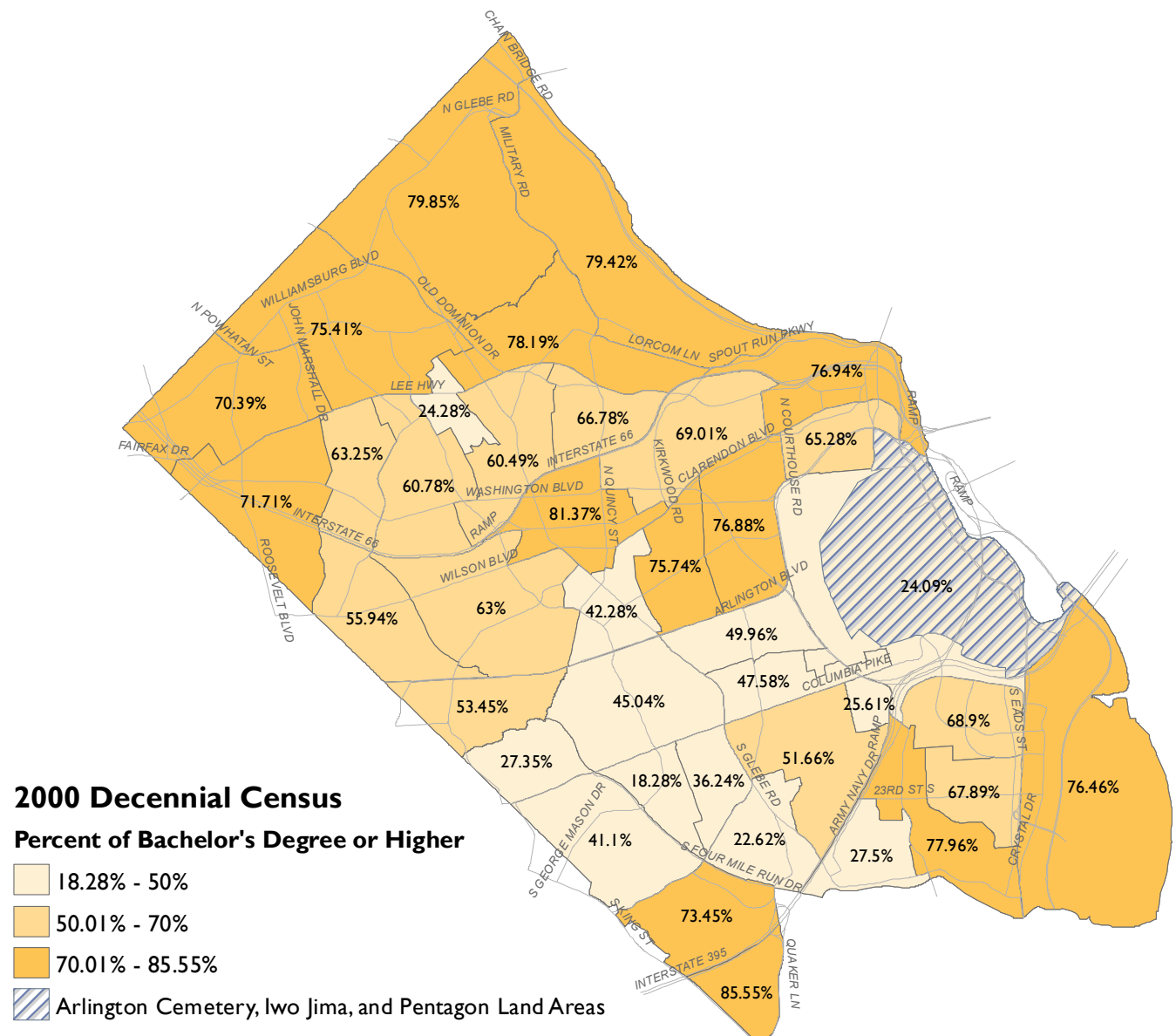
# EDUCATIONAL ATTAINMENT

2000 Decennial Census

In 2000, approximately 60 percent of residents age 25 years and older had attained a bachelor's degree of higher. The map below shows this distribution throughout the county by census tract. The tracts in the areas of north Arlington, southern part of the Rosslyn-Ballston corridor, Fairlington, and portions

of Crystal and Pentagon Cities have the highest percentage of residents who have attained a bachelor's degree or higher. Overall, the percentages of those with a bachelor's degree or higher in 2000 is lower than from 2005-2009.

Figure 5: Percent of Residents Age 25 Years and Older with a Bachelor's Degree or Higher



# GENDER

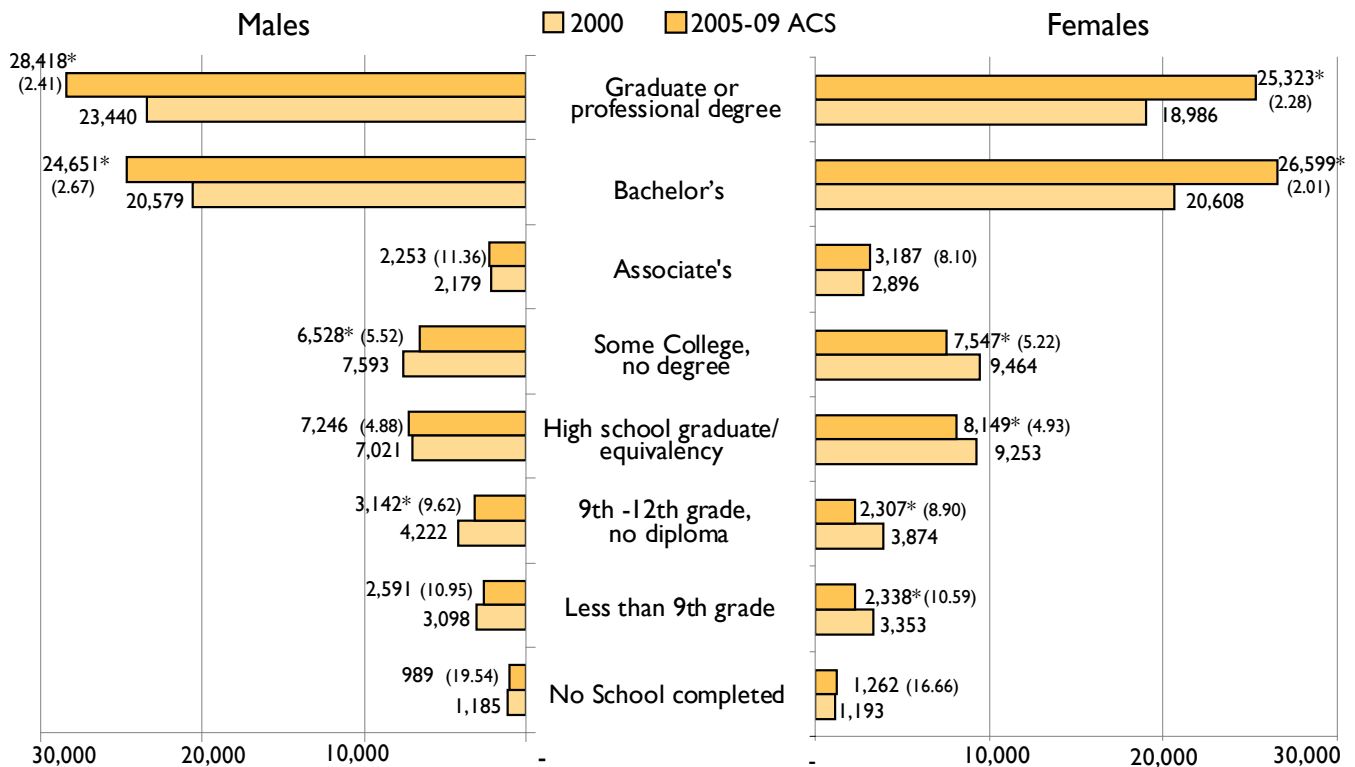
The distribution of educational attainment by gender is fairly similar among males and females age 25 years and older. According to the 2005-2009 ACS, 70 percent of the male population and 67.7 percent of female population had attained a bachelor's degree or higher. There are an estimated 1,147 more males with a higher education than females.

More interesting is the shift that has occurred since 2000. For the male population age 25 and older, from 2000 to 2005-2009 there were declines in the educational attainment categories of no school completed, less than 9th grade, 9th-12th grade no diploma, and some college. The attainment categories of high school graduate/equivalency, associate's degree, bachelor's degree, and graduate or professional degree all saw increases from 2000 to 2005-2009. Even though 9th-12th grade no diploma, some college,

bachelor's degree, and graduate or professional degree were the only categories with statistically significant changes from 2000 to 2005-2009. The overall trend shows that more of the male population are attaining higher educational levels.

The same is true for the female population. For the female population age 25 years and older, from 2000 to 2005-2009 there were declines in the attainment categories of less than 9th grade, 9th-12th grade no diploma, high school graduate/equivalency, and some college. The percentage of females with associate's, bachelor's, and graduate or professional degrees increase by 14.0 percent, 29.1 percent, and 33.4 percent respectively. Also since 2000, the number of females with a bachelor's degree or higher grew by 31.1 percent, compared to the change among males of 20.6 percent.

Figure 6: Educational Attainment by Gender - Age 25 Years and Older



\*Statistically Significant

Coefficient of Variation (CV) = Percent of Variability

Reliable = CV < 5.00

Less Reliable = 5.00 < CV < 15.00

Not Reliable = CV > 15.00

# AGE

The 2005-2009 ACS reports that 43,953 residents age 3 and over were enrolled in an educational program. Of these residents 51.5 percent were under the age of 18. Among all of the age groups, the highest share, 9,234 or 21.0 percent of those enrolled, were in the 25-34 years age cohort. 9.5 percent of those enrolled are in the 35 years and over age group.

In 2000, 22.4 percent of all residents were enrolled in an educational program, compared to 22.1 percent from

2005-2009. The overall percentage of the population in schools is fairly similar; however the distribution among the age groups has changed. Of those enrolled, the age groups of 3 and 4 years, 18 and 19 year, and 25 to 34 years, increased by 24.5 percent, 38.2 percent, and 26.1 percent, respectively. The age groups that had the largest percentage increase since 2000 were also determined to be statistically significant.

Figure 7: Enrollment by Age - Age 3 Years and Older

	2000		2005-2009 ACS			Change		Statistically Significant
	Persons	Percent	Persons	Percent	CV	Persons	Percent	
Total Enrolled	40,996	100.0%	43,953	100.0%	(0.52)	2,957	7.2%	YES
3 and 4 years	2,507	6.1%	3,120	7.1%	(14.88)	613	24.5%	NO
5 to 9 years	8,545	20.8%	7,858	17.9%	(3.24)	-687	-8.0%	YES
10 to 14 years	7,513	18.3%	7,606	17.3%	(4.05)	93	1.2%	NO
15 to 17 years	3,954	9.6%	4,057	9.2%	(5.66)	103	2.6%	NO
18 and 19 years	1,948	4.8%	2,693	6.1%	(9.36)	745	38.2%	YES
20 to 24 years	4,647	11.3%	5,216	11.9%	(6.03)	569	12.2%	NO
25 to 34 years	7,322	17.9%	9,234	21.0%	(4.05)	1,912	26.1%	YES
35 years and over	4,560	11.1%	4,169	9.5%	(6.54)	-391	-8.6%	NO

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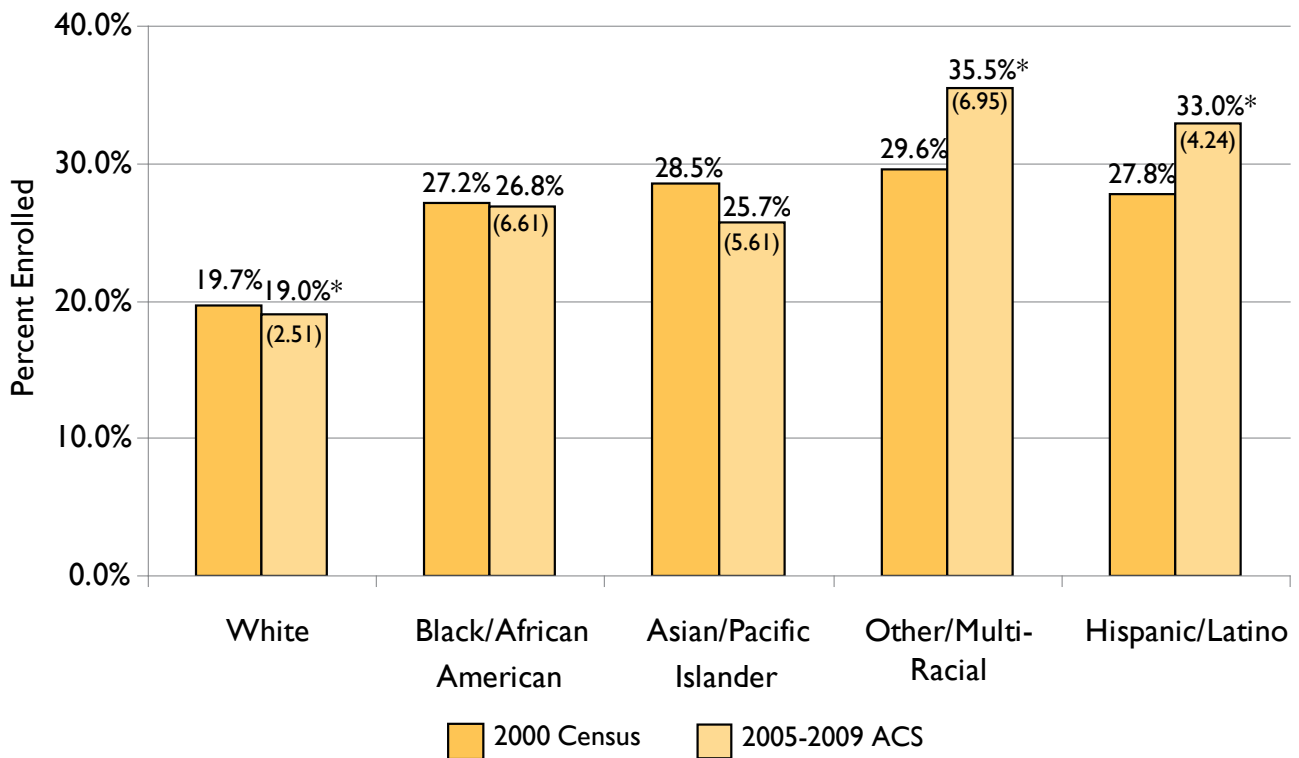


# RACE - SCHOOL ENROLLMENT

The 2005-2009 ACS reports the enrollment of those age 3 years and older by race and Hispanic or Latino origin. Figure 8 below shows the percentage of each race/origin which is enrolled in an educational program. All of the ACS estimates below are considered reliable due to low CV vales. The estimates show that 19.0 percent of the White population is enrolled in an educational program. This is compared to 26.8 percent of the Black/African Americans, 25.7 percent of Asian/Pacific Islanders, 35.5 percent of Other/Multi-Racial, and 33.0 percent of those of Hispanic or Latino origin.

Since 2000, the percent of the White population enrolled in school decreased by 7.9 percent. The percentage of Black/African Americans and Asian/Pacific Islanders enrolled also decreased, however the changes were not determined to be statistically significant. The percentage of the Other/Multi-Racial and the Hispanic or Latino origin populations enrolled in an educational program increased by 19.7 percent and 14.6 percent.

Figure 8: Enrollment by Race - Age 3 Years and Older



\*Statistically Significant

Coefficient of Variation (CV) = Percent of Variability

Reliable = CV < 5.00

Less Reliable = 5.00 < CV < 15.00

Not Reliable = CV > 15.00

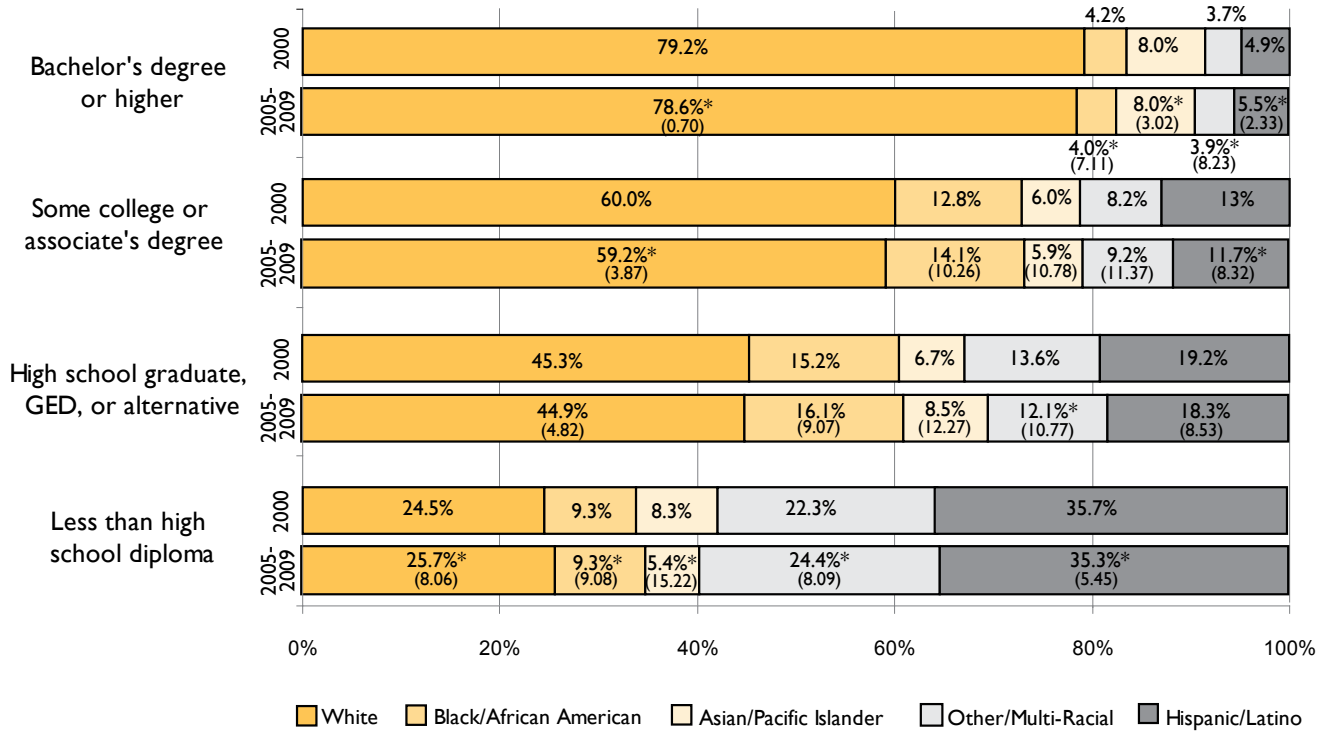
# RACE - EDUCATIONAL ATTAINMENT

Educational attainment by race and Hispanic or Latino origin is also estimated by the 2005-2009 ACS. Figure 9 below shows this distribution for the 2005-2009 ACS and the 2000 Census. The 2005-2009 ACS estimates show that as the educational attainment level increased, the percentage of the White population achieving this attainment increased. And the non-White population decreases. For example, the category of those that have not achieved a high school diploma is composed of 25.7 percent white residents and 74.4 percent non-white residents. Conversely, the category of bachelor's degree or higher is composed of 78.6 percent of the

White population and 21.4 percent of the non-White population.

In comparing 2000 to 2005-2009 the distribution within each attainment level by race does not show a great variance. The changes that were determined to be statistically significant are indicated in the chart below. In particular, the change from 2000 to 2005-2009 among all race and origins were considered statistically significant for the categories of bachelor's degree or higher and less than high school diploma.

Figure 9: Educational Attainment by Race - Age 25 Years and Older



\*Statistically Significant

Coefficient of Variability (CV) = Percent of Variability

Reliable = CV < 5.00

Less Reliable = 5.00 < CV < 15.00

Not Reliable = CV > 15.00

## Published and Forthcoming Reports

A series of 2005-2009 ACS 5-Year Estimate reports will be released in 2011. Below is a list of ACS topics and release months.

Overview (January 2011)

Households and Families (February 2011)

Age (February 2011)

Race and Ethnicity (March 2011)

Language (March 2011)

Foreign Population (April 2011)

Employment (April 2011)

Income (May 2011)

Poverty (June 2011)

Journey to Work (June 2011)

Housing (July 2011)

Once published, copies of the reports may be downloaded at the following location:

[www.arlingtonva.us/PRAT](http://www.arlingtonva.us/PRAT)

The Planning Research and Analysis Team (PRAT) is part of Arlington County Planning Division and is responsible for maintaining, analyzing, and disseminating information related to planning development and demographics.

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