

Memorandum

TO: Technical Advisory Committee

FROM: John Bentley, *FAMPO Regional Planner*

DATE: September 4th, 2018

RE: DRAFT – GWRC 2050 Population and Household Projections

This memorandum provides an outline for 2050 projections for population and number of households per jurisdiction. These projections were initially based off work Cambridge Systematics (CS) completed for the 2045 Long Range Transportation Plan (LRTP). After gathering feedback from jurisdictions, the CS projections were determined to be overly aggressive. The updated projections were subsequently adjusted and decreased to more accurately reflect the population growth rate in the Region. The updated demographic data is instead based upon Weldon Cooper Center for Public Service (Weldon Cooper) population estimates and U.S. Census American Community Survey (ACS) data. A 2030-year break was also added to the results. A subsequent update will be made to the total employment and retail employment projections, as they also appear to be overly aggressive.

This draft includes projections from two of the four major areas originally covered by CS: **population** and **number of households**. The base year has been adjusted to 2017 to reflect the most recent data from the ACS and Weldon Cooper. Interim years correspond with the years present in the CS analysis, with the addition of a 2030 interim year.

Population

The population figures provide the best context for growth within the Region. Population projections are based upon a yearly growth percentage gathered from 2010-2017 Weldon Cooper data. The population change per year was gathered as percentage growth, and the estimates going further than 2017 were based upon the average of the seven-year percentage growth periods. Table 1 shows the population growth percentages by jurisdiction, beginning with the average growth from 2010-2017. These percentages were then scaled based on presumed future growth.

Table 1: Population Growth Percentages

Jurisdiction	Average Growth (2010-2017)	Scaled Growth
Stafford	1.64%	2.0%
Spotsylvania	.93%	1.5%
King George	.95%	1%
Caroline	.62%	1%
Fredericksburg	1.84%	1%

To calculate the population growth for each interim year, the following formula was used:

$$(1 + (\textit{scaled growth percentage}))^{(\textit{number of years between each interim year})}$$

The results can be seen in Table 2. Based on the projections, Stafford and Spotsylvania counties will continue to have highest population in the Region, while Fredericksburg will overtake Caroline County as the third most populated jurisdiction. For the City of Fredericksburg, 1.84 percent growth was assumed until 2030, then decreased to 1 percent to indicate a slowing of expansion.

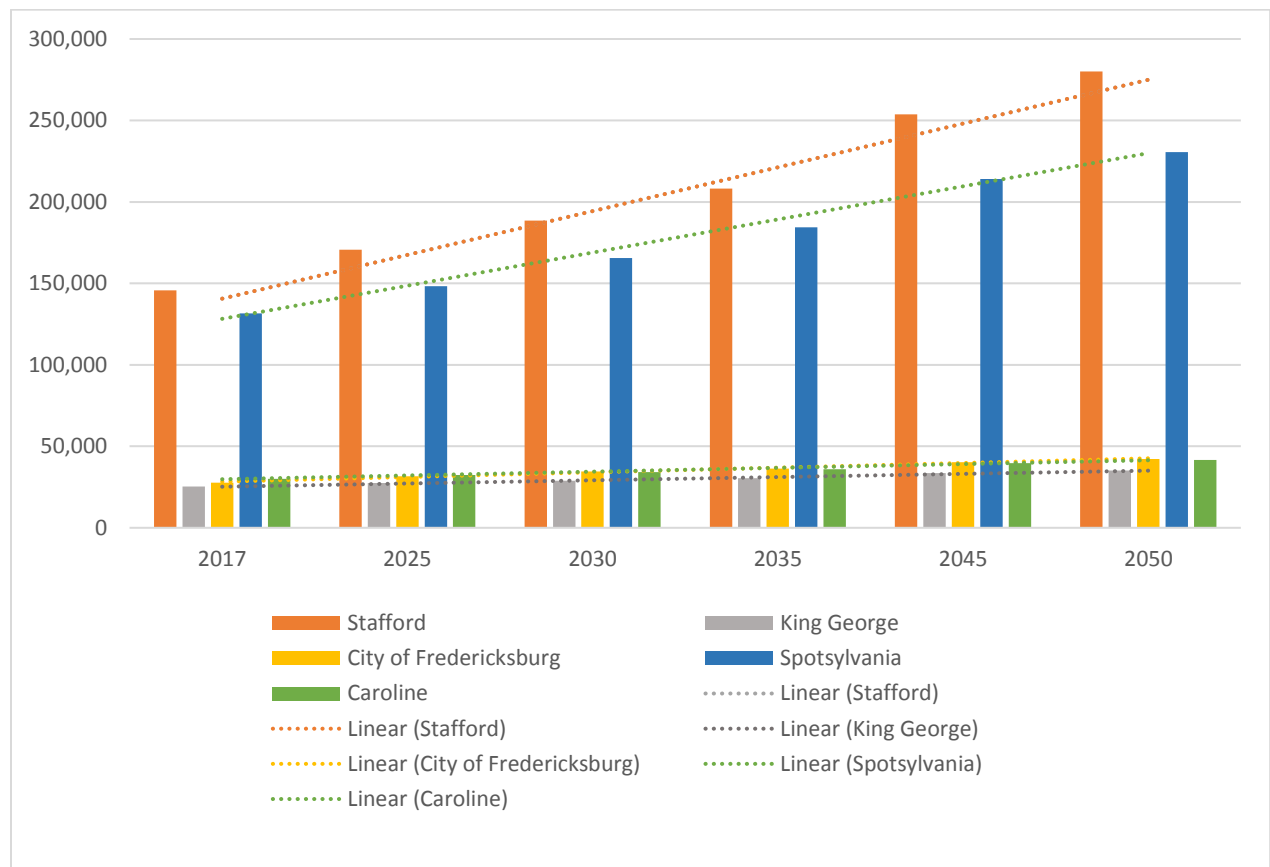
To account for the additional population anticipated as part of the Jackson Village and Alexander’s Crossing developments in Spotsylvania County, around 14,500 people were added evenly to the years 2030 and 2035.

Table 2: Population by Jurisdiction

Jurisdiction	2017	2025	2030	2035	2045	2050
Stafford	145,699	170,710	188,477	208,094	253,665	280,067
King George	25,381	27,484	28,886	30,359	33,536	35,246
City of Fredericksburg	27,645	31,714	34,632	36,399	40,207	42,258
Spotsylvania	131,549	148,189	166,908	187,073	217,106	233,885
Caroline	29,990	32,475	34,131	35,872	39,626	41,647
GWRC Total	360,264	410,572	453,034	497,797	584,139	633,103

The linear trend displayed in Figure 1 has a clear increase for Stafford and Spotsylvania counties with relatively minor population increases for Caroline County, King George County, and the City of Fredericksburg.

Figure 1: Population Growth by Jurisdiction with Linear Trends



Households

The numbers for households correspond to the subsequent increases in population. Household numbers – while only at a fraction of the actual population statistic – correspond to the increase in population (although there are some differences present). The same percentage growth, i.e. scaled estimates as applied in Table 1, is also used in Table 4 to predict the growth in households.

To obtain the 2017 estimate for the number of households, an average of the ACS households estimates from 2012-2016 was calculated (see Table 3) to obtain an estimate that accurately reflects an extended period. The number of households for a given year was then calculated using following formula:

$$\frac{\text{Population in year } x \text{ for jurisdiction } y}{\text{Average household size for jurisdiction } y}$$

Table 3: Average Household Size From 2012 to 2016

Jurisdiction	2016	Average HH Size (2012-2016)
Caroline	2.70	2.69
King George	2.91	2.93
Stafford	3.15	3.15
Fredericksburg	2.71	2.67
Spotsylvania	3.00	2.98
GWRC Total	3.00	2.99

Table 4 lists the number of households by jurisdiction and projects to 2050. In 2017 Stafford County has a comparable number of households to Spotsylvania County, but Stafford County is projected to greatly outnumber Spotsylvania County in terms of total households despite having a larger average household size. Based on 2050 projections, Stafford County is likely to have over 17,000 more households than Spotsylvania County, likely attributed to the additional .5% growth it has over Spotsylvania County.

Table 4: Number of Households by Jurisdiction

Jurisdiction	2017	2025	2030	2035	2045	2050
Stafford	54,135	55,359	61,121	67,483	82,261	90,823
King George	8,658	9,469	9,952	10,460	11,554	12,144
City of Fredericksburg	8,789	12,196	13,361	14,042	15,511	16,302
Spotsylvania	49,253	50,429	54,327	58,525	67,921	73,170
Caroline	10,055	12,187	12,809	13,462	14,870	15,629
GWRC Total	120,687	139,641	151,569	163,972	192,118	208,068

The linear trends in Figure 2 present a similar picture to those in Figure 1. Stafford and Spotsylvania counties have an overall higher growth rate, encompassing a majority of the total number of households in the region.

Figure 2: Household Growth by Jurisdiction with Linear Trends

