The Washington Region: Overview of Economic, Housing Sales & Demographic Trends

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National Economic Trends Impacting the Housing Market
Recession Recovery Patterns of GDP
Past Four Recessions

Sources: Bureau of Economic Analysis, The Stephen S. Fuller Institute at the Schar School, GMU

In 1992 or 2009 Chained Dollars; ** Quarters 32+ include the 1991 Recession; *** Quarters 25+ include the 2009 Recession

U.S. Leading Index
Month-Over-Year Percent Change

Sources: The Conference Board, The Stephen S. Fuller Institute at the Schar School, GMU
U.S. Coincident Index
Month-Over-Year Percent Change

Sources: The Conference Board, The Stephen S. Fuller Institute at the Schar School, GMU

U.S. Consumer Confidence
January 2012 – January 2019

Sources: The Conference Board, The Stephen S. Fuller Institute at the Schar School, GMU
U.S. Interest Rates
Average Annual, 2001 - 2022

30-Yr
10-Yr
Treasury
Fed

Forecast

Sources: IHS Markit (January 2019), The Stephen S. Fuller Institute at the Schar School, GMU

U.S. New and Existing Home Sales

Existing (Left Axis)
New (Right Axis)

Sources: U.S. Census (New), National Association of Realtors (Existing), The Stephen S. Fuller Institute at the Schar School, GMU
U.S. GDP
2007 – 2018 – 2022
(Annual % Change)

Forecast

Sources: U.S. Bureau of Economic Analysis, IHS Markit (January 2019), The Stephen S. Fuller Institute at the Schar School, GMU
Forecast as of January 2019

Washington Region:
Dependence on the Federal Government
U.S. GDP and Washington MSA GRP
2002 – 2017 (Annual % Change)

Sources: U.S. Bureau of Economic Analysis; The Stephen S. Fuller Institute at the Schar School, GMU

Average Annual GRP Change in the Largest Metros
2010-2017 (inflation-adjusted)

Sources: U.S. Bureau of Economic Analysis, The Stephen S. Fuller Institute at the Schar School, GMU
The Changing Structure of the Washington Region Economy

2010
- Non-Local Serving Business: 12.0%
- Other Federal: 10.7%
- Fed Wages & Salaries: 10.0%
- Local Serving Activities: 34.8%
- Procurement: 19.1%

Total Federal: 39.8%

2018
- Non-Local Serving Business: 12.0%
- Other Federal: 9.4%
- Fed Wages & Salaries: 7.4%
- Local Serving Activities: 38.0%
- Procurement: 14.1%

Total Federal: 30.9%

Source: The Stephen S. Fuller Institute at the Schar School, GMU; Forecast January 2019

Federal Employment in the Washington Region, 1950-2017

Sources: U.S. Bureau of Labor Statistics (Not Seasonally Adjusted), The Stephen S. Fuller Institute at the Schar School
Federal Procurement in the Washington Region, 1980-2018

TOTAL = $1,479.1 Billion

Average Wage in the Washington Region
(000s of 2017 $s)

Sources: Bureau of Labor Statistics; The Stephen S. Fuller Institute
Washington Region:
Recent Economic Trends & Forecast

Job Change in the Washington Region
2000 – 2018 (in thousands)

Sources: U.S. Bureau of Labor Statistics (Not Seasonally Adjusted), The Stephen S. Fuller Institute at the Schar School, GMU
*Preliminary
Washington Region Leading Index
Month-Over-The-Year Percent Change

12-Month Moving Average

12-Mo Avg: Forecast

Source: The Stephen S. Fuller Institute at the Schar School, GMU

U.S. GDP and Washington MSA GRP
2007 – 2018 – 2022
(Annual % Change)

Sources: U.S. Bureau of Economic Analysis, IHS Markit (January 2019), The Stephen S. Fuller Institute at the Schar School, GMU
Forecast as of January 2019
Washington Region: Home Sales Trends

Change in Existing Home Sales
Washington Region, Month Over-the Year

Sources: RealEstate Business Intelligence, LLC; The Stephen S. Fuller Institute at the Schar School, GMU
Change in Average Days-On-Market
Washington Region, Month Over-the Year

Sources: RealEstate Business Intelligence, LLC; The Stephen S. Fuller Institute at the Schar School, GMU

Months of Supply
Washington Region, January of Each Year

Sources: RealEstate Business Intelligence, LLC; The Stephen S. Fuller Institute at the Schar School, GMU
Change in Average Sales Price
Washington Region, Month Over-the Year

Sources: RealEstate Business Intelligence, LLC; The Stephen S. Fuller Institute at the Schar School, GMU

Change in Average Sales Price
Washington Region, Annual

Sources: RealEstate Business Intelligence, LLC; The Stephen S. Fuller Institute at the Schar School, GMU
Home Sales Price Growth By Percentile
Washington Region, 1997 – March 2018
100 = January 1997

- 10th Percentile
- Median (50th Percentile)
- 90th Percentile

Sources: MRIS; The Stephen S. Fuller Institute at the Schar School, GMU

Washington Region:
Demographic Trends
An Aging Population

Population by Age Group
Washington Region, 1980

Sources: U.S. Census Bureau (1980 Census); The Stephen S. Fuller Institute at the Schar School, GMU
Population by Age Group
Washington Region, 1990

Sources: U.S. Census Bureau (1990 Census); The Stephen S. Fuller Institute at the Schar School, GMU

Population by Age Group
Washington Region, 2000

Sources: U.S. Census Bureau (2000 Census); The Stephen S. Fuller Institute at the Schar School, GMU
Population by Age Group
Washington Region, 2010


Millennials: 1.56M
Baby Boomers: 1.50M

Sources: U.S. Census Bureau (2010 Census); The Stephen S. Fuller Institute at the Schar School, GMU

Population by Age Group
Washington Region, 2015


Millennials: 1.70M
Baby Boomers: 1.43M

Sources: U.S. Census Bureau (2016 Population Estimates); The Stephen S. Fuller Institute at the Schar School, GMU
Population Distribution by Age
Washington Region, 1980 and 2017

Home Ownership Rate by Age
Washington Region, 1990 and 2017

Sources: U.S. Census Bureau (1980 Census and 2017 Population Estimates); The Stephen S. Fuller Institute at the Schar School, GMU

NOTE: Washington Region delineation changes
Slowing Population Growth
Population Growth in the Washington Region, 2001 to 2017

Sources: U.S. Census Bureau (Intercensal & v2017 Population Estimates); The Stephen S. Fuller Institute at the Schar School, GMU

Population Change in the Largest Metros 2016-2017

US: +0.7%

Sources: U.S. Census Bureau (v2017 Population Estimates), The Stephen S. Fuller Institute at the Schar School, GMU
Population Growth By Component Change Washington Region (in 000s)

Sources: U.S. Census Bureau (Intercensal, v2009 and v2017 Population Estimates); The Stephen S. Fuller Institute at the Schar School, GMU

Domestic Migration in the Washington Region 2000 to 2015

Sources: Internal Revenue Service; The Stephen S. Fuller Institute at the Schar School, GMU

*Preliminary
Percent Difference in Regional Price Levels, Compared to the Washington Region, 2016

Sources: U.S. Bureau of Economic Analysis; The Stephen S. Fuller Institute at the Schar School, GMU

Lagging Millennial Retention?
Share of 25-34 Years Olds
Largest 15 Metros, 2010

Sources: U.S. Census Bureau (Vintage 2017 &2000-2010 Intercensal Population Estimates); The Stephen S. Fuller Institute at the Schar School, GMU

Share of 25-34 Years Olds
Largest 15 Metros, 2017

Sources: U.S. Census Bureau (Vintage 2017 &2000-2010 Intercensal Population Estimates); The Stephen S. Fuller Institute at the Schar School, GMU
Percent Change in 25-34 Years Olds
Largest 15 Metros, 2016 - 2017

Sources: U.S. Census Bureau (Vintage 2017 &2000-2010 Intercensal Population Estimates); The Stephen S. Fuller Institute at the Schar School, GMU

Amazon HQ2
HQ2 Employment Schedule

<table>
<thead>
<tr>
<th>Year</th>
<th>Phase I</th>
<th>Phase II</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>400</td>
<td>1,180</td>
</tr>
<tr>
<td>2020</td>
<td>1,180</td>
<td>1,964</td>
</tr>
<tr>
<td>2021</td>
<td>1,439</td>
<td>2,656</td>
</tr>
<tr>
<td>2022</td>
<td>1,643</td>
<td>2,352</td>
</tr>
<tr>
<td>2023</td>
<td>2,072</td>
<td>2,207</td>
</tr>
<tr>
<td>2024</td>
<td>2,305</td>
<td>3,000</td>
</tr>
<tr>
<td>2025</td>
<td>2,100</td>
<td>3,595</td>
</tr>
<tr>
<td>2026</td>
<td>3,100</td>
<td>3,900</td>
</tr>
<tr>
<td>2027</td>
<td>3,000</td>
<td>3,100</td>
</tr>
<tr>
<td>2028</td>
<td>3,000</td>
<td>3,000</td>
</tr>
</tbody>
</table>

Sources: Commonwealth of Virginia MOU; The Stephen S. Fuller Institute at the Schar School, GMU

Net Household Gain Related to HQ2:
- Includes households with a Direct or Indirect Related Job
- 0 to 999
- 1,000 to 2,499
- 2,500 to 4,999
- 5,000 to 19,999

Source: The Stephen S. Fuller Institute at the Schar School of Policy and Government, George Mason University

NOTE: Assumes direct HQ2 employment of 37,850
*Inc. cities of Fairfax & Falls Church
**Inc. cities of Manassas and Manassas Park
Amazon-Related Owners in Select Jurisdictions
Assumes 37,850 HQ2 jobs, includes indirect & induced effects

<table>
<thead>
<tr>
<th></th>
<th>Owners at Full Build-Out</th>
<th>Closed Sales in 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Virginia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arlington County</td>
<td>2,071</td>
<td>3,030</td>
</tr>
<tr>
<td>Alexandria City</td>
<td>1,085</td>
<td>2,580</td>
</tr>
<tr>
<td>Fairfax County*</td>
<td>13,698</td>
<td>16,300</td>
</tr>
<tr>
<td>Prince William County**</td>
<td>4,013</td>
<td>8,330</td>
</tr>
<tr>
<td>Loudoun County</td>
<td>3,665</td>
<td>6,630</td>
</tr>
<tr>
<td>D.C.</td>
<td>2,410</td>
<td>8,900</td>
</tr>
<tr>
<td><strong>Maryland</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montgomery County</td>
<td>2,737</td>
<td>12,430</td>
</tr>
<tr>
<td>Prince George’s County</td>
<td>1,886</td>
<td>10,230</td>
</tr>
</tbody>
</table>

Sources: RealEstate Business Intelligence, LLC; The Stephen S. Fuller Institute at the Schar School, GMU
*Includes the cities of Fairfax and Falls Church    ** Includes the cities of Manassas and Manassas Park

Amazon-Related Renters in Select Jurisdictions
Assumes 37,850 HQ2 jobs, includes indirect & induced effects

<table>
<thead>
<tr>
<th></th>
<th>Renters at Full Build-Out</th>
<th>Renters in 2016</th>
<th>Total % Increase from 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Virginia</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arlington County</td>
<td>4,792</td>
<td>57,133</td>
<td>8.4%</td>
</tr>
<tr>
<td>Alexandria City</td>
<td>1,528</td>
<td>41,808</td>
<td>3.7%</td>
</tr>
<tr>
<td>Fairfax County*</td>
<td>4,893</td>
<td>134,425</td>
<td>3.6%</td>
</tr>
<tr>
<td>Prince William County**</td>
<td>1,087</td>
<td>49,891</td>
<td>2.2%</td>
</tr>
<tr>
<td>Loudoun County</td>
<td>716</td>
<td>25,552</td>
<td>2.8%</td>
</tr>
<tr>
<td>D.C.</td>
<td>2,968</td>
<td>169,875</td>
<td>1.7%</td>
</tr>
<tr>
<td><strong>Maryland</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montgomery County</td>
<td>625</td>
<td>132,098</td>
<td>0.5%</td>
</tr>
<tr>
<td>Prince George’s County</td>
<td>396</td>
<td>121,333</td>
<td>0.3%</td>
</tr>
</tbody>
</table>

Sources: U.S. Census Bureau (2016 ACS Microdata); The Stephen S. Fuller Institute at the Schar School, GMU
*Includes the cities of Fairfax and Falls Church    ** Includes the cities of Manassas and Manassas Park
Thank You

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