Alexandria Chamber

Amazon & Other Factors Affecting the Washington Region's Economy
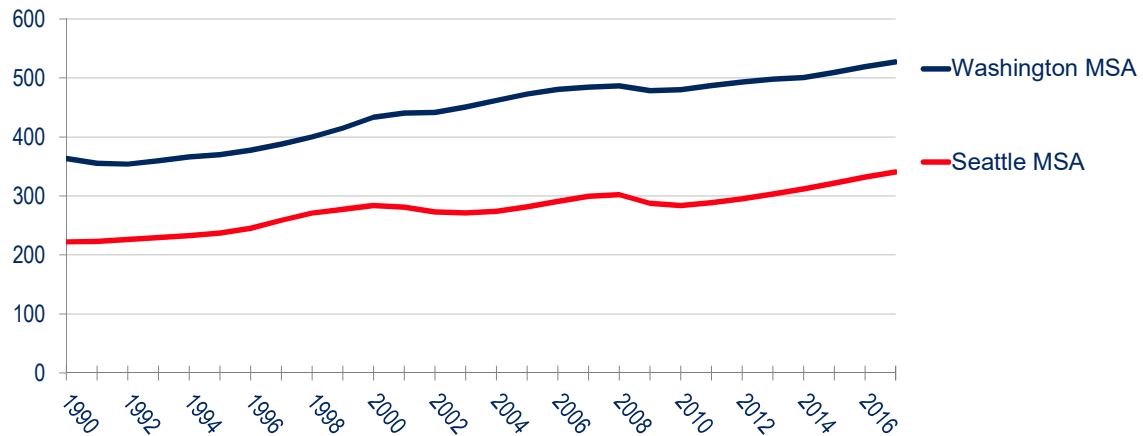
Jeannette Chapman
Deputy Director and Senior Research Associate
Stephen S. Fuller Institute
Schar School of Policy and Government
George Mason University

December 3, 2019

Amazon in Arlington: Context

Density by Metro Area: Jobs Per Land Square Mile

Sources: U.S. Bureau of Labor Statistics; The Stephen S. Fuller Institute at the Schar School, GMU
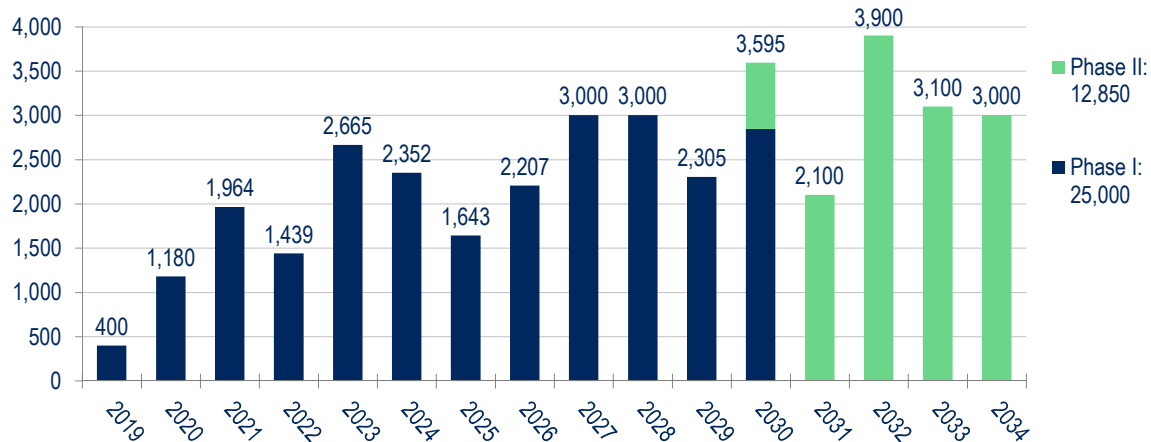
Density: Arlington County vs. City of Seattle

	Arlington County	Seattle City	Arlington as a % of Seattle
Sq. Mi.	26	83	31%
Residents	234,965	724,745	32%
--- Per Sq. Mi.	9,037	8,732	103%
Private Office Space (MMs SF)	32	55	58%
--- Per Sq. Mi.	1.2	0.7	186%

Sources: U.S. Census; Cushman & Wakefield; The Stephen S. Fuller Institute at the Schar School, GMU
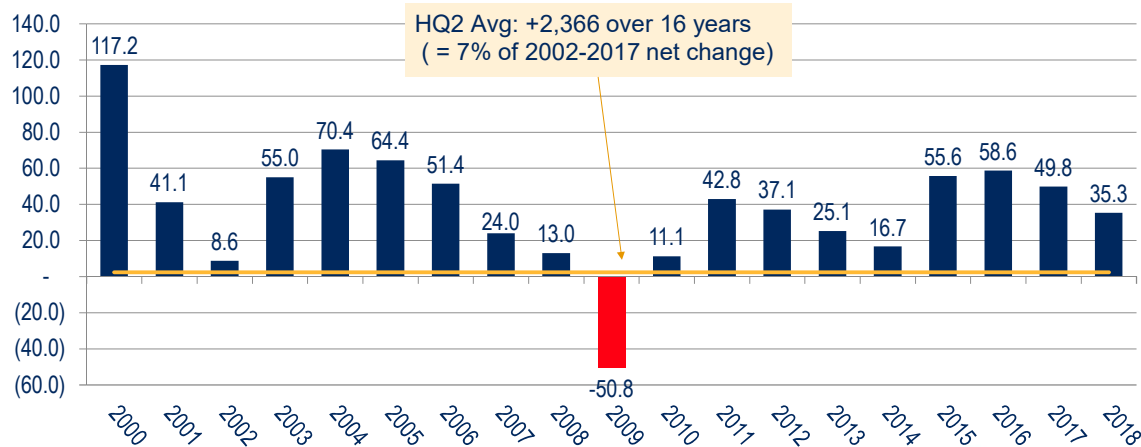
HQ2 Employment Schedule

Phase II: 12,850

Phase I: 25,000

Year	Value
2019	400
2020	1,180
2021	1,964
2022	1,439
2023	2,665
2024	2,352
2025	1,643
2026	2,207
2027	3,000
2028	3,000
2029	2,305
2030	3,595
2031	2,100
2032	3,900
2033	3,100
2034	3,000

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

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

HQ2 Avg: +2,366 over 16 years (= 7% of 2002-2017 net change)

| Year	Value
2000	117.2
2001	41.1
2002	8.6
2003	55.0
2004	70.4
2005	64.4
2006	51.4
2007	24.0
2008	13.0
2009	-50.8
2010	11.1
2011	42.8
2012	37.1
2013	25.1
2014	16.7
2015	55.6
2016	58.6
2017	49.8
2018	35.3

Sources: U.S. Bureau of Labor Statistics (Not Seasonally Adjusted), The Stephen S. Fuller Institute at the Schar School, GMU

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Job Change in Arlington County*
2000 – 2017 (in thousands)

HQ2 Avg: +2,366 over 16 years
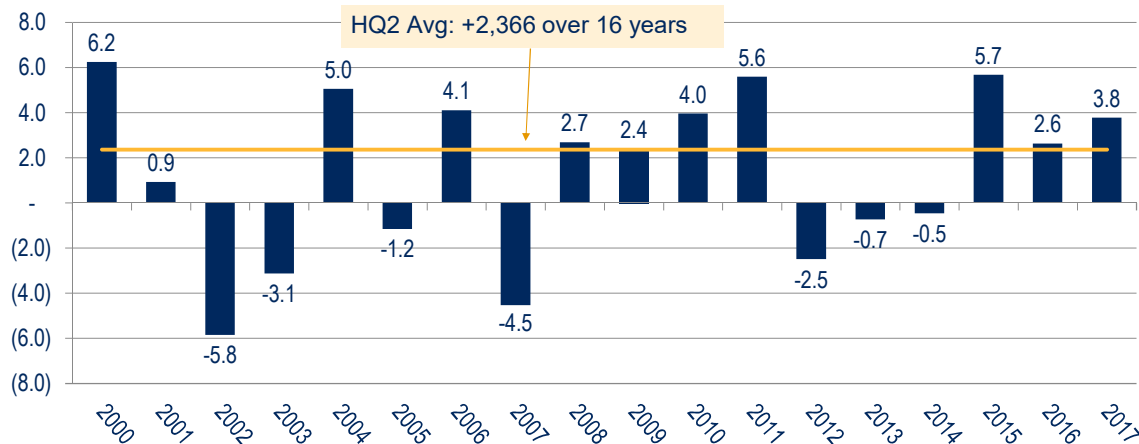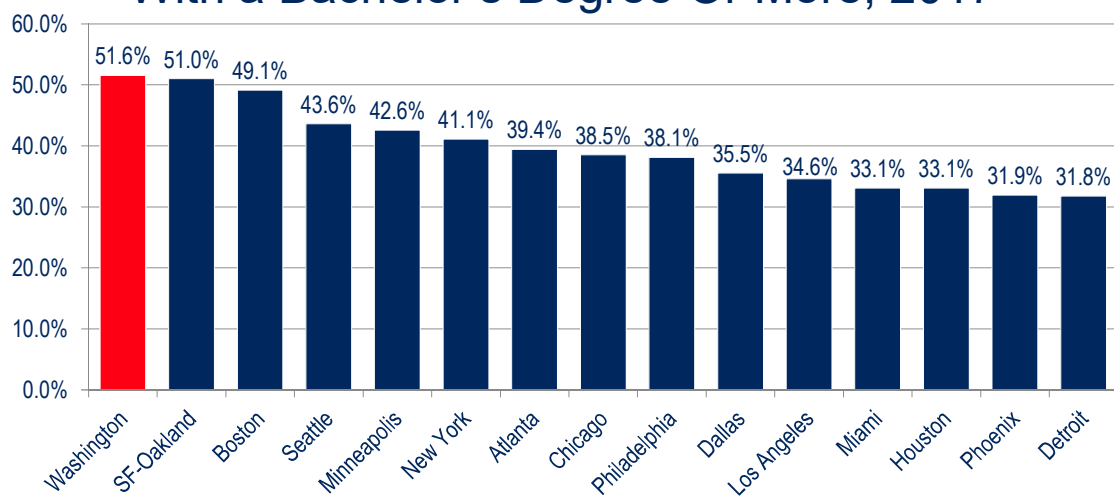
Sources: U.S. Bureau of Labor Statistics (QCEW), The Stephen S. Fuller Institute at the Schar School, GMU
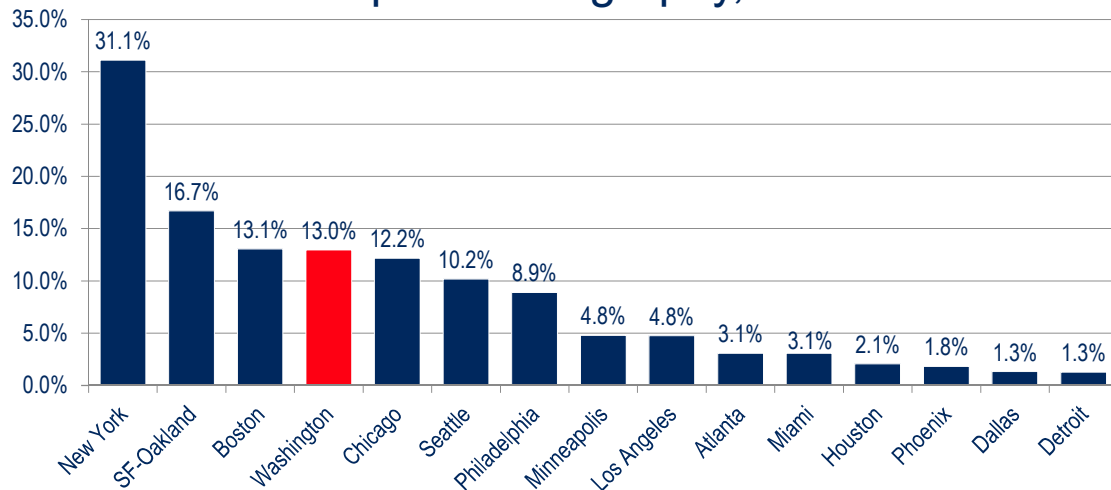*Excludes military jobs

Percent of Residents*
With a Bachelor's Degree Or More, 2017

Sources: U.S. American Community Survey; The Stephen S. Fuller Institute at the Schar School, GMU
*Aged 25+

Share of Commuters Taking Public Transportation Workplace Geography, 2017

New York 31.1%, SF-Oakland 16.7%, Boston 13.1%, Washington 13.0%, Chicago 12.2%, Seattle 10.2%, Philadelphia 8.9%, Minneapolis 4.8%, Los Angeles 4.8%, Atlanta 3.1%, Miami 3.1%, Houston 2.1%, Phoenix 1.8%, Dallas 1.3%, Detroit 1.3%
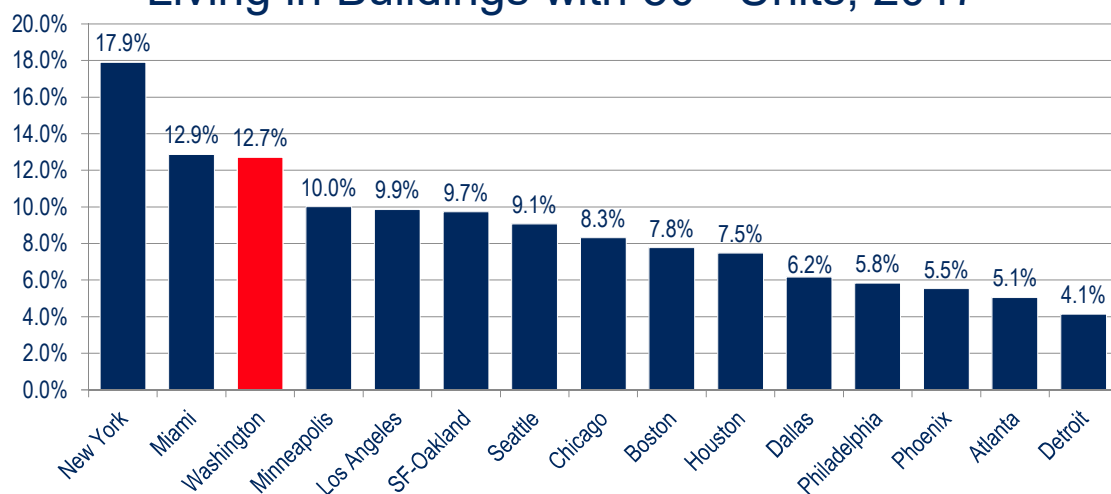
Sources: U.S. American Community Survey; The Stephen S. Fuller Institute at the Schar School, GMU

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Share of Households Living in Buildings with 50+ Units, 2017

New York 17.9%, Miami 12.9%, Washington 12.7%, Minneapolis 10.0%, Los Angeles 9.9%, SF-Oakland 9.7%, Seattle 9.1%, Chicago 8.3%, Boston 7.8%, Houston 7.5%, Dallas 6.2%, Philadelphia 5.8%, Phoenix 5.5%, Atlanta 5.1%, Detroit 4.1%
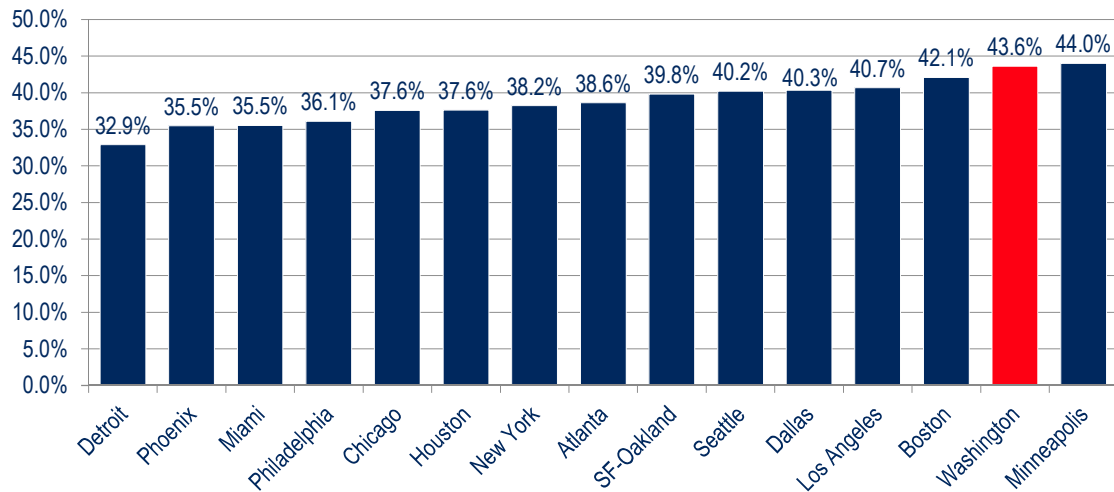
Sources: U.S. American Community Survey; The Stephen S. Fuller Institute at the Schar School, GMU

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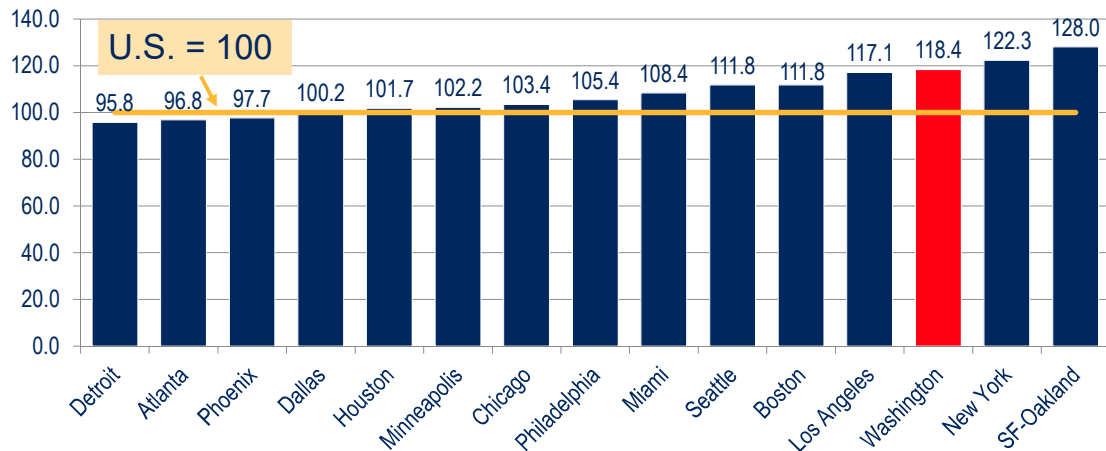
Share of 2+ Worker Households, 2017

Sources: U.S. American Community Survey; The Stephen S. Fuller Institute at the Schar School, GMU

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Regional Price Levels, Compared to the U.S., 2017

U.S. = 100

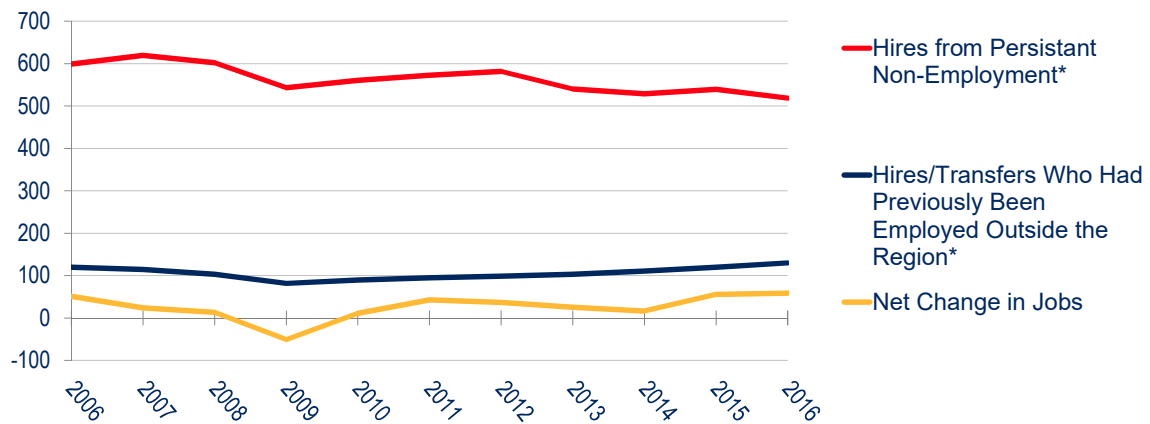Sources: U.S. Bureau of Economic Analysis; The Stephen S. Fuller Institute at the Schar School, GMU

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Growth vs Change

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Private Sector Jobs in the Washington Region:
Net Change Compared to Gross Flows By Year (000s)

Legend:
- Hires from Persistant Non-Employment*
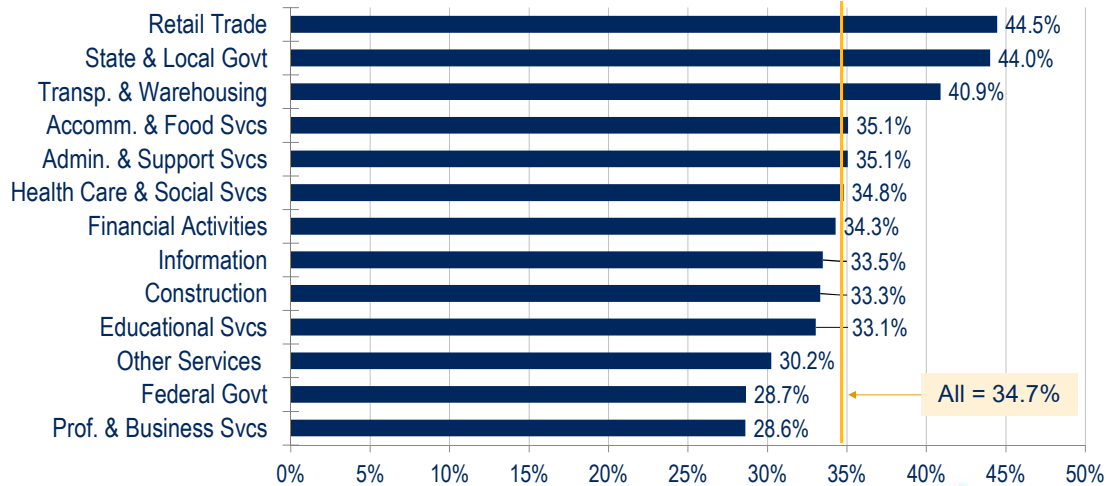- Hires/Transfers Who Had Previously Been Employed Outside the Region*
- Net Change in Jobs

Sources: U.S. Bureau of Labor Statistics; LEHD (J2J, Beta, v3Q2018); The Stephen S. Fuller Institute at the Schar School, GMU
* As of prior quarter

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% of the Washington Region's Workers Born in DC, VA, or MD by Industry

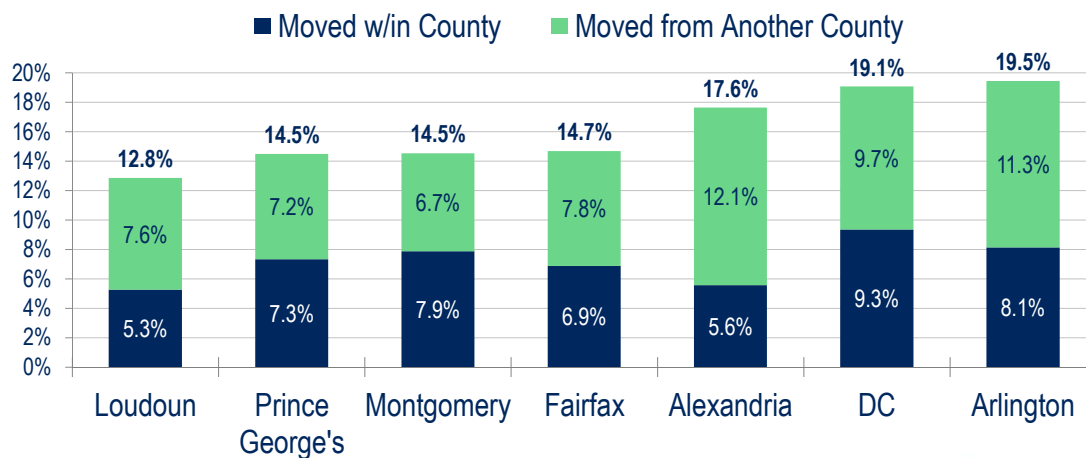| Industry	%
Retail Trade	44.5%
State & Local Govt	44.0%
Transp. & Warehousing	40.9%
Accomm. & Food Svcs	35.1%
Admin. & Support Svcs	35.1%
Health Care & Social Svcs	34.8%
Financial Activities	34.3%
Information	33.5%
Construction	33.3%
Educational Svcs	33.1%
Other Services	30.2%
Federal Govt	28.7%
Prof. & Business Svcs	28.6%

All = 34.7%

Sources: U.S. Census Bureau (2014-2016 ACS Microdata); The Stephen S. Fuller Institute at the Schar School, GMU

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Share of Residents* That Moved in the Past Year By Place of Current Residence, 2017

■ Moved w/in County ■ Moved from Another County

County	Total	Moved from Another County	Moved w/in County
Loudoun	12.8%	7.6%	5.3%
Prince George's	14.5%	7.2%	7.3%
Montgomery	14.5%	6.7%	7.9%
Fairfax	14.7%	7.8%	6.9%
Alexandria	17.6%	12.1%	5.6%
DC	19.1%	9.7%	9.3%
Arlington	19.5%	11.3%	8.1%

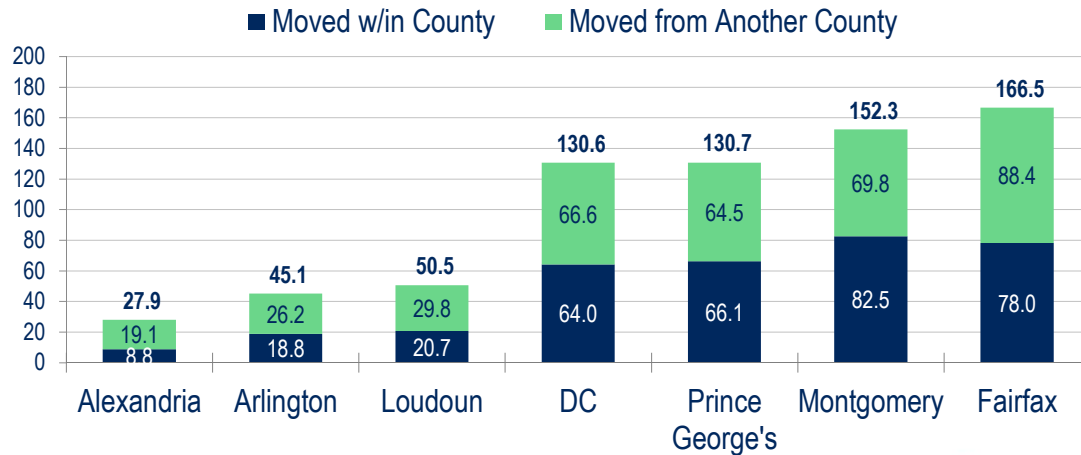Source: U.S. Census (2017 American Community Survey) The Stephen S. Fuller Institute at the Schar School, GMU
* Excludes children less than one years old

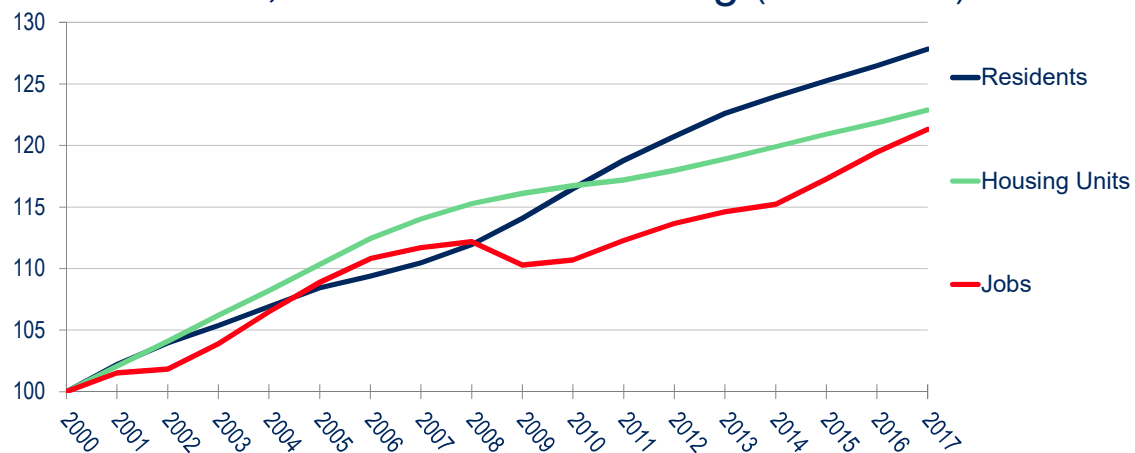The STEPHEN S. FULLER INSTITUTE for Research on the Washington Region's Economic Future

Number of Residents* That Moved in the Past Year By Place of Current Residence, 2017 (000s)

■ Moved w/in County　■ Moved from Another County

Place	Moved w/in County	Moved from Another County	Total
Alexandria	8.8	19.1	27.9
Arlington	18.8	26.2	45.1
Loudoun	20.7	29.8	50.5
DC	64.0	66.6	130.6
Prince George's	66.1	64.5	130.7
Montgomery	82.5	69.8	152.3
Fairfax	78.0	88.4	166.5

Source: U.S. Census (2017 American Community Survey) The Stephen S. Fuller Institute at the Schar School, GMU
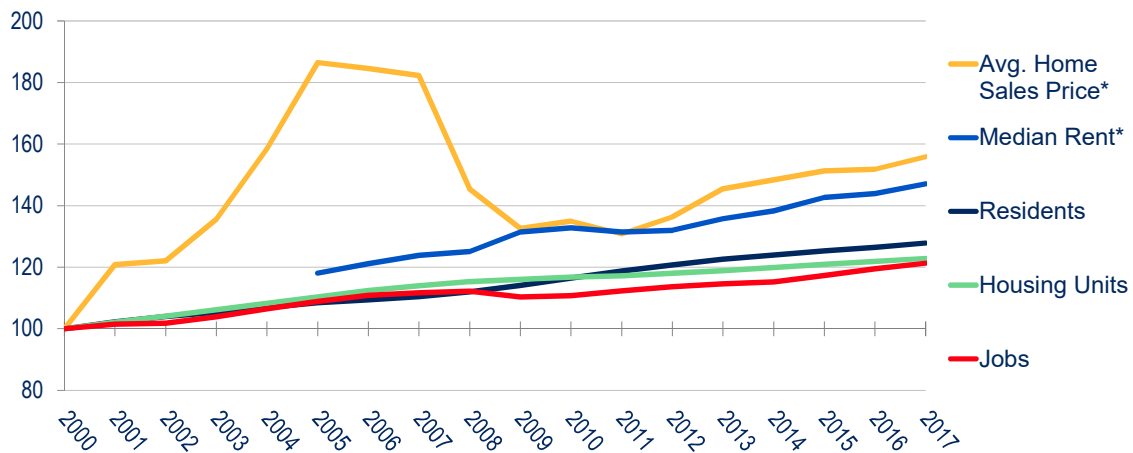* Excludes children less than one years old

Growth in the Washington Region: Jobs, Residents & Housing (2000 = 100)

Residents, Housing Units, Jobs

Sources: U.S Census Bureau; U.S. Bureau of Labor Statistics; The Stephen S. Fuller Institute at the Schar School, GMU

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Growth in the Washington Region:
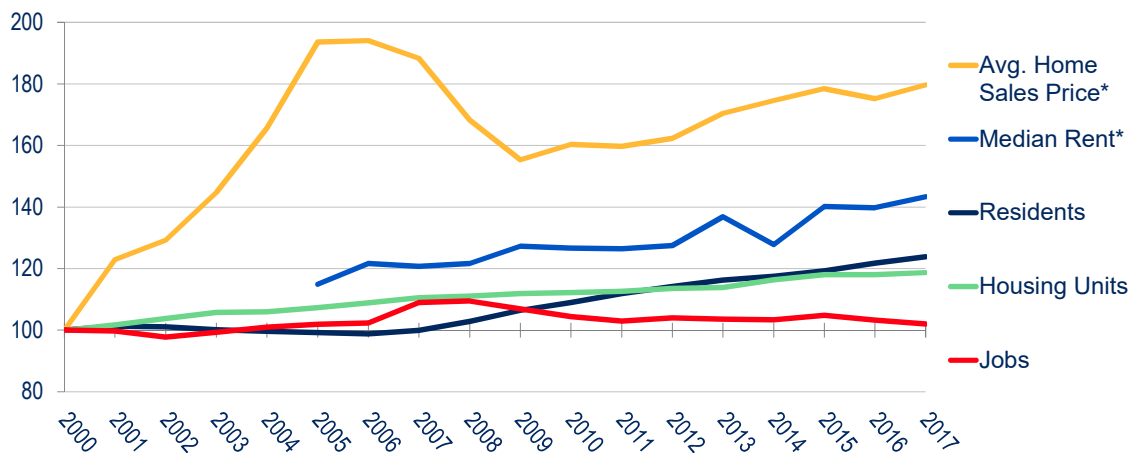Jobs, Residents, Housing, & Home Price (2000 = 100)

Sources: U.S Census Bureau; U.S. Bureau of Labor Statistics; ShowingTime by RBI; The Stephen S. Fuller Institute at the Schar School, GMU
* Adjusted for the Consumer Price Index of all items except shelter   NOTE: Geography used for median rent in 2005-2013 excludes Culpeper and Rappahannock

Growth in the City of Alexandria:
Jobs, Residents, Housing, & Home Price (2000 = 100)

Sources: U.S Census Bureau; U.S. Bureau of Labor Statistics; ShowingTime by RBI; The Stephen S. Fuller Institute at the Schar School, GMU
* Adjusted for the Consumer Price Index of all items except shelter

Amazon:
Forecasts of Housing Demand

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Amazon-Related Household at Full Build-Out
Assumes 37,850 HQ2 jobs

	Household w/ an HQ2 Job	Household w/ a Job Supported by HQ2 Spending (1)	Total
Arlington County, VA	6,097	766	6,862
Alexandria City, VA	1,890	723	2,613
Rest of Northern Virginia	17,329	13,381	30,709
Rest of Virginia	642	14,967	15,609
D.C.	4,909	469	5,377
Maryland	6,047	1,515	7,562
Elsewhere	363	508	871
Total (2)	**37,276**	**32,328**	**69,604**

Source: The Stephen S. Fuller Institute at the Schar School, GMU
(1) Includes payroll and operations expenditures
(2) A small share of the workers holding HQ2-related jobs are anticipated to cohabitate either with another HQ2-related worker or become part of an existing household. Therefore, the number of households is projected to be fewer than the number of jobs. Only the indirect and induced jobs located in the Commonwealth were analyzed.

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Where HQ2 Workers Would Live: Distribution of HQ2 Households

Legend:
- 0.2% - 0.6%
- 0.7% - 2.0%
- 2.1% - 7.0%
- 7.1% - 33.0%

Frederick 0.3%
Frederick & Clarke & Winchester 0.2%
Montgomery 7.6%
Loudoun 5.5%
Shenandoah, Warren & Page 0.2%
D.C 13.2%
Arlington 16.4%
Prince George's 4.6%
Fairfax* 33.0%
Alex. 5.1%
Prince William** 6.3%
Fauquier, Rappahannock, Culpeper, Madison & Orange 0.3%
Charles 1.2%
Stafford & Fredericksburg 0.8%
Calvert & St. Mary's 0.3%
Spotsylvania, Caroline & King George 0.5%

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

*inc. cities of Fairfax & Falls Church
**inc. cities of Manassas and Manassas Park

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Net Household Gain Related to HQ2:
Includes Households with a Direct or Indirect/Induced Job

Legend:
- 0 to +999
- +1,000 to +2,499
- +2,500 to +4,999
- +5,000 to +19,000

Frederick 158
Frederick & Clarke & Winchester 185
Montgomery 3,362
Loudoun 4,381
Shenandoah, Warren & Page 180
D.C 5,377
Arlington 6,862
Prince George's 2,282
Fairfax* 18,590
Alex. 2,613
Prince William** 5,100
Fauquier, Rappahannock, Culpeper, Madison & Orange 457
Charles 533
Stafford & Fredericksburg 1,077
Calvert & St. Mary's 156
Spotsylvania, Caroline & King George 1,104

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

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

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

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

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

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

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

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Distribution of Households by Household Income
Washington Region
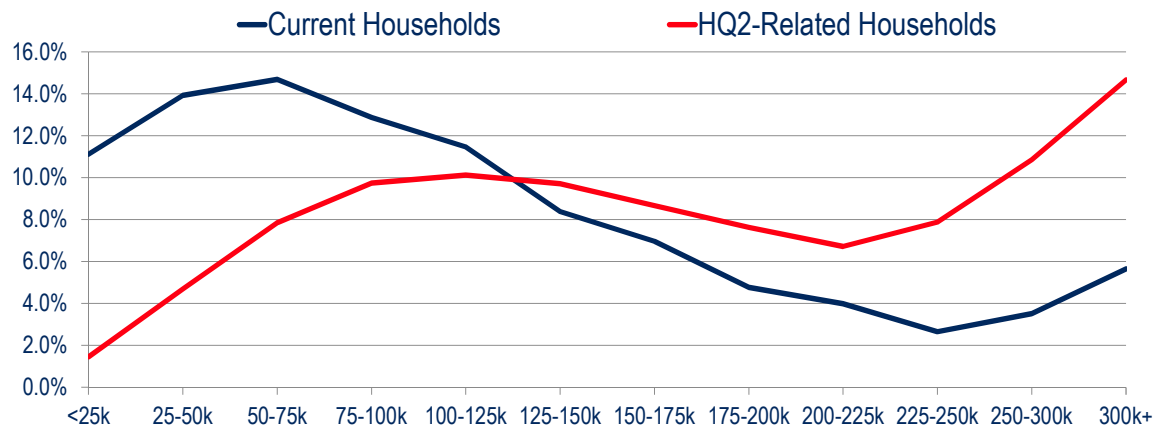
— Current Households   — HQ2-Related Households

Sources: U.S. Census Bureau (2014-2016 ACS Microdata); The Stephen S. Fuller Institute at the Schar School, GMU
NOTE: in 2016 $s

Amazon-Related Households in Alexandria
by Household Type
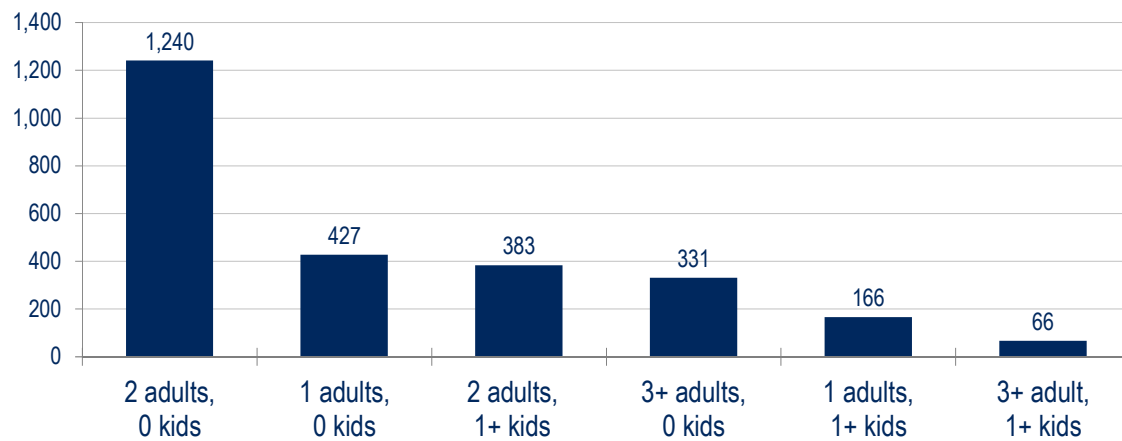
Source: The Stephen S. Fuller Institute at the Schar School, GMU

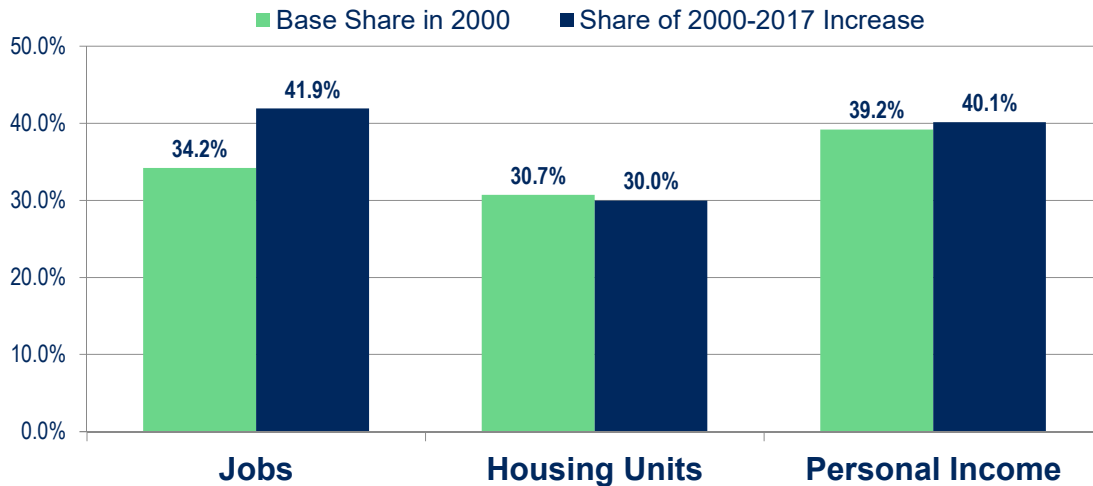## Amazon-Related Renters by Income
City of Alexandria (2016 $s)

	<$75k	$75-124.9k	$125-199.9k	$200k+
	576	426	393	134
Avg. Affordable Rent:	**$1,210**	**$2,615**	**$4,000**	**$6,780**

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

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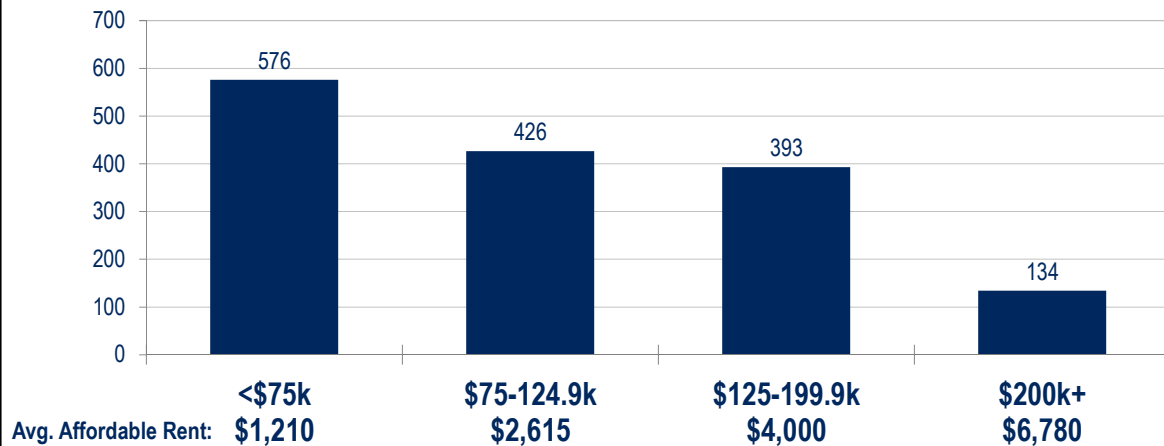
Key Changes Affecting Housing

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Largest 15 Employment Metros as % of U.S.

Legend: ■ Base Share in 2000 ■ Share of 2000-2017 Increase

- Jobs: 34.2% (Base Share in 2000), 41.9% (Share of 2000-2017 Increase)
- Housing Units: 30.7% (Base Share in 2000), 30.0% (Share of 2000-2017 Increase)
- Personal Income: 39.2% (Base Share in 2000), 40.1% (Share of 2000-2017 Increase)

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

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Population by Age, Washington Region, 1990

Sources: U.S. Census Bureau (1970-79 Intercensal Estimates & v2018 Population Estimates); The Stephen S. Fuller Institute at the Schar School, GMU
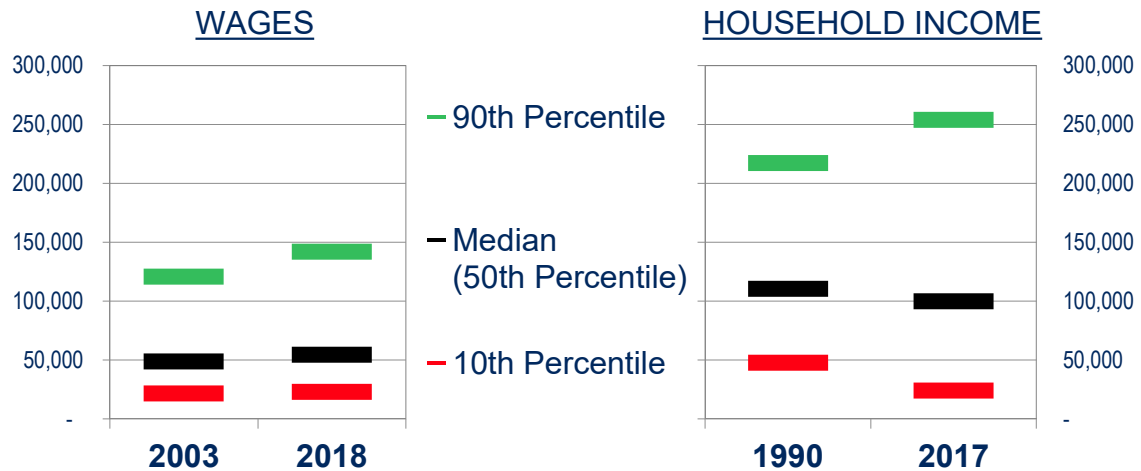
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Population by Age, Washington Region

— 1990 — 2018

Sources: U.S. Census Bureau (1970-79 Intercensal Estimates & v2018 Population Estimates); The Stephen S. Fuller Institute at the Schar School, GMU
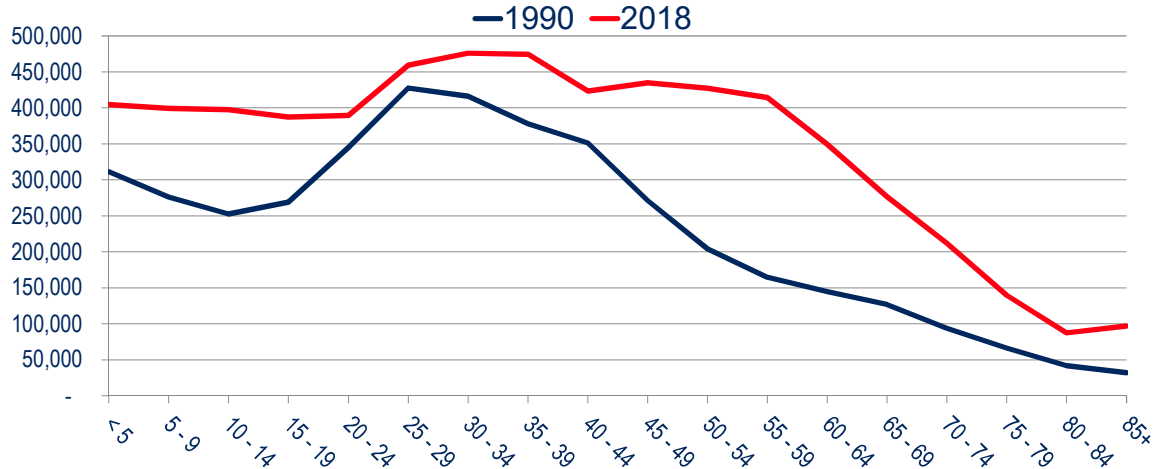
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% Of Housing Stock Occupied for 20+ Years:
Householder 50+, No Children, 2+ Extra Bedrooms, Washington Region

■ 1990 ■ 2017

Single-Family Detached — 17.5%, 20.8%
Single-Family Attached — 6.8%, 7.3%
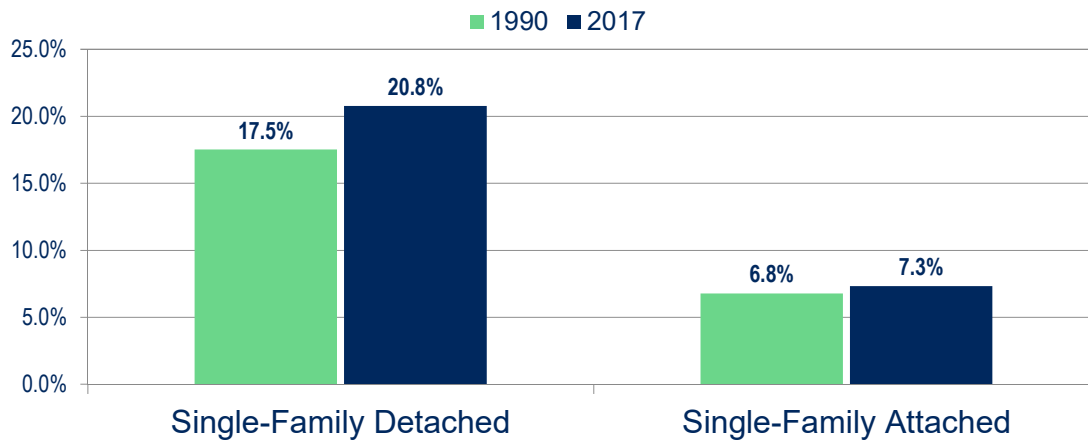
Sources: U.S. Census Bureau (1990 Decennial microdata & 2017 ACS microdata); The Stephen S. Fuller Institute at the Schar School, GMU

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Distribution of Wages & Income, Washington Region

WAGES

HOUSEHOLD INCOME

─ 90th Percentile

─ Median
(50th Percentile)

─ 10th Percentile

2003 **2018**

1990 **2017**

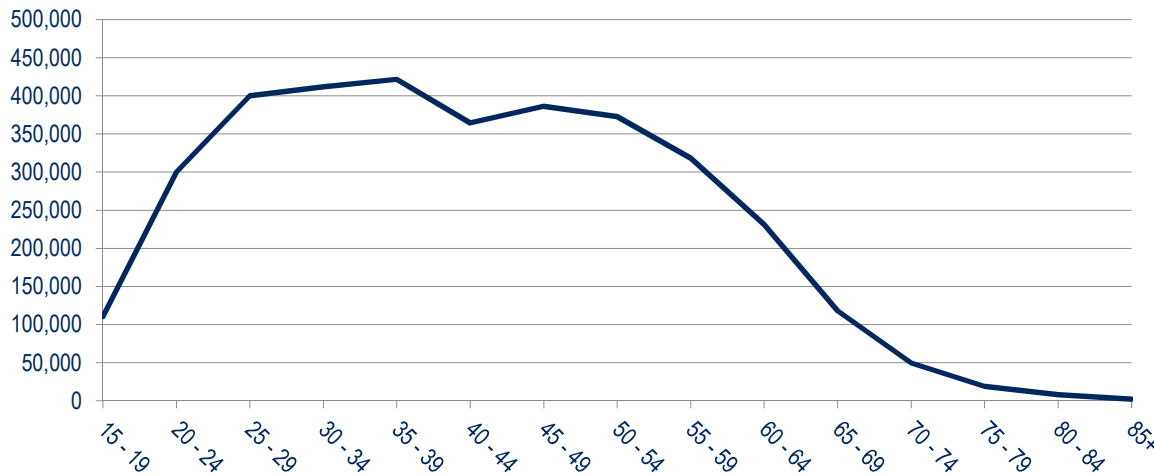Sources: U.S. Bureau of Labor Statistics; U.S. ; The Stephen S. Fuller Institute at the Schar School, GMU; NOTE: CPI Adjusted
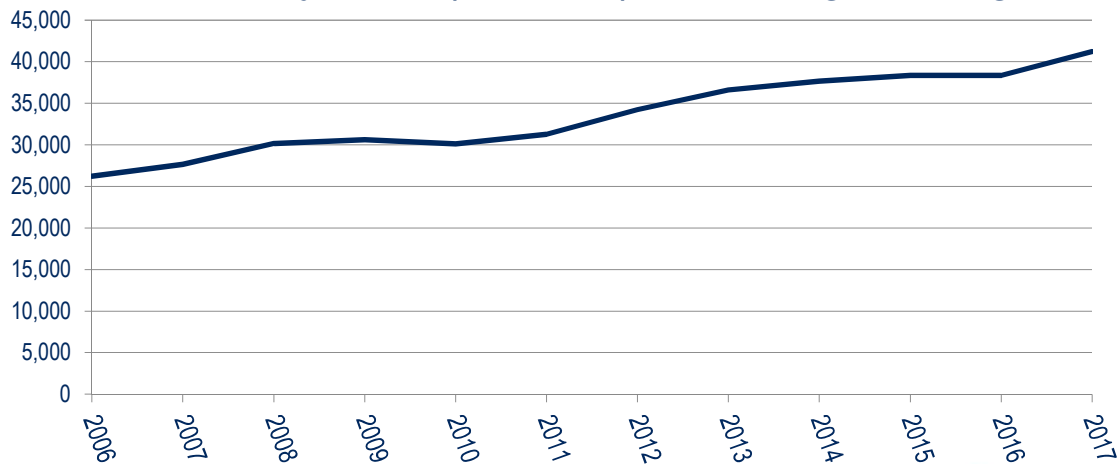
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Key Changes Affecting Worker Retention

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Workers by Age, Washington Region, 2017

Sources: U.S. Census Bureau (2017 ACS Microdata); The Stephen S. Fuller Institute at the Schar School, GMU
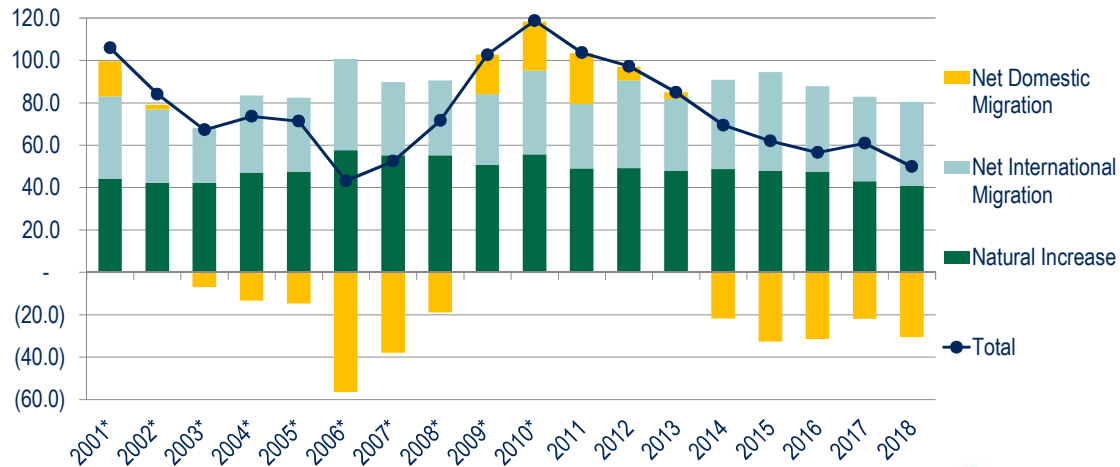
Private Sector Workers 65+ Transitioning to Fulltime Nonemployment (retirees), Washington Region

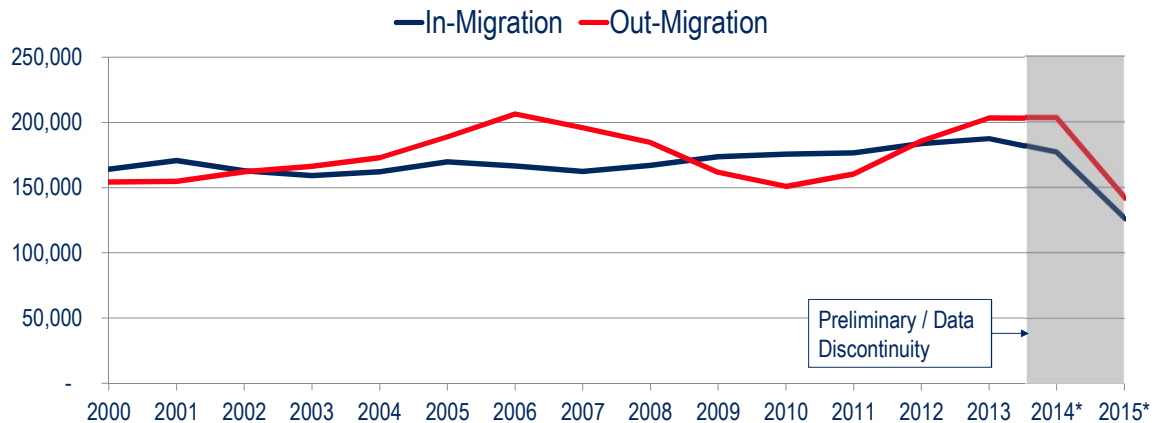Sources: U.S. Census (J2J Flows); The Stephen S. Fuller Institute at the Schar School, GMU

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
*Estimate

Domestic Migration in the Washington Region
2000 to 2015

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

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