JOBSEQ

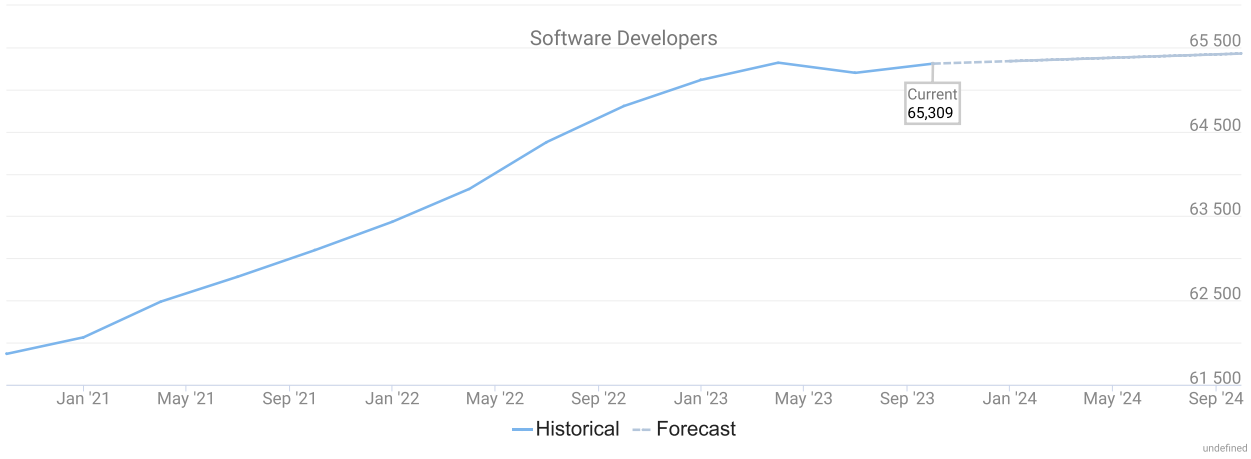
Occupation Report

Software Developers

Washington-Arlington-Alexandria, DC-VA-MD-WV MSA

Occupation Snapshot

6-Digit Occupation	Empl	Avg Mean Wages	LQ	3-Year Empl Change	Annual Demand	Forecast Ann Growth
Software Developers	**65,309**	**$150,800**	**1.96**	**3,441**	**4,891**	**1.9%**



"Annual Demand" is the projected need for new entrants into an occupation. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

"Forecast Ann Growth" is the expected change in jobs due to national, long-term trend projections (per the BLS) as well as local factors such as industry mix and population growth (as computed and modeled by Chmura).

Source: JobsEQ®, http://www.chmuraecon.com/jobseq

Employment by Industry

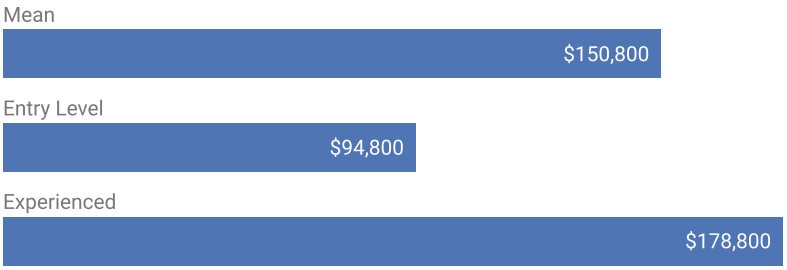
Industry Title	% of Occ Empl	Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
Computer Systems Design and Related Services	60.5%	39,514	22,932	8,765	31,696
Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	4.5%	2,966	1,705	590	2,295
Management, Scientific, and Technical Consulting Services	4.4%	2,864	1,640	541	2,181
Software Publishers	4.2%	2,729	1,577	579	2,156
Scientific Research and Development Services	3.7%	2,400	1,366	421	1,787
Web Search Portals, Libraries, Archives, and Other Information Services	3.0%	1,972	1,163	513	1,675
Architectural, Engineering, and Related Services	2.6%	1,672	931	209	1,140
Management of Companies and Enterprises	2.4%	1,593	907	282	1,189
Employment Services	0.9%	609	335	59	394
Other Professional, Scientific, and Technical Services	0.9%	559	327	135	462
Depository Credit Intermediation	0.8%	541	302	69	371
Professional and Commercial Equipment and Supplies Merchant Wholesalers	0.8%	505	277	45	321
Communications Equipment Manufacturing	0.7%	429	236	41	277
Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	0.6%	409	228	53	282
Nondepository Credit Intermediation	0.6%	393	222	63	285
Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers	0.6%	382	214	52	266
Insurance Carriers	0.6%	371	211	66	277
All Others	8.3%	5,399	3,006	682	3,688

The industry distribution indicates the industries in which workers in the occupation(s) are primarily found.

"10-Year Empl Growth" may show industries with positive as well as negative growth; this would indicate that the occupation(s) being examined are expected to expand within some industries while contracting in others.

Source: JobsEQ®, http://www.chmuraecon.com/jobseq

Wages



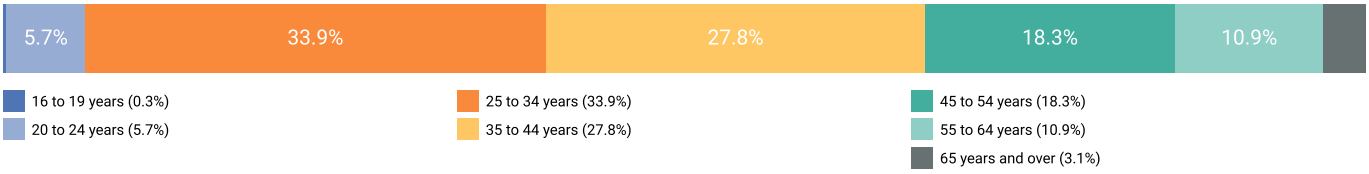
Occupation	Mean	Median	Entry Level	Experienced
Software Developers	$150,800	$145,800	$94,800	$178,800

Occupation wages here utilize BLS OEWS data, imputed and brought forward by Chmura.

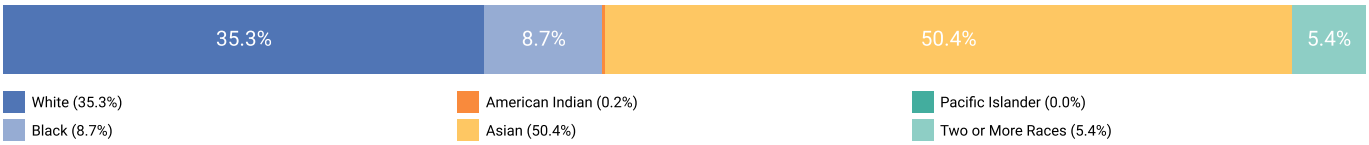
When this report is run for an occupation group, the table above displays up to the top ten detailed occupations which have the highest average wages within the occupation group.

Occupation Demographics

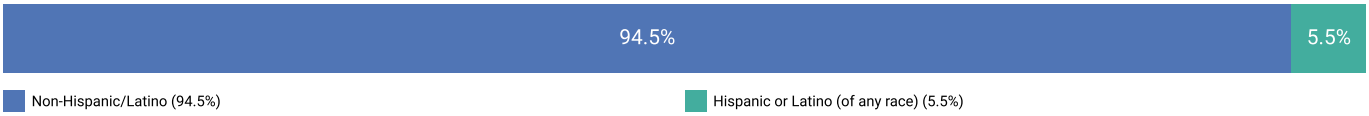
Age



Race

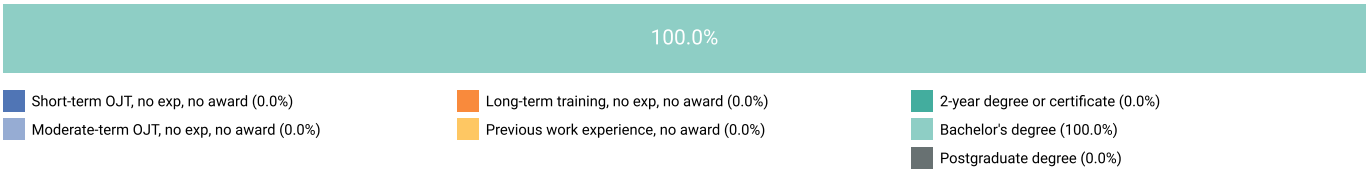


Ethnicity



Gender

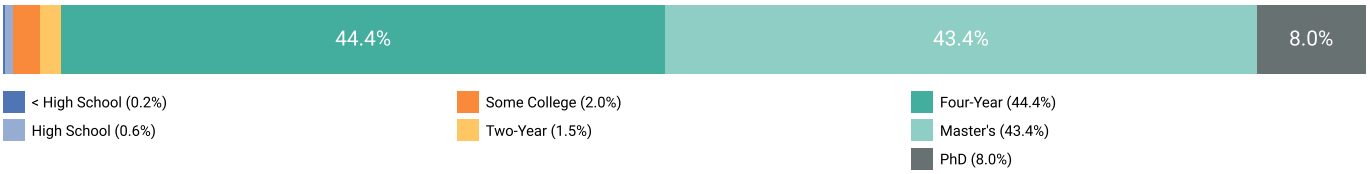
Education and Training Requirements



Source: JobsEQ®, http://www.chmuraecon.com/jobseq

Education Profile

Educational Attainment



Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Software Developers	Bachelor's degree	None	None

The stacked bar chart here illustrates the estimated mix of educational attainment of the workers in this occupation(s) in aggregate.

The table indicates typical education and training requirements rather than the mix of attainment of workers in such positions.

Postsecondary Programs Linked to Software Developers

Program	Awards
George Mason University	
Information Technology	451
George Washington University	
Computer Science	134
Information Science/Studies	81
Northern Virginia Community College	
Computer Science	294
Information Technology	403
Strayer University-Virginia	
Information Technology	103
University of Maryland Global Campus	
Information Science/Studies	2,460
University of Maryland-College Park	
Computer Engineering, General	113
Computer Science	1,055
Information Science/Studies	628

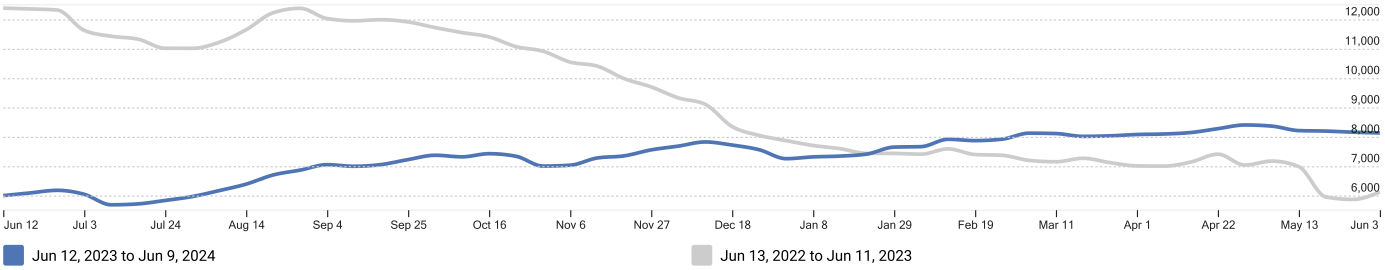
The number of graduates from postsecondary programs in the region identifies the pipeline of future workers as well as the training capacity to support industry demand.

Among postsecondary programs at schools located in the Washington-Arlington-Alexandria, DC-VA-MD-WV MSA, the sampling above identifies those most linked to Software Developers. For a complete list see JobsEQ®, http://www.chmuraecon.com/jobseq

Source: JobsEQ®, http://www.chmuraecon.com/jobseq

RTI (Job Postings)

Active Job Ads by Date



Online job ads are a timely indicator of local demand. Occupation assignments shown below are made by Chmura based upon analysis of job titles and job descriptions. Top employers and listed job requirements are shown on the following pages.

Occupations

SOC	Occupation	Active Job Ads	
15-1252.00	Software Developers	35,510	

Locations

Location	Active Job Ads
Washington, District Of Columbia	5,064
Mclean, Virginia	4,750
Reston, Virginia	2,482
Arlington, Virginia	2,056
Herndon, Virginia	1,533
Chantilly, Virginia	1,385
Bethesda, Maryland	679
Alexandria, Virginia	608
Fairfax, Virginia	593
Rockville, Maryland	514

Employers

Employer Name	Active Job Ads
CAPITAL ONE	2,427
Booz Allen	885
Leidos	709
SAIC	522
Get It Recruit - Information Technology	498
General Dynamics Information Technology, Inc.,	406
Deloitte	400
Peraton	399
ICF International	357
CACI International Inc	332

Hard Skills

Skill Name	Active Job Ads
Java	14,090
Computer Programming/Coding	13,844
Agile	13,614
Python	12,478
Amazon Web Services (AWS)	12,349
JavaScript	9,996
Structured Query Language (SQL)	9,573
Linux	6,872
Git	6,543
Microsoft Azure	6,442

Job Titles

Job Title	Active Job Ads
Software Engineer	981
Senior Software Engineer	715
Software Developer	541
DevOps Engineer	485
Full Stack Developer	431
Java Developer	234
Senior Full Stack Developer	225
Senior Software Developer	176
DevSecOps Engineer	160
Senior Java Developer	151

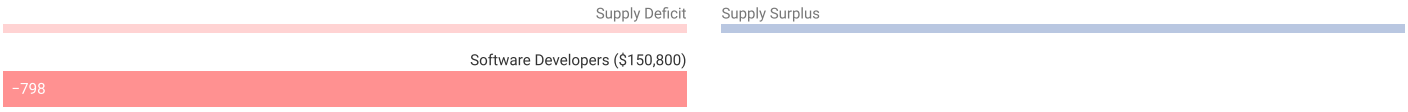
Education Levels

Minimum Education Level	Active Job Ads
Bachelor's degree	19,321
Master's degree	1,146
High school diploma or equivalent	840
Associate's degree	554
Doctoral or professional degree	111
Unspecified/other	13,538

Programs

Program Name	Active Job Ads
Computer Science	13,070
Engineering	4,623
Information Technology	2,258
Computer Engineering	2,094
Mathematics	1,937
Software Engineering	1,582
Information Systems	1,574
Technical	1,430
Science	967
Electrical Engineering	856

Occupation Gaps

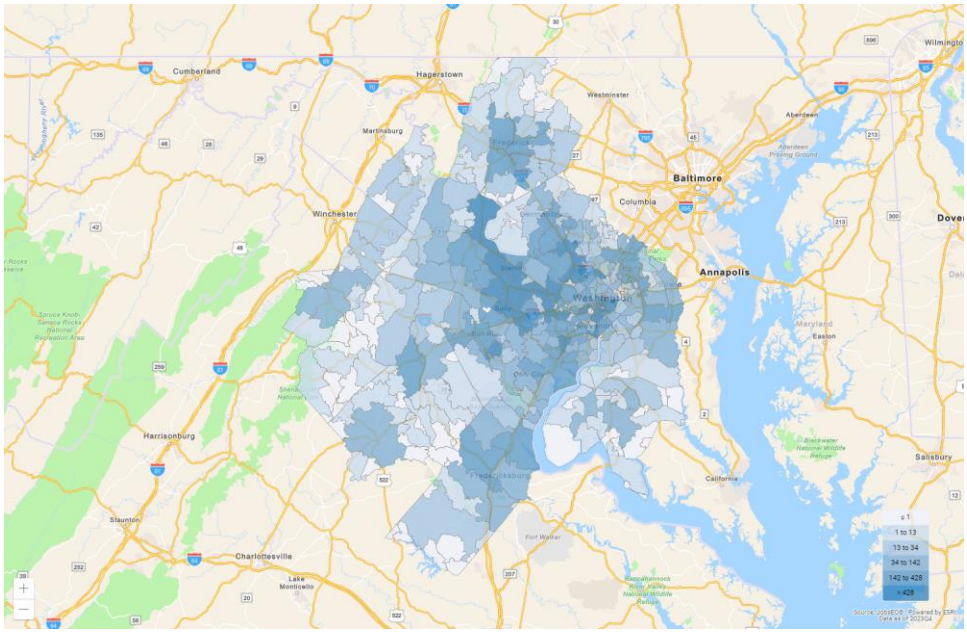


The above are the potential average annual gaps over 10 years. Many variables go into this analysis, but at its core it is based on a forecast comparing occupation demand growth to the local population growth and the projected educational attainment of those residents. When an area, for example, has an occupation expected to grow quickly but the educational requirement for the occupation does not match well with the educational attainment of its residents, there is a high potential for an occupation shortfall in the region. Alternatively, slow-growing or contracting occupations often represent potential supply surpluses.

The potential supply shortfall is an underlying force that the market needs to resolve one way or another, such as by employers recruiting from further distances for these occupations, wages going up to attract more candidates, and/or increased demand and wages enticing more local residents to get training for these occupations. While this an important analysis for determining local occupation needs, the occupation gap should be considered along with other regional data including growth and separation forecasts, unemployment rates, wage trends, and award and skill gap analyses.

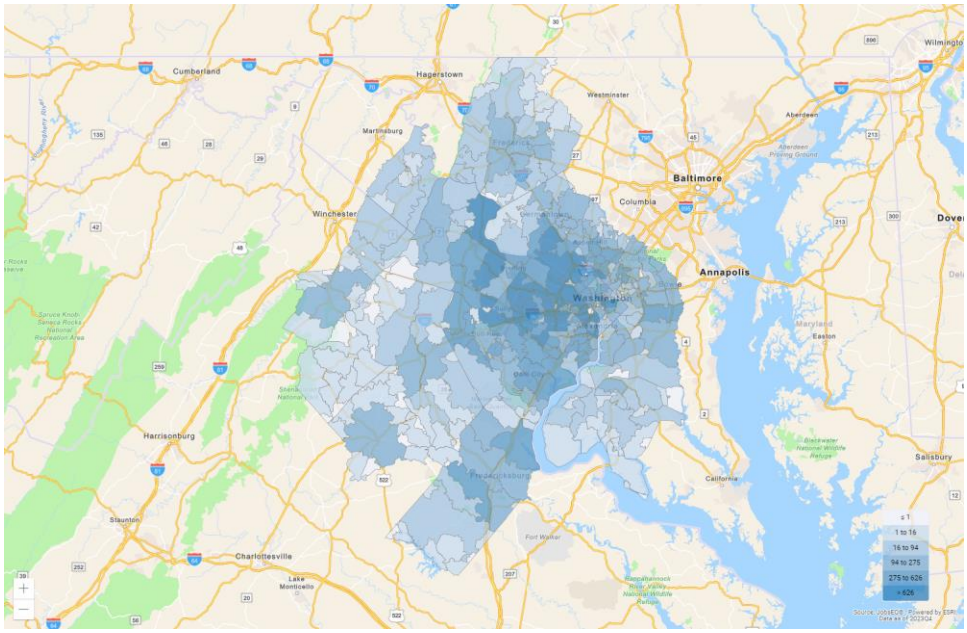
Source: JobsEQ®, http://www.chmuraecon.com/jobseq

Geographic Distribution



Top ZCTAs by Place of Work for Software Developers, 2023Q4

Region	Employment
ZCTA 22102	4,227
ZCTA 20151	3,085
ZCTA 20190	3,050
ZCTA 22182	2,666
ZCTA 20171	2,553
ZCTA 20191	1,806
ZCTA 22209	1,798
ZCTA 20166	1,630
ZCTA 22201	1,469
ZCTA 20850	1,447

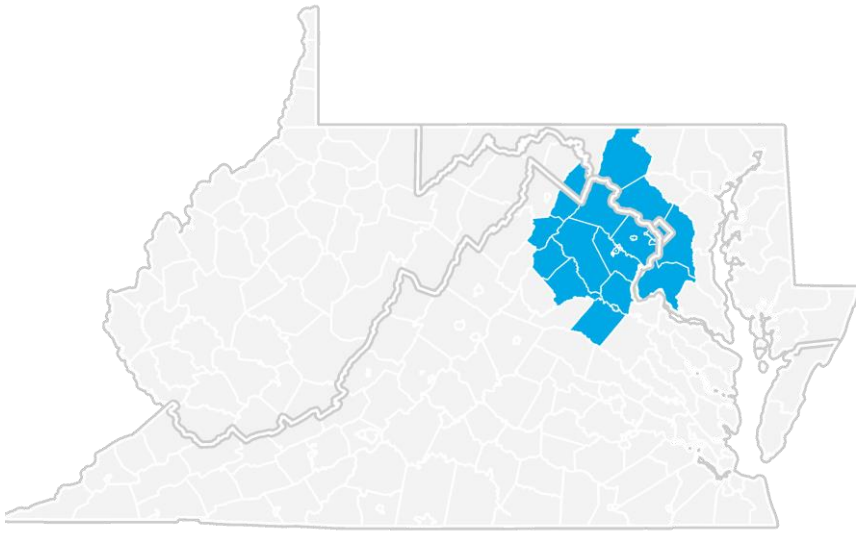


Top ZCTAs by Place of Residence for Software Developers, 2023Q4

Region	Employment
ZCTA 20171	1,759
ZCTA 22201	1,553
ZCTA 20148	1,531
ZCTA 20147	1,252
ZCTA 22102	1,206
ZCTA 22101 (Fairfax County, Virginia portion)	1,149
ZCTA 22033	1,042
ZCTA 22182	1,021
ZCTA 22030 (Fairfax County, Virginia portion)	987
ZCTA 20170	972

"Place of work" employment is based upon the location of employers for these workers. "Place of residence" data refers to the home locations of the workforce, which is typically the preferred data set to use when calculating labor availability within a drive-time or radius of a potential worksite.

Washington-Arlington-Alexandria, DC-VA-MD-WV MSA Regional Map



Source: JobsEQ®, http://www.chmuraecon.com/jobseq

Data Notes

- Occupation employment by default indicates employment by place of work. Occupation employment is as of 2023Q4 and is based on industry employment and local staffing patterns calculated by Chmura and utilizing BLS OEWS data. Employment forecasts are modeled by Chmura and are consistent with BLS national-level 10-year forecasts. Wages by occupation are as of 2023Q4, utilizing BLS OEWS data, imputed and brought forward by Chmura. Entry-level and experienced wages are derived from these source data, computed by Chmura.
- Industry employment is as of 2023Q4 and is based upon BLS QCEW data, imputed by Chmura where necessary, and supplemented by additional sources including Census ZBP data.
- Education and training requirements are from the BLS. Educational attainment mix and other occupation demographics data are modeled by Chmura for 2023Q4 using regional occupation employment from JobsEQ, ZCTA-level demographics data from the Census Bureau, and national occupation-demographics patterns from the BLS.
- Postsecondary awards are per the NCES and are for the 2021-2022 academic year. Any programs shown are linked with the occupation(s) being analyzed via the program-occupation crosswalk, which may not be comprehensive. Any programs shown reflect only data reported to the NCES; reporting is required of all Title IV schools. Training providers that do not report data to the NCES are not reflected.
- Job ads data are online job posts from the Real-Time Intelligence (RTI) data set, produced by Chmura and gleaned from over 40,000 websites. Data reflect ads active during the 12-month period ending 06/13/2024 and advertised for any Zip Code Tabulation Area in or intersecting with the region for which this report was produced. Historical ad volume is revised as additional data are made available and processed. Since many extraneous factors can affect short-term volume of online job postings, time-series data can be volatile and should be used with caution. All ad counts represent deduplicated figures and exclude ads from staffing companies.
- For skill and certification gaps, openings and candidates are based upon regional occupation demand (growth plus separations) and the percent of skill demand and supply. Skill demand mix data are per a one-year sample of RTI data; skill supply data are estimated using a five-year sample of resumes data; both data sets compiled as of July 2022. Data may be based, at least in part, on data from broader geographies; see the Skill Gaps analytic export for more details.
- Occupation gaps are modeled by Chmura, indicating long-term potential supply and demand mismatches in a region due, in part, to job demand and labor pool dyanamics, including educational attainment and projected growth.
- Occupation employment by place of residence is as of 2023Q4 and modeled by Chmura based upon occuaption employment by place of work and commuting patterns. Commuting patterns are derived from source data from the Census Bureau, occupation-specific commuting tendancies, and updated to reflect more recent population and employment estimates.
- Figures may not sum due to rounding.

Region Definition

Washington-Arlington-Alexandria, DC-VA-MD-WV MSA is defined as the following counties:

Arlington County, Virginia	Fairfax City, Virginia
Clarke County, Virginia	Falls Church City, Virginia
Culpeper County, Virginia	Fredericksburg City, Virginia
Fairfax County, Virginia	Manassas City, Virginia
Fauquier County, Virginia	Manassas Park City, Virginia
Loudoun County, Virginia	District of Columbia
Prince William County, Virginia	Charles County, Maryland
Rappahannock County, Virginia	Frederick County, Maryland
Spotsylvania County, Virginia	Montgomery County, Maryland
Stafford County, Virginia	Prince George's County, Maryland
Warren County, Virginia	Jefferson County, West Virginia
Alexandria City, Virginia	

FAQ

What is (LQ) location quotient?

Location quotient is a measurement of concentration in comparison to the nation. An LQ of 1.00 indicates a region has the same concentration of an industry (or occupation) as the nation. An LQ of 2.00 would mean the region has twice the expected employment compared to the nation and an LQ of 0.50 would mean the region has half the expected employment in comparison to the nation.

What is annual demand?

Annual demand is a of the sum of the annual projected growth demand and separation demand. Separation demand is the number of jobs required due to separations—labor force exits (including retirements) and turnover resulting from workers moving from one occupation into another. Note that separation demand does not include all turnover—it does not include when workers stay in the same occupation but switch employers. Growth demand is the increase or decrease of jobs expected due to expansion or contraction of the overall number of jobs.