JOBSEQ

# Occupation Report

# Software Developers

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

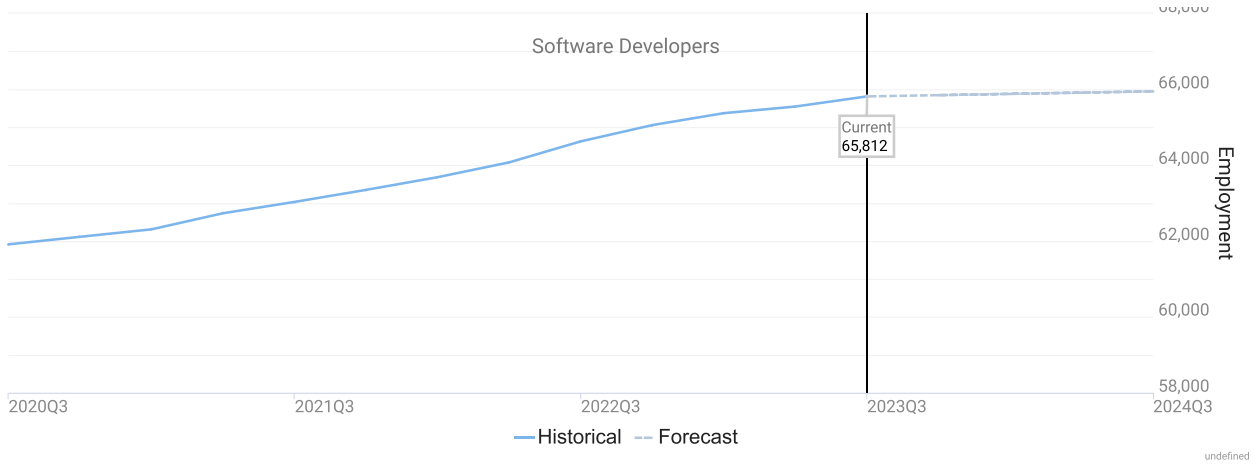
VIRGINIA CAREER WORKS

ALEXANDRIA | ARLINGTON REGION

Phone: 703.228.1412
Web: vcwalexandriaarlington.com
Twitter: @workcouncil

# Occupation Snapshot

| 6-Digit Occupation | Empl | Avg Mean Wages | LQ | 3-Year Empl Change | Annual Demand | Forecast Ann Growth |
|---|---|---|---|---|---|---|
| **Software Developers** | **65,812** | **$149,400** | **1.97** | **3,897** | **5,092** | **2.1%** |




"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).

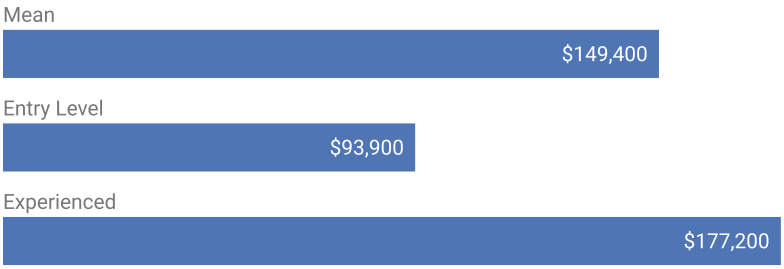
# Employment by Industry

| Industry Title | % of Occ Empl | Empl | 10-Year Separations | 10-Year Empl Growth | 10-Year Total Demand |
|---|---|---|---|---|---|
| Computer Systems Design and Related Services | 60.4% | 39,736 | 23,287 | 9,764 | 33,051 |
| Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services | 4.6% | 3,049 | 1,772 | 685 | 2,456 |
| Management, Scientific, and Technical Consulting Services | 4.4% | 2,871 | 1,662 | 618 | 2,280 |
| Software Publishers | 4.2% | 2,754 | 1,609 | 657 | 2,266 |
| Scientific Research and Development Services | 3.6% | 2,387 | 1,373 | 476 | 1,849 |
| Web Search Portals, Libraries, Archives, and Other Information Services | 3.0% | 1,998 | 1,188 | 563 | 1,751 |
| Architectural, Engineering, and Related Services | 2.5% | 1,661 | 936 | 252 | 1,187 |
| Management of Companies and Enterprises | 2.4% | 1,589 | 914 | 315 | 1,229 |
| Employment Services | 0.9% | 623 | 346 | 76 | 422 |
| Other Professional, Scientific, and Technical Services | 0.8% | 547 | 323 | 145 | 468 |
| Depository Credit Intermediation | 0.8% | 546 | 307 | 82 | 389 |
| Professional and Commercial Equipment and Supplies Merchant Wholesalers | 0.8% | 515 | 285 | 57 | 341 |
| Insurance Carriers | 0.7% | 480 | 278 | 104 | 382 |
| Nondepository Credit Intermediation | 0.7% | 442 | 252 | 78 | 330 |
| Communications Equipment Manufacturing | 0.6% | 425 | 238 | 59 | 297 |
| Navigational, Measuring, Electromedical, and Control Instruments Manufacturing | 0.6% | 411 | 233 | 69 | 302 |
| Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers | 0.6% | 385 | 218 | 64 | 282 |
| All Others | 8.2% | 5,394 | 3,034 | 805 | 3,839 |

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.

# Wages



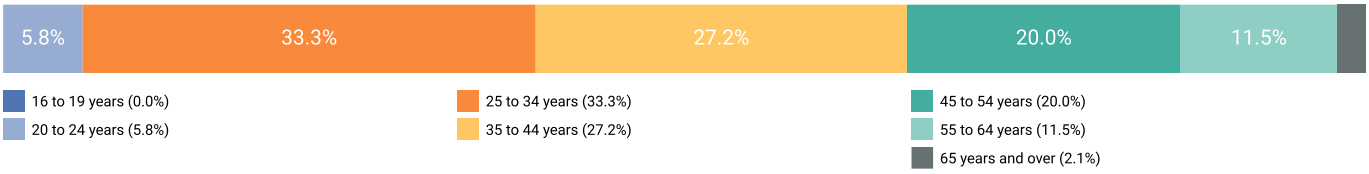

| Occupation | Mean | Median | Entry Level | Experienced |
|---|---|---|---|---|
| Software Developers | $149,400 | $144,500 | $93,900 | $177,200 |

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

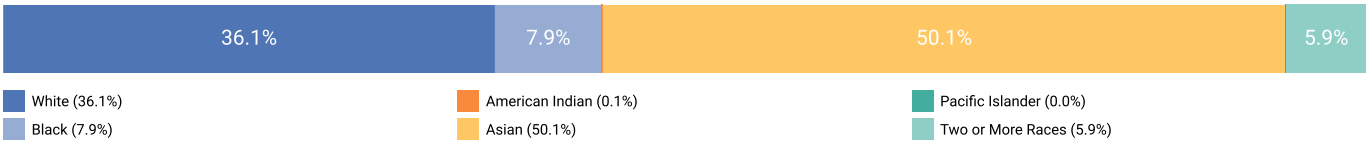
When this report is run for an occupation group, the table above displays up to the top ten detailed occupations which have the highest average wages within the occupation group.

# Occupation Demographics

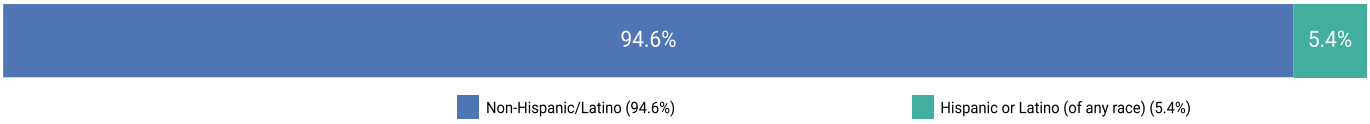
## Age




## Race

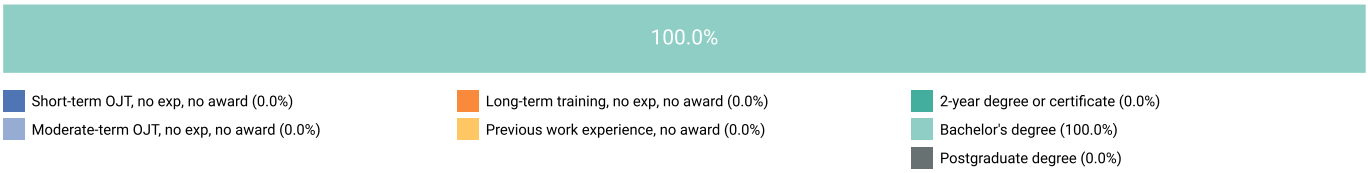



## Ethnicity




## Gender

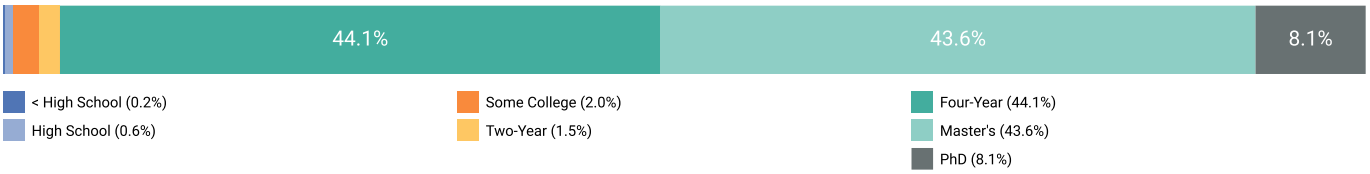

## Education and Training Requirements




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 |

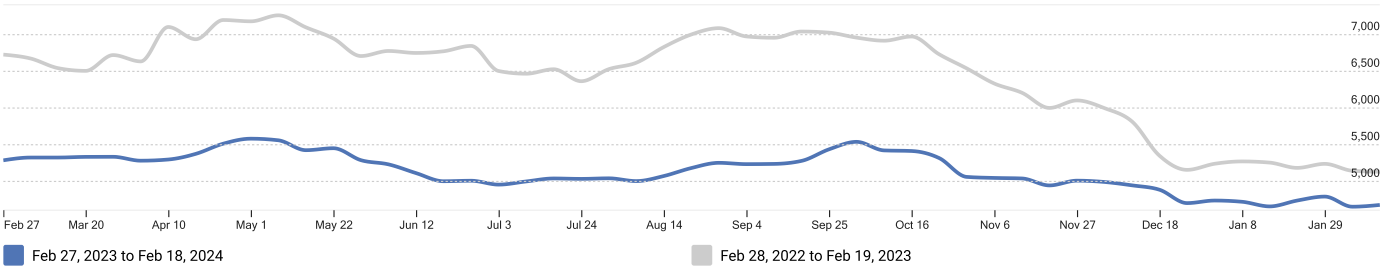
The number of graduates from postsecondary programs in the region identifies the pipeline of future workers as well as the training capacity to support industry demand.

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 | 26,086 | |

**Locations**

| Location | Active Job Ads |
|---|---|
| Mclean, Virginia | 2,622 |
| Washington, District Of Columbia | 2,499 |
| Reston, Virginia | 1,216 |
| Arlington, Virginia | 1,048 |
| Herndon, Virginia | 862 |
| Chantilly, Virginia | 820 |
| Washington, DC, 20001 | 691 |
| Fairfax, Virginia | 374 |
| Bethesda, Maryland | 354 |
| Alexandria, Virginia | 351 |

**Employers**

| Employer Name | Active Job Ads |
|---|---|
| CAPITAL ONE | 1,288 |
| Booz Allen | 719 |
| Leidos | 535 |
| SAIC | 467 |
| General Dynamics Information Technology, Inc., | 375 |
| Deloitte | 342 |
| ICF International | 316 |
| Peraton | 306 |
| CACI International Inc | 240 |
| Jacobs | 205 |

**Hard Skills**

| Skill Name | Active Job Ads |
|---|---|
| Java | 11,218 |
| Computer Programming/Coding | 10,786 |
| Agile | 10,504 |
| Python | 8,333 |
| JavaScript | 8,011 |
| Amazon Web Services (AWS) | 7,637 |
| Structured Query Language (SQL) | 7,466 |
| Git | 4,640 |
| Linux | 4,517 |
| CSS | 3,930 |

**Job Titles**

| Job Title | Active Job Ads |
|---|---|
| Software Engineer | 691 |
| Software Developer | 511 |
| Senior Software Engineer | 472 |
| Full Stack Developer | 329 |
| Java Developer | 183 |
| Senior Software Developer | 157 |
| Senior Java Developer | 122 |
| Salesforce Developer | 121 |
| ServiceNow Developer | 115 |
| Python Developer | 111 |

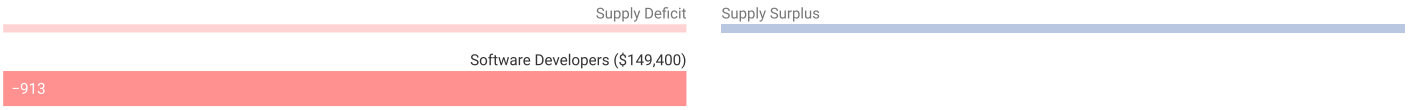
**Education Levels**

| Minimum Education Level | Active Job Ads |
|---|---|
| Bachelor's degree | 13,762 |
| Master's degree | 722 |
| High school diploma or equivalent | 570 |
| Associate's degree | 385 |
| Doctoral or professional degree | 51 |
| Unspecified/other | 10,596 |

**Programs**

| Program Name | Active Job Ads |
|---|---|
| Computer Science | 9,125 |
| Engineering | 3,038 |
| Computer Engineering | 1,526 |
| Information Technology | 1,375 |
| Mathematics | 1,267 |
| Technical | 1,219 |
| Information Systems | 1,153 |
| Software Engineering | 1,053 |
| Science | 652 |
| Electrical Engineering | 615 |

# Occupation Gaps





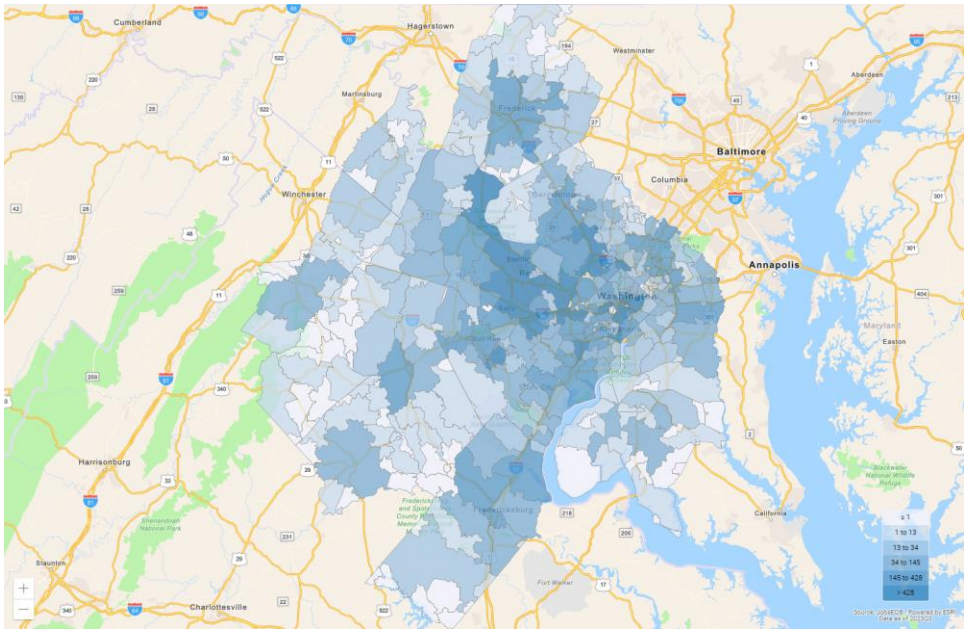


The above are the potential average annual gaps over 10 years. Many variables go into this analysis, but at its core it is based on a forecast comparing occupation demand growth to the local population growth and the projected educational attainment of those residents. When an area, for example, has 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

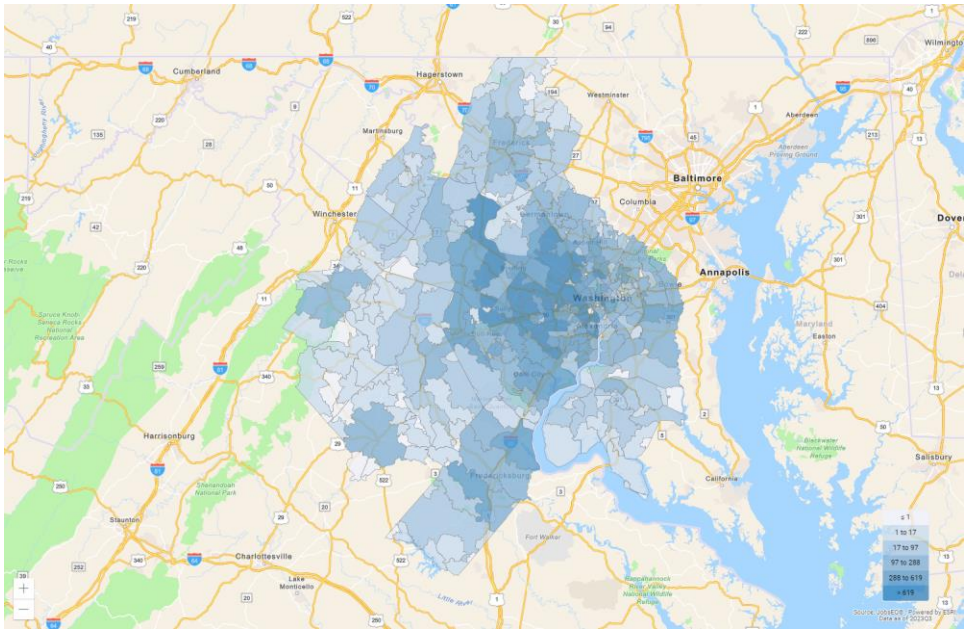
# Geographic Distribution




**Top ZCTAs by Place of Work for Software Developers, 2023Q3**

| Region | Employment |
|---|---|
| ZCTA 22102 | 4,263 |
| ZCTA 20151 | 3,109 |
| ZCTA 20190 | 3,071 |
| ZCTA 22182 | 2,686 |
| ZCTA 20171 | 2,573 |
| ZCTA 20191 | 1,820 |
| ZCTA 22209 | 1,804 |
| ZCTA 20166 | 1,634 |
| ZCTA 22201 | 1,478 |
| ZCTA 20850 | 1,461 |

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

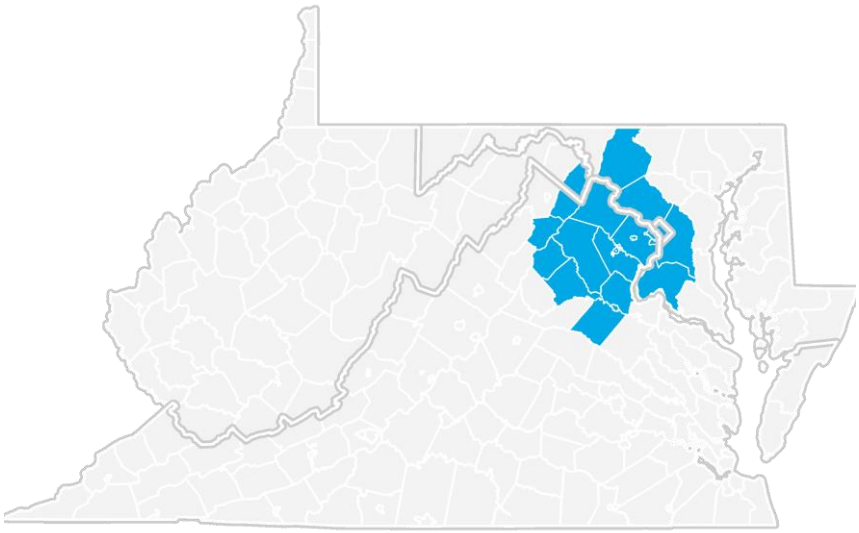



**Top ZCTAs by Place of Residence for Software Developers, 2023Q3**

| Region | Employment |
|---|---|
| ZCTA 20171 | 1,757 |
| ZCTA 22201 | 1,685 |
| ZCTA 20148 | 1,346 |
| ZCTA 22102 | 1,195 |
| ZCTA 20147 | 1,192 |
| ZCTA 22101 (Fairfax County, Virginia portion) | 1,152 |
| ZCTA 22182 | 1,054 |
| ZCTA 22031 (Fairfax County, Virginia portion) | 1,040 |
| ZCTA 22033 | 1,037 |
| ZCTA 22030 (Fairfax County, Virginia portion) | 1,006 |

"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



# Data Notes

- Occupation employment by default indicates employment by place of work. Occupation employment is as of 2023Q3 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 2023Q3, 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 2023Q3 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 2023Q3 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 02/27/2024 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 2023Q3 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.