

Statewide Economic Analysis Report

Division of Economic Information & Analytics
2021-2022 Program Year



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Introduction



The Statewide Economic Analysis (SEA) Report is an annual publication that is meant to serve as a resource for policy makers, researchers, employers, job seekers, and workforce development professionals. The data presented in this report draws from multiple sources including the Economic Information & Analytics' (EIA) labor market information and other economic and demographic data, and provides a detailed look at Virginia's economy, such as: its composition; what drives it; and where it's going. It also gives an overview of regional trends within the state by presenting detailed information on local workforce development area (LWDA) labor markets.

Ultimately, this report is part of an ongoing effort to put labor market information into the hands of those who need it to better understand Virginia's rapidly changing labor market, whether it be a workforce development professional analyzing demographic and claims data to estimate local available labor supply or a school administrator using occupational projections estimates to help prepare students for the high-growth, high-wage jobs of the future.

Part I: Statewide Analysis



The Virginia Economy

During the 2021-2022 program year, attention was focused on Virginia's labor market recovery from the 2020 recession amid heightened concerns about the direction of the economy. The Commonwealth's labor markets remained turbulent but the issues that surfaced were very different from those of the previous 'pandemic' year, with its historic increases in unemployment and sharp declines in jobs. During the 2021-2022 program year, employers added jobs to pre-pandemic levels but the supply of labor in Virginia lagged in its recovery as evidenced by fewer working age individuals employed or looking for employment than two years before. This disequilibrium contributed to new challenges becoming leading concerns to Virginia employers, like record rates of job quitting and unfilled job openings.

The pandemic continued to leave its mark on the Virginia economy as incomes were boosted by transfer payments and other relief in the fourth quarter of 2021, followed by a contraction in the first quarter of 2022. In the second half of 2021, Virginia's economy expanded rapidly as real gross domestic product (GDP) increased by an annual rate of 6.0% in the fourth quarter. The growth was primarily led by the service sector. The two largest industry contributors to growth were professional, scientific, and technical services and information, which helped the Northern Virginia job market catch up after a sputtering reopening in 2020. Following that rapid growth, Virginia's real gross domestic product (GDP) decreased at the annual rate of 1.7% in the first quarter of 2022. Other indicators also pointed toward a potential slowdown. However, an argument against the economy being in a recession remained to be the strength of the labor market, where employers continued to add jobs at a healthy pace through the first half of 2022.

Employer demand for labor, as reflected in the growth of payroll jobs, confirmed that the economic recovery continued during 2021-2022 program year, although it moderated when compared to the 'v-shaped' job growth seen in the second quarter of 2020. From June 2021 to June 2022, payroll establishments in Virginia gained 128,500 jobs, an increase of 3.3% and only 1% off of the pre-Pandemic level in February 2020. Payroll job gains were led by the private sector—particularly the service sector, which comprised 96% of the growth. The leaders were those that were impacted most during the pandemic shutdowns. Arts, entertainment, and recreation rose by nearly 50% while accommodation and food service rose by 13%. Together, leisure and hospitality recovered all job losses when compared to pre-pandemic levels in June 2019. This boosted the total number of payroll jobs in Virginia, which also regained all job losses over that period. Payroll job growth had outpaced labor force growth since the recovery began

in the middle of 2020 by adding nearly a half million jobs, or over 12%, when compared the pandemic low set in April 2020. If the 63% labor force participation rate in June 2021 was the same as two years earlier (66.3%), approximately a quarter of a million more Virginians would have remained in the labor force to help fill those jobs.

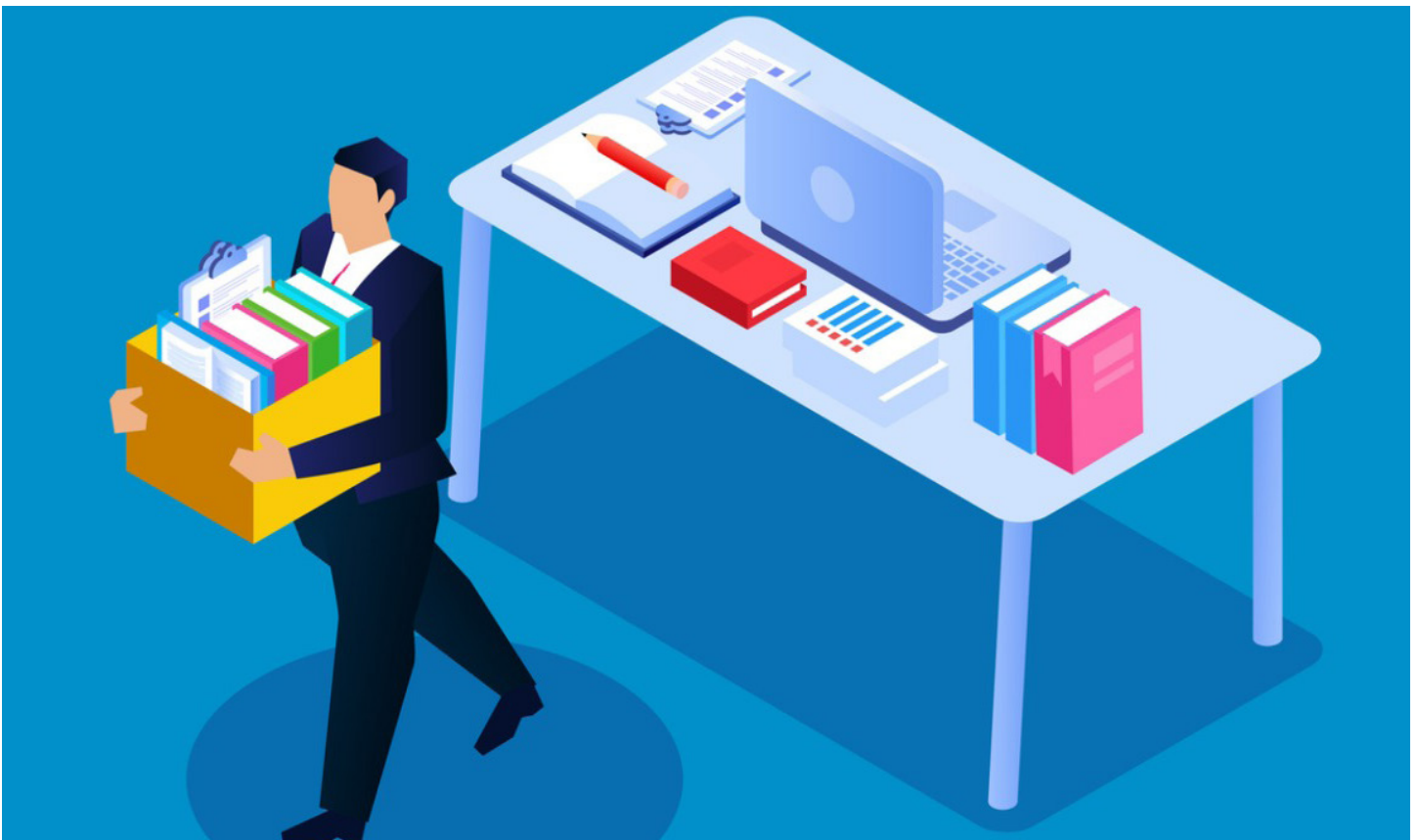
One explanation for why labor force growth trailed payroll job growth is that residents exited the labor force at a greater rate than before the pandemic. The labor force participation rate in June 2022 was 63.8%. While this was an improvement from the record-setting low set in December 2021, it was two and a half percentage points lower than before the pandemic at the beginning of 2020. The series high for the labor force participation rate in Virginia last occurred in June 1992 when the labor force participation rate hit 70.9% and has slowly declined ever since.

The rate of participation is not the only factor that influences the size of the labor supply. Population growth is also important. Virginia's population growth and demographics have helped to support its labor force growth over the years. 2020 census data showed that Virginia's population grew 7.9% between 2010 and 2020. This was the slowest pace in state history and may have contributed to slower labor force growth. While not impressive by its historical standard, the good news is that it was still above the national rate of 7.4%. In addition, Virginia's 8.63 million residents in 2020 were younger and more diverse than average.

Another explanation could be that payroll jobs climbed to pre-pandemic levels even as labor force participation trailed due, in part, to underemployed Virginians taking on multiple part-time jobs. While the program year 2021 - 2022 saw a 3.0% unemployment rate in Virginia, there was an additional 2.3% of residents who were working part-time for economic reasons.

While the number of jobs and workers are important, only looking at broad measures of labor supply and demand may not tell the whole story of other challenges that employers faced during the 2021-2022 program year, like the very large numbers of unfilled positions and quitting workers.

The Commonwealth's full recovery from the 2020 recession was held back by the continued challenge that employers faced in filling job openings. According to the Virginia Employment Commission (VEC) analysis of the Bureau of Labor Statistics (BLS) Job Openings and Labor Turnover Survey (JOLTS) data, the number of June 2022 job openings in Virginia was 324,000 and was a 12,000 increase from May 2022's revised figure, but lower than the record



340,000 reached in March of this year. That translates to less than one unemployed worker for every two job openings in the Commonwealth. This rate held steady over most of 2022 and marked the lowest rate since January 2001, when BLS began collecting the data.

An estimated 114,000 workers quit jobs from Virginia employers in June 2022. The number of quits was 8.6% higher than a year earlier. However, it was down significantly from the record-breaking month of December 2021 when 131,000 Virginia workers quit their jobs. The elevated number of quits in 2021 can be seen as a leading indicator of wage trends in that it includes workers who quit to move to another job. Unfortunately, many found that even switching jobs for higher wages didn't insulate them from higher prices at the gas pump and the grocery store, as signs of inflation became evident across the Commonwealth in 2022.

JOLTS data on the number of layoffs in Virginia tell a similar story. The number of layoffs and discharges in Virginia decreased by 13,000 to 28,000 in June 2022 from May's revised 41,000 figure. This was a reduction of nearly a quarter over the year, and nearly 7% lower than five years before in 2018. In such an environment, low numbers of layoffs in November may be an additional indication of employers' efforts to hold onto scarce workers. With both layoffs and unemployment in the state at very low levels, firms appeared reluctant to let staff go amid near record-high numbers of job openings.

Finally, it is unlikely that very large numbers of Virginians who could fill positions were, instead, receiving unemployment insurance. September 2021 saw the end of expanded federal unemployment benefits while the number of people filing claims for unemployment insurance during the 2021-2022 program year reached historic lows. For example, in the filing week ending June 25, 2022, the figure for seasonally unadjusted initial claims in Virginia was only 1,554, which was 81% lower than the 8,196 initial claims from the comparable week in 2021. Which, in turn, was a small fraction of claims from the pandemic year of 2020.

Looking back over the 2021-2022 program year, labor market information and analysis provided by the Virginia Employment Commission indicate that the Commonwealth of Virginia continued in its recovery from economic recession brought on by the pandemic. The number of payroll jobs returned to pre-pandemic levels in Virginia but household employment and labor force participation were slower to recover. While those figures illustrate trends, they don't tell the whole story of Virginia's labor market during the 2021-2022 program year. Information on unemployment insurance claims, job openings and labor turnover adds needed context by helping us better understand recent trends like The Great Resignation and record-setting numbers of job openings.

Virginia Snapshot

Table 1 provides a snapshot of the most recent economic data for Virginia, the change over the last five years, and how Virginia compares to the nation. The Commonwealth's overall story is one of steady growth and a demographically diverse workforce. Between 2015 and 2020, the most recent data available, the Virginia population for the young professional eligible population aged 20 to 34 years had a 0.6 percent decrease. There was a slight decrease in the number of adults of mid-working age, with 68.2 percent of the population falling into the prime working years aged between 20 and 74. This portion of the population is most likely to be educated, with work experience, and have an established career. Using those metrics as a basis, Virginia can expect to hold the economy steady in the near future. Another thing to consider is that the younger cohort (20 to 34 years old) and the older cohort (55 to 74 years old) are close in size, meaning that as individuals age out of the workforce, there are individuals ready to enter into their positions.

One matter that may prove problematic for Virginia's age group of 35 to 54 year cohort is that they are the most likely to enter into positions vacated by the aging population of 55 to 74 years old. In this case, the 35 to 54 year cohort is significantly larger than those aged 55 to 74 years. As the older population group retires, the positions that open up will not be in large enough supply for the younger workers to move into, thus setting the stage for underemployment and discouragement among the workforce in that age group.

Table 1: Virginia's Economic Snapshot, 5-Year Trend

	Subject	Virginia, 2015	Virginia, 2020	US Total, 2015	5-Year Change
Demographics: U.S. Census Bureau, American Community Survey 5-Year Estimates	Total Population	8,256,630	8,509,358	326,569,308	3.1%
	Male	4,060,948 (49.2%)	4,186,543 (49.2%)	160,818,530 (49.2%)	1.5%
	Female	4,195,682 (50.8%)	4,322,815 (50.8%)	165,750,778 (50.8%)	1.6%
	0 to 14 Years	1,551,345 (18.8%)	1,552,299 (18.2%)	60,737,141 (18.6%)	-0.2%
	15 to 19 Years	547,283 (6.6%)	552,067 (6.5%)	21,174,955 (6.5%)	0.5%
	20 to 34 Years	1,745,703 (21.1%)	1,753,952 (20.6%)	67,305,543 (20.6%)	-0.6%
	35 to 54 Years	2,285,355 (27.7%)	2,233,284 (26.2%)	82,887,413 (25.4%)	-1.4%
	55 to 74 Years	1,670,787 (20.2%)	1,883,644 (22.1%)	72,649,389 (22.2%)	6.5%
	75 Years and Over	456,157 (5.5%)	534,112 (6.3%)	21,814,867 (6.7%)	11.4%
	Median Age	37.6 Years	38.4 Years	38.2 Years	2.1%
	White	5,695,147 (69.0%)	5,643,436 (66.3%)	229,960,813 (70.4%)	-0.9%
	Black or African American	1,589,345 (19.2%)	1,620,649 (19.0%)	41,227,384 (12.6%)	2.0%
	American Indian and Alaska Native	22,570 (0.3%)	22,553 (0.3%)	2,688,614 (0.8%)	-0.1%
	Asian	492,973 (6.0%)	570,398 (6.7%)	18,421,637 (5.6%)	15.7%
	Native Hawaiian and Other Pacific Islander	5,304 (0.1%)	5,994 (0.1%)	611,404 (0.2%)	13.0%
	Some Other Race	183,124 (2.2%)	240,542 (2.8%)	16,783,914 (5.1%)	31.4%
	Two or More Races	268,167 (3.2%)	405,786 (4.8%)	16,875,542 (5.2%)	51.3%
	Percent of persons under 65 with any disability	7.7%	8.0%	8.7%	3.9%
	Percent of persons under 65 without health insurance	11.3%	8.1%	8.6%	-28.3%
	Persons 25 and older with a high school diploma or higher	88.3%	90.3%	88.5%	2.3%
	Persons 25 and older with a bachelor's degree or higher	36.3%	39.5%	32.9%	8.8%
Income: U.S. Department of Commerce, Bureau of Economic Analysis	Real GDP (2012 dollars)	\$455.2 Billion	\$473.8 Billion	\$18.4 Trillion	4.1%
	Real GDP per capita (2012 dollars)	\$55,131	\$55,680	\$56,343	1.0%
	Per capita Personal Income	\$52,238	\$61,661	\$59,147	18.0%
	Per capita Disposable Income	\$45,516	\$54,022	\$52,531	18.7%

U.S. Census Bureau, American Community Survey

*Due to data collection constraints, data is presented for 2015 and 2020

Industrial Landscape

Existing Demand for Major Industry and Occupations

For years the main industries of employment for Virginians have been, and continue to be, health care and social assistance, professional, scientific, and technical services, retail trade, educational services, and accommodation and food services; while the mining, agricultural, utilities, and real estate industries exert the least influence on state employment. **Appendix A** reports the number of establishments, average employment, total wages, and average annual salary for each industry sector (2-digit NAICS level) as reported by the Quarterly Census of Employment and Wages (QCEW) program.

Location quotients (LQs) illustrate that the industrial share of Virginia's economy largely mirrors that of the nation; a quotient of one indicates that the industry's share of Virginia's employment or total wages is equal to the industry's national share.

One noteworthy finding is the extremely low statistic for both the mining and agriculture industries. This suggests that Virginia's economy as a whole has a much lower concentration in those industries than the national average. While true, it's important to note that specific areas in the state have a higher percent of their employment in those industries. For example, southern Virginia has a higher concentration of agriculture, while the region around the Appalachian Mountains has a higher concentration of mining.

Mining still accounts for five percent of all employment in the Southwest Virginia Local Workforce Development Area, as well as almost ten percent of the area's total wages. However, this is the only workforce area in the state with a notable mining presence in the local economy, as the industry is either completely absent or accounts for less than one percent of area establishments, employment and wages in all other regions. In fact, even with the large presence in the southwest there is a small overall impact on the state's economy compared to the substantial impact to the region. This large imbalance creates the low quotient identified here. Were the industry to be more widespread and have a greater impact on the economy, there would be a larger location quotient. While significant, Virginia is likely not the only state with a low quotient for the mining industry.

On the other end, Professional Scientific and Technical Services has an employment LQ of 1.67, and a total wages LQ of 1.69. As was the case with the mining industry, professional services are disproportionately spread out in the Commonwealth, concentrated largely in the Northern Virginia and Alexandria/Arlington workforce areas. However, unlike mining in southwest Virginia, the northern Virginia region and the Professional Scientific and Technical Services industry are very large contributors to the statewide economy. The industry accounts for more than 16 percent of all Virginia establishments, over 11 percent of employment, and more than 20 percent of total wages.

Appendix B further highlights the current relative importance of the Healthcare, Accommodation, Professional Services, Retail, and Education industries. Looking at the 20-year progression illustrated by the three figures we see how the landscape of Virginia's economy has evolved. For instance, the Manufacturing industry dropped significantly between 2001 and 2011, going from 10 and 11 percent of statewide employment and total wages, respectively, in 2001 to 7 and 7 percent in 2011. However, the declines seemed to have slowed in the most recent decade, with both figures only dropping one additional percentage point to 6.0%. On the other hand, Professional, Scientific and Technical Services has seen a substantial increase since 2001, going from 9.0% of employment in 2001 to 12.0% in 2021.

Turning to occupations, **Table 2** displays the most recent Occupation and Employment and Wage Statistics (OEWS) program data. Office and Administrative Support positions rank undeniably first in terms of employment levels, which underscores the narrative of moving from goods-producing work such as manufacturing, to more white-collar positions in industries such as professional services and health care. Office and Administrative Support positions are concentrated in the professional, education, and retail industries, so it is important to remember that this is not a new trend and has been common knowledge for more than ten years.

In years past, there has been a focus on discussing how Virginia's economy, as well as the national economy, is moving from a goods-producing to more service-providing economy. Now, there seems to be a heavier focus on

continuing this process with a focus on technology. This is underscored by the 1.97% average annual growth rate for Computer and Mathematical Occupations. The only other occupation groups that show a similar level of growth are those related to healthcare. Between an aging population and efforts surrounding COVID-19, it's not surprising that these occupations are also in demand.

Table 2: Overview of Major Occupations, May 2021

Occupation	Employment	Median Salary	Average Annual Growth*	Top Employing Industry
Architecture and Engineering	71,170	\$88,230	0.69%	Professional, Scientific, and Technical Services
Arts, Design, Entertainment, Sports, & Media	47,570	\$57,540	0.81%	Professional, Scientific, and Technical Services
Building and Grounds Cleaning & Maintenance	116,440	\$29,390	0.68%	Administrative and Support and Waste Management and Remediation Services
Business and Financial Operations	343,280	\$79,580	1.03%	Professional, Scientific, and Technical Services
Community and Social Services	60,250	\$48,360	1.34%	Health Care and Social Assistance
Computer and Mathematical	219,330	\$101,680	1.68%	Professional, Scientific, and Technical Services
Construction and Extraction	166,280	\$47,100	0.93%	Construction
Education, Training, and Library	227,910	\$59,070	1.30%	Educational Services
Farming, Fishing, and Forestry	5,730	\$32,780	0.61%	Agriculture, Forestry, Fishing and Hunting
Food Preparation and Serving Related	286,370	\$24,470	2.03%	Accommodation and Food Services
Healthcare Practitioners and Technical	217,480	\$74,830	1.23%	Health Care and Social Assistance
Healthcare Support	135,010	\$29,130	2.14%	Health Care and Social Assistance
Installation, Maintenance, & Repair	153,200	\$48,400	0.93%	Construction
Legal	35,100	\$99,880	-0.08%	Professional, Scientific, and Technical Services
Life, Physical, & Social Sciences	37,310	\$79,500	0.48%	Professional, Scientific, and Technical Services
Management	210,990	\$126,340	1.03%	Professional, Scientific, and Technical Services
Office and Administrative Support	438,470	\$37,840	0.01%	Retail Trade
Personal Care and Service	71,940	\$29,130	2.29%	Health Care and Social Assistance
Production	163,550	\$37,750	0.64%	Manufacturing
Protective Service	99,950	\$46,590	0.88%	Administrative and Support and Waste Management and Remediation Services
Sales and Related	354,360	\$29,870	0.18%	Retail Trade
Transportation and Material Moving	291,540	\$36,520	1.46%	Transportation and Warehousing
State Total/Average	3,753,230	\$47,200	1.00%	Health Care and Social Assistance

Source: Virginia Employment Commission, Occupational Employment and Wage Statistics program

Totals may not sum due to rounding.

*Growth based on 2020-2030 Long-term Occupational Projections, Virginia Employment Commission

Virginia's Labor Force

Employment and Unemployment in Virginia¹

When gauging the overall health of the economy, oftentimes policymakers, the media, and other decision makers will use the unemployment rate as the most important, if not the only, indicator. **Table 3** illustrates why labor force indicators should be viewed holistically. From July of 2018 to July of 2022, there was no change in the not-seasonally adjusted unemployment rate. However, the labor force dropped by slightly more than 50,000 people, or a 1.16% decrease. While not cause for alarm, especially when contextualized with the recovery from COVID-19 and an increasingly aging population, it does tell a very different story than what the unemployment rate shows alone. Additionally, labor force participation is also down by 2.3 percentage points. The lower participation rate is theorized to come largely from aging out of the population, and from a delay of workers reentering the workforce after they were pushed out during the pandemic.

Table 3: Local Area Unemployment Statistics (Not Seasonally Adjusted)

Unemployment Statistic	July 2022	July 2018	5-Year Actual Change	5-Year Percent Change
Labor Force	4,389,393	4,440,966	-51,573	-1.16%
Number of Employed	4,261,929	4,310,313	-48,384	-1.12%
Number of Unemployed	127,464	130,653	-3,189	-2.44%
Unemployment Rate	2.9%	2.9%	0	0%
Labor Force Participation Rate*	64.3%	66.6%	-2.3	-3.45%

Source: Virginia Employment Commission, Local Area Unemployment Statistics Program.
Totals may not add due to rounding.

Table 4 examines unemployment insurance claimants in Virginia by sex and age. Females made up a much larger segment of initial claims in July. Since most measures of labor force participation show lower participation of females compared to males, the higher number of female claimants stands out further. Generally, the industries and occupations with the largest number of claims tend to have a female leaning skew of employment, leading to a higher number of female claimants compared to male overall. Looking at age, for most of the “prime age” categories, the number of claimants is relatively even in percentage terms. However, as the underlying population of workers skews older due to the baby boomer generation, we would expect the older age brackets to make up a larger share of claims.

Table 4: Who are the Unemployed?

Subject	Estimate (Percent)
Total Claimants	14,576
Male	6,102 (42%)
Female	8,474 (58%)
Under 22 Years	200 (1.4%)
22 to 24 Years	513 (3.5%)
25 to 34 Years	3,302 (22.7%)
35 to 44 Years	3,499 (24.0%)
45 to 54 Years	3,039 (20.8%)
55 to 64 Years	3,008 (20.6%)
65 Years and Over	1,015 (7.0%)

Source: Virginia Employment Commission, Characteristics of the Insured Unemployed – July 2022

Tables 5 and 6 look at unemployment claimants in terms of occupations and industries. Over the past three years, both the magnitude and the order of the top 10 industries and occupations have changed dramatically. This disparity

¹ For a thorough analysis of unemployment in the Commonwealth, please refer to the Virginia Employment Commission's Economic Information & Analytics Division publication, “Labor Supply and Demand in Virginia.” All versions can be found at <https://virginiaworks.com/publications/labor-supply-demand>

illustrates both the impact of COVID-19 and the recovery thereafter. For instance, the Accommodation and Food Services industry had 64,487 claimants in July of 2020. In July of 2021, the Accommodation and Food Services industry had only 925 claimants, and was the 4th largest industry in terms of claims volume, falling from its place as the 1st during 2020.

Table 5: Top 10 Occupations by Number of Claimants, July 2022

Occupation	July 2022	July 2021	July 2020
Office and Administrative Support	2,558	5,845	41,079
Management	1,846	4,578	28,679
Business and Financial Operations	1,044	1,756	9,063
Food Preparation and Serving Related	970	5,460	55,648
Sales and Related	942	4,284	32,564
Transportation and Material Moving	851	2,780	25,746
Production	711	2,858	16,447
Education, Training and Library	704	1,250	11,463
Computer and Math	548	1,083	6,921
Healthcare Support	489	2,011	12,543
Total	14,576	56,485	438,900

Source: Virginia Employment Commission

Table 6: Top 10 Industries by Number of Claimants, July 2022

Industry	July 2022	July 2021	July 2020
Administration and Support Services	1,266	4,832	19,074
Healthcare and Social Assistance	1,260	4,494	24,744
Professional, Scientific, and Technical Services	1,189	3,570	9,857
Accommodation and Food Services	925	5,644	64,487
Retail Trade	881	4,694	28,984
30Manufacturing	742	2,799	11,939
Finance and Insurance	568	1,261	2,373
Construction	506	2,307	8,568
Other Services	405	1,735	15,567
Education Services	366	1,097	9,028
Total	14,576	56,485	438,900

Source: Virginia Employment Commission

Tables 7 and 8 show the alternative measures of labor underutilization, underemployment, and job seeker discouragement. The alternative measures of labor underutilization produced by the Bureau of Labor Statistics (BLS) provides six measures of unemployment, each with varying degrees of exclusivity.² The **Glossary of Terms** outlines each measure of unemployment as well as underemployment and job seeker discouragement measures (U-1 - U-6). The most recent four-quarter average for the alternative measures of labor underutilization ends with the second quarter of 2022 and represents Virginia's 2021 fiscal year. With the exception of job seeker discouragement, all alternative measures of unemployment and labor underutilization decreased since the previous four-quarter average, as evidenced in **Table 7**. The decline of the alternative measures signals economic improvement in Virginia and shows the Commonwealth's recovery from the impact of the COVID-19 pandemic. Looking at over-the-year changes, all measures are down significantly. U-6 had the greatest transformation with a 3.8 percentage point decrease from 10.1 percent down to 6.3 percent from the same point last year. See **Figure A** for a depiction of historical values and trends.

² For a thorough analysis of unemployment in the Commonwealth, please refer to the Virginia Employment Commission's Economic Information & Analytics Division publication, "Labor Supply and Demand in Virginia." All versions can be found at <https://virginiaworks.com/publications/labor-supply-demand>

Table 7: Alternative Measures of Labor Underutilization

Measurement	Virginia's current 4 quarter average (2021:III – 2022:II)	Virginia's previous 4 quarter average (2021:II– 2022:I)	National Data (2021:III – 2022:II)	Virginia's 4 quarter average from previous year (2020:III – 2021:II)
U-1	1.2	1.6	1.8	3.0
U-2	1.4	1.5	2.1	3.4
U-3*	3.0	3.3	4.2	5.5
U-4	3.3	3.5	4.4	5.8
U-5	4.0	4.3	5.1	6.6
U-6	6.3	6.9	7.6	10.1

Source: Bureau of Labor Statistics "Alternative Measures of Labor Underutilization for States"

* Measurement utilized as the "official" unemployment rate, defined as the total number of unemployed reported as a percentage of the civilian labor force

Note: Quarters reflect calendar year and not Virginia's fiscal year. National Data is seasonally adjusted.

Comparing Virginia's underutilization to that of the nation, **Table 7** illustrates that the Commonwealth continues to outperform the national average across every measure of unemployment, as it has since data collection began in 2003. It is one of 29 states to have all measures below the national average, as well as one of 13 states east of the Mississippi³ and one of 10 states in the southeast region of the United States⁴. Three states that share a border with Virginia⁵, Kentucky, Tennessee, and West Virginia, also meet this designation. By all measures of unemployment, the Commonwealth's economy appears to be recovering from the effects of the pandemic better than many other states in the region.

Table 8 shows the measures of job-seeker discouragement and underemployment. Underemployment has decreased from both the previous four quarters and the previous year, falling 0.3 percentage points lower than the previous four quarter average and 1.2 percentage points lower than last year's four quarter average. Meanwhile, job seeker discouragement increased slightly over the quarter and remains relatively stable over the long-term. The current job seeker discouragement rate of 0.3 percent is 0.1 percentage points greater than the previous four quarter average and is the same as last year's average. While underemployment is slightly below the national average, job seeker discouragement is slightly above the national average. See **Figure B** for a historical depiction of job-seeker discouragement and underemployment.

Table 8: Underemployment and Job Seeker Discouragement

Measurement	Virginia's current 4 quarter average (2021:III – 2022:II)	Virginia's previous 4 quarter average (2021:II– 2022:I)	National Data (2021:III – 2022:II)	Virginia's 4 quarter average from previous year (2020:III – 2021:II)
Underemployment	2.3	2.6	2.5	3.5
Job Seeker Discouragement	0.3	0.2	0.2	0.3

Source: Virginia Employment Commission, quarterly Labor Supply and Demand report

Overall, Virginia's measures of labor underutilization were fairly stagnated prior to COVID-19, but steeply increased in 2020. With the most recent data, labor underutilization and underemployment both appear to be returning to pre-pandemic levels and downward trends, an indication of economic recovery and return to work. On the other hand, job seeker discouragement remained relatively stable throughout the unemployment and underemployment spikes and recoveries.

³ There are 26 states east of the Mississippi River.

⁴ The 12 states used for comparison are in the Southeast region, as designated by the Bureau of Economic Analysis; Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia and West Virginia.

⁵ Kentucky, Maryland, Tennessee, West Virginia and the District of Columbia share a border with Virginia.

Figure A: Labor Underutilization in Virginia

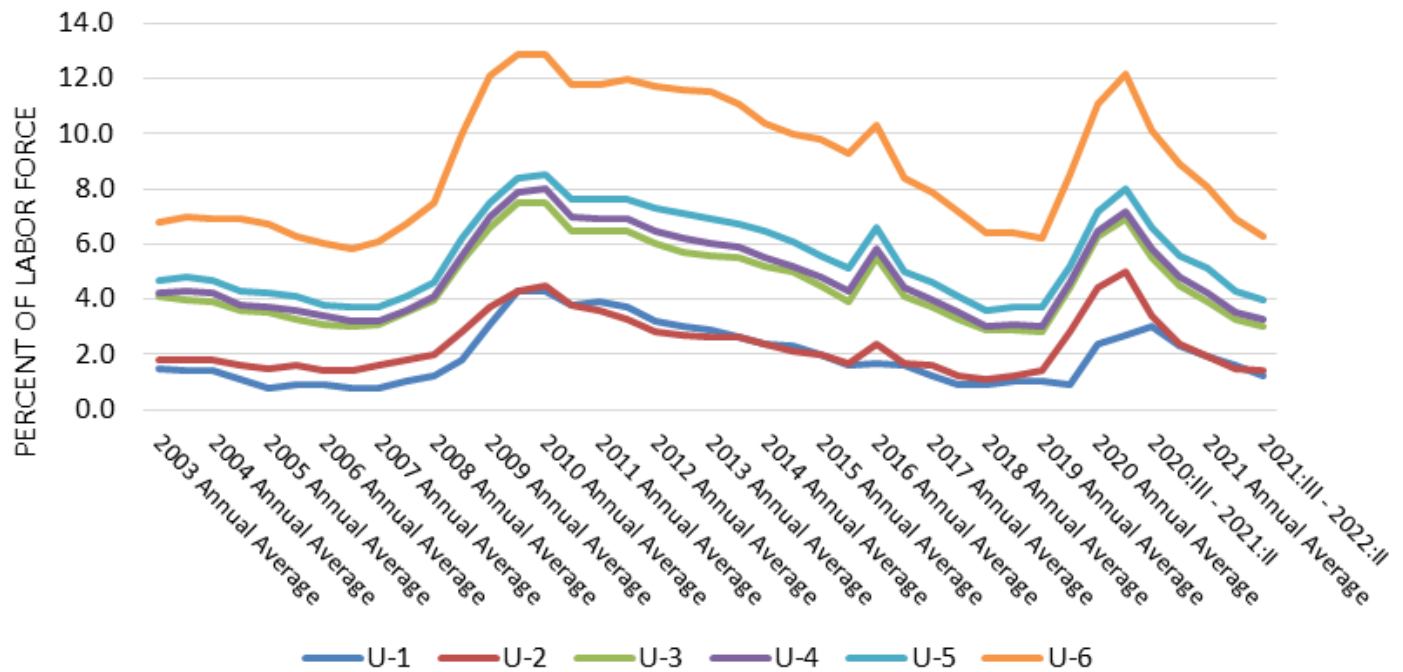


Figure B: Job Seeker Discouragement and Underemployment

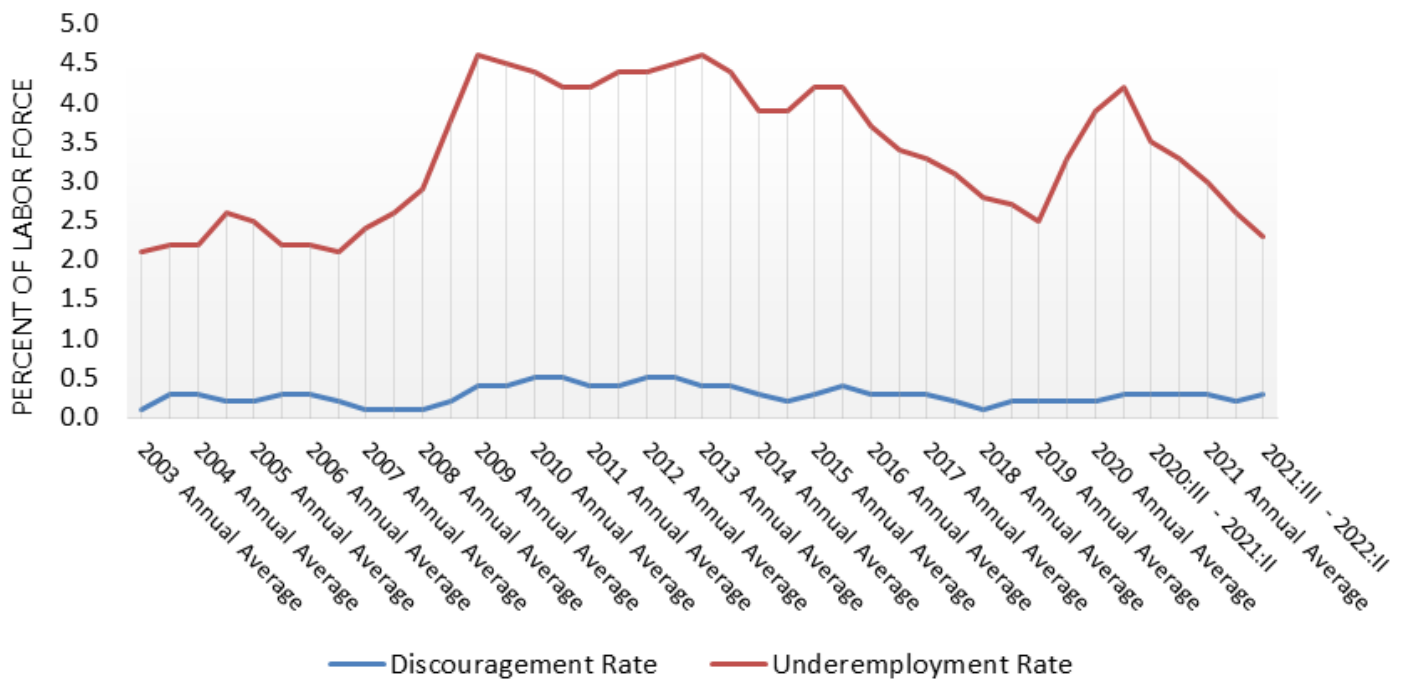


Table 9 builds upon the topic of unemployment by examining the changing poverty rates across the Commonwealth. Most of the populations examined have seen a decrease in the percentage living below the poverty level over the last 5 years. In fact, the only poverty rate to increase over the 5-year period was that of Native Hawaiians and Other Pacific Islanders, which increased only slightly from 9.2% to 10%. The highest poverty rates observed continue to be for the Black or African American race and the education cohort with less than a high school degree, with both rates greater or equal to 20% in 2015 and remaining above 15% in 2020. Those with less than a bachelor's degree largely encompass the impoverished in Virginia. Educational attainment, above race, age, or sex, appears to make the biggest

difference on poverty rate, as Virginians who graduated high school or earned a GED had a poverty rate of 11.5%, those who attended some college had a level of 7.5%, and those who had a bachelor's degree or higher had only a 3.1% poverty rate.

Table 9: Poverty in the Commonwealth

Subject	Population	2015 Estimate		2020 Estimate	
		Population	Percent Below Poverty Level	Population	Percent Below Poverty Level
Age	Under 18 Years	1,838,303	15.2%	1,838,531	13.1%
	18 to 64 Years	5,094,398	11.0%	5,129,815	9.5%
	65 Years and Over	1,075,349	7.6%	1,287,229	7.5%
Sex	Male	3,903,898	10.3%	4,027,815	8.9%
	Female	4,104,152	12.6%	4,227,760	11.0%
Race	White, not Hispanic or Latino	5,099,979	8.7%	5,072,390	7.7%
	Black or African American	1,513,373	20.0%	1,546,295	16.8%
	American Indian and Alaska Native	21,449	15.7%	21,343	11.5%
	Asian	484,356	8.1%	561,322	7.2%
	Native Hawaiian and other Pacific Islander	4,928	9.2%	5,568	10.0%
	Hispanic or Latino	690,170	15.6%	786,973	13.2%
Educational Attainment	Less than High School	621,714	22.6%	539,195	21.2%
	High School Graduate or GED	1,344,811	12.0%	1,351,640	11.5%
	Some College or Associate's	1,490,025	8.1%	1,548,116	7.5%
	Bachelor's Degree or Higher	2,013,454	3.2%	2,294,976	3.1%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates

Recent trends of labor force participation by demographic are shown in **Table 10**. While Virginia's overall labor force participation rate declined from 2015 to 2020, every age cohort experienced an increase in labor force participation rate and decrease in unemployment rate. In fact, the only three cohorts in this series to experience a decrease in labor force participation over the time period were those with a high school degree or equivalent, Native Hawaiians or Other Pacific Islanders, and Whites, not Hispanic or Latino. Native Hawaiians or Other Pacific Islanders had the largest decline in labor force participation rate, decreasing 6.3 percentage points to 69.7%. Native Hawaiians or Other Pacific Islanders were also the only cohort to see an increase in unemployment rate, gaining 1.2 percentage points to reach an unemployment rate of 8.9%.

With the exception of this cohort, it is surprising to see such strong upward-trending labor force participation rates and downward-trending unemployment rates for the time period shown given the stark effects of the COVID-19 pandemic on labor force participation and unemployment during many months of 2020. It is important to note here that the data shown in **Table 10** comes from the Census Bureau's American Community Survey 5-year estimates, which represents data collected over a period of time, from 2016-2020. While using 5-year estimates results in more statistically reliable data for less populated areas and small subgroups, it does make it more difficult to analyze the time-sensitive effects of the COVID-19 pandemic on the labor market.

It is also worth noting how labor force participation rates increase with increased educational attainment. Those with less than a high school degree had a 61.8% labor force participation rate. This figure increased to 73% for high

school graduates, to 80.7% for those with some college or associate's degree, and all the way up to 87.9% for those with a bachelor's degree or higher.

Table 10: Employment Status of Virginians by Demographic

Subject	2015 Estimate			2020 Estimate		
	Population	Labor Force Participation Rate	Unemployment Rate	Population	Labor Force Participation Rate	Unemployment Rate
Population 16 Years and Over	6,598,956	66.3%	6.5%	6,849,454	65.8%	4.6%
16 to 19 Years	440,954	37.6%	22.4%	444,462	40.1%	16.4%
20 to 24 Years	591,629	74.4%	12.9%	573,043	75.6%	9.5%
25 to 44 Years	2,249,084	84.0%	6.2%	2,291,318	84.9%	4.4%
45 to 54 Years	1,190,345	82.1%	4.5%	1,122,875	83.1%	3.3%
55 to 64 Years	1,025,283	67.1%	4.2%	1,103,411	68.0%	2.9%
65 to 74 Years	645,504	27.9%	3.5%	780,233	29.1%	2.9%
75 Years and Over	456,157	6.7%	3.6%	534,112	7.3%	2.2%
White, not Hispanic or Latino	4,326,380	65.0%	5.1%	4,339,374	63.7%	3.8%
Black or African American	1,246,919	65.8%	11.2%	1,293,237	66.3%	7.1%
American Indian and Alaska Native	18,756	63.1%	8.2%	18,915	65.6%	6.5%
Asian	393,899	69.9%	4.9%	462,038	70.1%	3.5%
Native Hawaiian or Other Pacific Islander	4,481	76.0%	7.7%	4,774	69.7%	8.9%
Hispanic or Latino	501,589	76.5%	6.6%	576,844	76.5%	4.8%
Male*	2,505,352	83.9%	6.1%	2,529,107	84.4%	4.2%
Female*	2,550,989	74.5%	5.9%	2,561,540	75.4%	4.3%
Less than High School**	425,011	60.9%	11.0%	375,945	61.8%	6.7%
High School Graduate or Equivalent**	1,060,810	74.5%	7.0%	1,026,183	73.0%	5.1%
Some College or Associate's Degree**	1,264,703	80.5%	5.6%	1,245,829	80.7%	4.1%
Bachelor's Degree or Higher**	1,714,188	87.1%	2.9%	1,869,647	87.9%	2.3%
With Any Disability	453,603	43.0%	14.1%	469,631	46.8%	9.5%

*For the 20 to 64 year old population **For the 25 to 64 year old population
Source: U.S. Census Bureau, American Community Survey 5-Year Estimates

Education and Skill Levels of the Virginia Workforce

Virginia is a well-educated state. At both the state and local level, less than four percent of job seekers have below a high school diploma or equivalent. The highest rates of post-bachelor's degree attainment are in the Northern Virginia and Alexandria/Arlington LWDAs, as can be expected after seeing the high wages, employment, and participation rates of the region. **Table 11** shows that more than 47 percent of Virginia's job-seekers have some type of college degree. For those that do obtain a bachelor's degree or higher, the median income increases drastically, far surpassing the statewide average as shown in **Table 12**.

Table 11: Educational Attainment of Available Candidates

Education Level	Potential Candidates (Percent of Total Candidates)*
Less than High School	1,992 (3.0%)
High School Diploma or Equivalent	25,088 (37.9%)
Vocational School Certificate	2,671 (4.0%)
Associate's Degree	12,936 (19.6%)
Bachelor's Degree	12,773 (19.3%)
Master's Degree	5,143 (7.8%)
Doctorate or Specialized Degree (i.e. MD, DDS)	728 (1.2%)

*Candidates are defined as individuals with an active resume in the Virginia Workforce Connection
Source: Virginia Employment Commission

Table 12: Median Annual Earnings by Educational Attainment

Education Level	2015 Estimate	2020 Estimate
Less than High School Graduate	\$21,914	\$26,070
High School Graduate or Equivalent	\$29,303	\$32,819
Some College or Associate's Degree	\$36,054	\$40,333
Bachelor's Degree	\$55,509	\$61,390
Graduate or Professional Degree	\$78,600	\$85,957
Average	\$35,011	\$40,573

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates

Veterans, Children and Individuals with Disabilities: Barriers to Employment in Virginia

Throughout this analysis, we have touched on various aspects relating to individuals with barriers to employment. According to the Workforce Innovation and Opportunity Act, barriers to employment include having a disability, homelessness, low income individuals, individuals with significant cultural barriers, older individuals, individuals who are English language learners, American Indians, Alaska Natives, Native Hawaiians, the long-term unemployed, and others. Unfortunately, substantial data shortcomings exist which prevent a thorough and even analysis of all of these populations. In this section, we highlight available data discussed throughout this analysis, as well as highlighting three key populations; veterans, children, and the homeless.

Due to Virginia's larger than average veteran population, it is worth addressing each of the groups separately. **Table 13** illustrates the changing veteran population since 2014. What jumps out most starkly is the strongly declining veteran population, even as the non-veteran population continues to rise. Though the exact reason for this may be unknown, one possibility is that individuals that leave the military through any of Virginia's many bases are staying in the Commonwealth at a decreasing rate. Another possibility is that as the total number of individuals in the U.S. Armed Forces has decreased over time fewer veterans are created by definition.

As **Table 13** demonstrates, despite its causes, losing veterans from Virginia's potential labor force means losing a very economically valuable resource. Aside from the unquantifiable skills offered by the veteran community, veterans are more highly educated than the non-veteran population, which equates to a higher median income.

Furthermore, this educated population also has a substantially higher labor force participation rate and a much lower unemployment rate than civilians. All in all, by attracting the veteran population to remain in Virginia, the state economy stands to benefit greatly.

Table 13: Virginia's Veteran Population, Recent Trend

Subject	2015		2017		2020	
	Veteran	Non-Veteran	Veteran	Non-Veteran	Veteran	Non-Veteran
Population Estimate (18 Years and Over)	706,539	5,575,445	688,536	5,700,330	674,242	5,840,323
Male	87.6%	43.0%	86.9%	43.3%	86.2%	43.6%
Female	12.4%	57.0%	13.1%	56.7%	13.8%	56.4%
18 to 34 Years	11.8%	32.7%	11.4%	32.1%	10.6%	31.4%
35 to 54 Years	32.1%	36.3%	31.7%	35.4%	31.0%	34.0%
55 to 64 Years	20.5%	15.8%	19.8%	16.2%	20.2%	16.5%
65 Years and Over	35.6%	15.3%	37.1%	16.4%	38.2%	18.1%
White, not Hispanic or Latino	71.9%	65.0%	70.6%	64.3%	69.2%	63.0%
Black or African American	20.5%	18.6%	20.8%	18.6%	20.9%	18.6%
American Indian and Alaska Native	0.4%	0.3%	0.4%	0.3%	0.3%	0.3%
Asian	1.7%	6.6%	1.9%	6.9%	2.2%	7.4%
Native Hawaiian and Other Pacific Islander	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Hispanic or Latino	4.2%	7.9%	4.7%	8.1%	5.2%	8.5%
Less than High School	6.1%	12.6%	5.6%	11.9%	4.4%	10.5%
High School Graduate	22.3%	25.4%	21.4%	24.8%	20.9%	24.5%
Some College or Associate's Degree	34.4%	25.9%	34.0%	26.1%	33.8%	25.9%
Bachelor's Degree or Higher	37.2%	36.1%	39.0%	37.2%	40.9%	39.2%
Labor Force Participation Rate	82.2%	76.9%	82.6%	77.2%	82.6%	77.7%
Unemployment Rate	4.8%	6.6%	4.0%	5.6%	3.0%	4.7%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimate

Note: Totals may not sum due to rounding

Children are another important group to focus on. As they are not yet a part of the labor force, the under 18 population can often be over-looked in economic analyses. However, as they represent the future of the labor market, it is important to understand as much as possible about the youngest cohort. Furthermore, the better the literacy and poverty rates for children, the better the economy can be assumed to perform now and in the future.

Beginning with the positives, **Table 14** shows that almost 90 percent of children between the ages of 3 and 17 are enrolled in school. Furthermore, while the population of children in Virginia has increased since 2015, it has done so at a modest pace while also maintaining most proportions across age brackets and demographics. The percentage of children living below the poverty level has declined 2.1% over the last five years. The percentage of children receiving public assistance also declined 2.1% between 2015 and 2020. The highest incidences of poverty and public assistance are found in female-lead households where the husband is not present. The median income for female-led households is substantially lower than all other groups, with nearly 43.7% children in these households receiving public assistance, and almost 37 percent being below the poverty level. These two figures have dropped over the past five years, partly as a result of Federal pandemic aid money.

Table 14: Children in the Commonwealth

Subject	Total		In Married-Couple Family Household		In Male Head of Household, no wife present		In Female Head of Household, no husband present	
	2015	2020	2015	2020	2015	2020	2015	2020
Children Under 18 Years	1,859,538	1,862,830	1,294,280	1,304,720	117,907	126,916	433,969	417,471
Under 6 Years	33.2%	32.6%	33.5%	33.7%	34.5%	32.9%	32.0%	29.2%
6 to 11 Years	33.6%	33.5%	33.7%	33.3%	31.2%	32.6%	33.9%	34.5%
12 to 17 Years	33.2%	33.9%	32.8%	33.0%	34.3%	34.5%	34.1%	36.3%
White, not Hispanic or Latino	55.4%	52.8%	62.4%	59.8%	52.5%	47.3%	35.2%	32.7%
Black or African American	20.7%	19.7%	12.6%	12.5%	21.5%	19.9%	44.8%	42.3%
American Indian and Alaska Native	0.2%	0.2%	0.2%	0.2%	0.4%	0.2%	0.2%	0.3%
Asian	5.9%	6.5%	7.6%	8.1%	2.6%	3.6%	1.9%	2.5%
Native Hawaiian and other Pacific Islander	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.0%	0.0%
Hispanic or Latino	12.2%	13.9%	11.7%	12.7%	17.1%	22.6%	12.3%	14.8%
Other Race	2.9%	4.1%	2.8%	3.6%	4.2%	8.7%	3.1%	4.2%
With any disability	3.7%	4.2%	3.0%	3.4%	3.5%	4.5%	5.8%	6.5%
Foster or other Unrelated to Householder Child	1.5%	1.8%	0.5%	0.7%	4.1%	3.6%	1.0%	1.1%
Foreign Born	3.6%	3.8%	4.1%	4.2%	3.2%	4.4%	2.1%	2.6%
Enrolled in School**	90.4%	89.9%	91.2%	90.2%	87.2%	87.6%	89.1%	89.9%
Median Income for Families with Children	\$77,142	\$93,828	\$100,867	\$119,445	\$43,252	\$53,419	\$28,446	\$34,138
Public Assistance: Children Living in Households with Supplemental Security Income, Cash Public Assistance Income, or Food Stamp/SNAP benefits	20.6%	18.5%	10.9%	9.5%	28.2%	26.1%	47.1%	43.7%
Income below Poverty Level	15.2%	13.1%	6.2%	5.3%	20.0%	13.8%	40.4%	36.7%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates

Note: Totals may not sum due to rounding.

**The percent of children enrolled in school is based on the 3 to 17 years population.



Table 15: Virginia's Homeless Population, 2020

Subject	National ¹	Virginia
Total Homeless	580,466	5,957 (1.0% of National homeless population)
Continuums of Care ²	387	16 (4.1% of National CoC)
Unsheltered Homeless	226,080 (38.9%)	968 (16.6%)
Chronically Homeless ³	110,528 (19.0%)	813 (13.6%)
Veterans	37,252 (6.4%)	395 (6.7%)
Less than 18 Years, Unaccompanied	3,389 (0.58%)	10 (0.17%)*
18 to 24 Years, Unaccompanied	30,821 (5.3%)	234 (3.9%)
Parenting Youth ⁴	7,355 (1.3%)	89 (1.49%)*
Children of Parenting Youth	9,495 (1.6%)	116 (1.95%)*

¹ National Figures are a total of all 50 States

² Continuums of Care (CoC) are local planning bodies responsible for coordinating the full range of homelessness services in a geographic area, which may cover a city, county, metropolitan area, or an entire state.

³ Chronically homeless refers to an individual with a disability who has been continuously homeless for one year or more, or has experienced at least four episodes of homelessness in the last three years where the combined length of time homeless in those occasions is at least 12 months.

⁴ Parenting Youth are people under 25 Years who are the parents or legal guardians of one or more children who are present with or sleeping in the same place as that youth parent, where there is no person over age 24 in the household.

Source: 2020 Annual Homeless Assessment Report to Congress, January 2021, U.S Department of Housing and Urban Development

*Source: HUD 2020 Continuum of Care Homeless Assistance Programs Homeless Populations and Subpopulations: Virginia

As shown in **Table 15**, Virginia's homeless population breaks down in similar ways to the national figures. However, a far smaller share of Virginia's homeless population is unsheltered compared to that of the national population (16.6 versus 38.9 percent). This points in part to the efficacy of Virginia's Continuums of Care. Another cause for hope is that Virginia's homeless population accounts for one percent of the national homeless population, suggesting that the Commonwealth is performing relatively well in this realm. While the percentage of the homeless population that are veterans is slightly larger than the national share (6.6 versus 6.4 percent), it is entirely plausible that this is in large part due to the larger than average veteran population in Virginia, compared to the rest of the nation.

Table 16 outlines the available statistics for several populations said to have barriers to employment under the Workforce Innovation and Opportunity Act, not detailed elsewhere. One take away is the very low labor force participation rate for both individuals with disabilities and those living below the poverty line. As this population includes individuals with any disability, one conclusion may be that not enough is currently being done to create a workplace that is welcoming and adaptable to the disabled population. The low rate for those below the poverty line might be due to a lack of wraparound services like public transportation and childcare services available to that sector of that population. Another notable figure is the extremely low educational attainment for individuals below the poverty line, which further underscores the importance of education in the Commonwealth, as education is seen as the best way to escape poverty.



Table 16: Individuals with Barriers to Employment

Subject	Virginia Population	Labor Force Participation Rate ¹	High School Graduate or Higher
Population	8,509,358	65.8%	90.1%
Individuals Living Below the Poverty Line	10.0%	39.5%	22.1%
Individuals with Less than a High School Degree (or equivalent)	19.6%	61.8%	-
American Indians and Alaska Natives	0.3%	65.6%	84.1%
Native Hawaiian and Other Pacific Islanders	0.1%	69.7%	88.7%
Individuals with Disabilities	11.8%	46.8%	-
65 Years and Over	15.4%	18.2% ¹	85.7%
Individuals that speak a language other than English at home	16.4%	-	
TANF Recipients ²	0.4%	-	-
Single Parent Households ³	27.5%	-	-

¹ Participation Rates are available for 65 to 74 Years and 75 Years and Over. The statistic shown is the average of these two populations.

² Calendar Year 2019 average from TANF Caseload Data 2019, Office of Administration for Children and Families, July 2020. Percent is TANF recipients as a share of total Virginia population.

³ Population includes male householders, no wife present and female householders, no husband present. Both household types with own children under 18 years. Percent is total of these populations of all households with own children under 18 years.

Source: U.S. Census Bureau, American Community Survey 2020 5-Year Estimates, unless otherwise noted

Note: All Population figures are a percent of the total state population unless otherwise noted.

Note: Due to data limitations, all statistics are not available for all populations

Statewide Gap Analysis and Emerging Demand

Emerging and Declining Industries and Occupations

Table 17 ranks the top 20 minor group⁶ occupations according to projected employment growth. Some of these occupations have been growing in demand for years, like many occupations in health care and mathematical science. However, many other occupations projected to add jobs rapidly from 2020-2030 are those most negatively impacted by the pandemic business shutdowns during 2020. Food service workers and many workers in recreation and entertainment industries are examples. Those employed in air transportation and personal care industries are additional examples. Others, like workers in warehousing and animal care, saw demand greatly increase during the pandemic, which will likely continue in coming years.

Table 17: Top 20 Growing Detailed Occupations by Employment Change

Occupation	2020 Estimated Employment	2030 Employment Forecast	Forecasted Employment Change	Average Annual Growth
Fishing and Hunting Workers	272	424	152	5.59%
Entertainment Attendants and Related Workers	9,551	13,338	3,787	3.97%
Animal Care and Service Workers	8,592	11,743	3,151	3.67%
Occupational Therapy and Physical Therapist Assistants and Aides	5,262	6,889	1,627	3.09%
Mathematical Science Occupations	12,356	15,658	3,302	2.67%
Supervisors of Personal Care and Service Workers	5,094	6,379	1,285	2.52%
Cooks and Food Preparation Workers	62,388	77,646	15,258	2.45%
Other Food Preparation and Serving Related Workers	26,544	32,851	6,307	2.38%
Air Transportation Workers	6,948	8,564	1,616	2.33%
Entertainers and Performers, Sports and Related Workers	12,047	14,779	2,732	2.27%
Supervisors of Food Preparation and Serving Workers	25,151	30,485	5,334	2.12%
Personal Appearance Workers	20,213	24,308	4,095	2.03%
Other Personal Care and Service Workers	44,159	52,797	8,638	1.96%
Other Healthcare Support Occupations	39,859	47,029	7,170	1.80%
Food and Beverage Serving Workers	163,744	193,168	29,424	1.80%
Baggage Porters, Bellhops, and Concierges	2,532	2,982	450	1.78%
Other Teachers and Instructors	38,158	44,896	6,738	1.77%
Tour and Travel Guides	1,800	2,115	315	1.75%
Other Protective Service Workers	43,522	50,471	6,949	1.60%
Material Moving Workers	158,379	181,936	23,557	1.49%

Source: Virginia Employment Commission, Long-Term Occupational Projections 2020 - 2030

⁶ Minor group is a designation given to the more detailed SOC code occupations below the broadest 2-digit level. There are 96 minor group occupations.

Table 18 provides a ranking of some occupations projected to add jobs more slowly in the Commonwealth. Most of these are on the list, in part, due to the changing nature of work in their industries. Secretaries, clerks, and even some occupations in legal fields, for example, will continue to face pressure from technological advances, outsourcing, and other change. Although skilled workers in manufacturing remained highly sought after, many manufacturers in Virginia will likely face similar challenges as robotics and other automation continues to make inroads on assembly lines and as Virginia factories strive to compete against overseas production.

Table 18: Declining Detailed Occupations by Employment Change

Occupation	2020 Estimated Employment	2030 Employment Forecast	Forecasted Employment Loss	Average Annual Decline
Communications Equipment Operators	1,173	958	-215	-1.83%
Secretaries and Administrative Assistants	58,062	54,623	-3,439	-0.59%
Extraction Workers	3,508	3,383	-125	-0.36%
Financial Clerks	76,118	74,185	-1,933	-0.25%
Forest, Conservation, and Logging Workers	1,009	987	-22	-0.22%
Funeral Service Workers	2,662	2,610	-52	-0.20%
Legal Support Workers	20,612	20,246	-366	-0.18%
Supervisors of Sales Workers	50,455	49,775	-680	-0.13%
Assemblers and Fabricators	27,404	27,164	-240	-0.09%
Other Office and Administrative Support Workers	94,376	93,686	-690	-0.07%
Plant and System Operators	5,481	5,460	-21	-0.04%
Other Sales and Related Workers	37,046	37,020	-26	-0.01%
Lawyers, Judges, and Related Workers	21,474	21,524	50	0.02%
Retail Sales Workers	214,087	214,790	703	0.03%
Law Enforcement Workers	36,272	36,698	426	0.12%
Material Recording, Scheduling, Dispatching, and Distributing Workers	51,389	52,301	912	0.18%
Supervisors of Office and Administrative Support Workers	38,160	38,850	690	0.18%
Woodworkers	8,066	8,221	155	0.19%
Textile, Apparel, and Furnishings Workers	16,121	16,501	380	0.24%
Media and Communication Equipment Workers	6,416	6,624	208	0.32%

Source: Virginia Employment Commission, Long-Term Occupational Projection 2020 - 2030

Table 19 presents a list of projected industry job growth leaders. An industry like amusement, gambling, and recreation is an example of how the pandemic in 2020 impacted employment in customer-facing businesses. It is projected that the deep cuts in jobs then may be regained because the long-term outlook for those businesses is positive, which will mean strong demand for workers. Accommodation and performing arts, spectator sports, and related industries are other examples.

Table 20 illustrates the top industries projected to decline from 2020 to 2030. Many on the list rely on older technologies. For example, electronic media has greatly reduced the demand for printing services, newspapers and other published products. Others have had long-term declining trends like textile mills that has suffered from overseas competition or the U.S. Postal Service, which has faced large numbers of retirements and slow growth trends in mail delivery. The 2020 pandemic boosted employment in certain industries like building material and garden equipment and supplies dealers but job growth is projected to moderate as households continue to return to more normal shopping habits.

Table 19: Top 20 Growing Industries (3 Digit NAICS) by Forecasted Employment Growth

Industry	2020 Estimated Employment	2030 Employment Forecast	Forecasted Employment Growth	Average Annual Growth
Fishing, Hunting and Trapping	244	396	152	4.97%
Support Activities for Mining	598	953	355	4.77%
Motion Picture and Sound Recording Industries	3,379	5,382	2,003	4.76%
Amusement, Gambling, and Recreation Industries	34,408	50,814	16,406	3.98%
Performing Arts, Spectator Sports, and Related Industries	5,310	7,452	2,142	3.45%
Support Activities for Agriculture and Forestry	1,693	2,335	642	3.27%
Waste Management and Remediation Service	8,969	12,186	3,217	3.11%
Oil and Gas Extraction	177	237	60	2.98%
Scenic and Sightseeing Transportation	157	210	53	2.95%
Data Processing, Hosting and Related Services	14,370	19,066	4,696	2.87%
Individual and Family Services	44,467	57,553	13,086	2.61%
Couriers and Messengers	25,469	32,850	7,381	2.58%
Home Health Care Services	33,503	42,949	9,446	2.52%
Warehousing and Storage	32,060	40,988	8,928	2.49%
Forestry and Logging	2,052	2,586	534	2.34%
Health and Personal Care Stores	22,302	28,015	5,713	2.31%
Transit and Ground Passenger Transportation	7,523	9,372	1,849	2.22%
Offices of Other Health Practitioners	21,733	26,994	5,261	2.19%
Accommodation, including Hotels and Motels	31,593	38,714	7,121	2.05%

Source: Virginia Employment Commission, Long-Term Industry Projections 2020 - 2030

Table 20: Top 20 Declining Industries (3 Digit NAICS) by Forecasted Employment Loss

Industry	2020 Estimated Employment	2030 Employment Forecast	Forecasted Employment Loss	Average Annual Decline
Newspaper, Periodical, Book, and Directory Publishers	7,013	4,587	-2,426	-4.16%
Mining (except Oil and Gas)	4,315	2,882	-1,433	-3.96%
Printing and Related Support Activities	8,409	6,300	-2,109	-2.85%
Broadcasting (except Internet)	7,287	5,692	-1,595	-2.44%
Gasoline Stations	27,359	21,907	-5,452	-2.20%
Electronics and Appliance Stores	11,500	9,673	-1,827	-1.71%
Telecommunications	20,870	17,627	-3,243	-1.67%
Rental and Leasing Services	9,646	8,318	-1,328	-1.47%
Wholesale Electronic Markets and Agents and Brokers	15,776	13,642	-2,134	-1.44%
Legal Services	24,852	21,684	-3,168	-1.35%
Primary Metal Manufacturing	3,751	3,327	-424	-1.19%
Scientific Research and Development Services	26,134	23,362	-2,772	-1.11%
Textile Mills	2,924	2,632	-292	-1.05%
Postal Service	15,928	14,420	-1,508	-0.99%
Sporting Goods, Hobby, Book, and Music Stores	12,063	10,925	-1,138	-0.99%
Private Households	9,953	9,135	-818	-0.85%
Wood Product Manufacturing	13,589	12,478	-1,111	-0.85%
Textile Product Mills	2,750	2,527	-223	-0.84%
Nonstore Retailers	11,402	10,593	-809	-0.73%
Building Material and Garden Equipment and Supplies Dealers	34,397	32,087	-2,310	-0.69%

Source: Virginia Employment Commission, Long-Term Industry Projections 2020 - 2030

Appendix C outlines the top occupations, skill requirements and certification/license requirements for each major industry. As the data is pulled from online job orders via the Virginia Workforce Connection, it represents the self-identified needs of employers. The industries explored are the 2-digit super sectors, thus representing a wide array of more detailed industries and occupations. As such, customer service, flexibility, attention to detail, and similar skills apply to myriad positions. The same is true for the certifications, with American Heart Association (AHA) CPR & First Aid Certifications and Commercial Driver's Licenses occurring across multiple industries. Other in-demand certifications include CompTIA and Cisco Associate certification for more technological based industries. Please note that as not every job order lists necessary skills or certifications, results will be skewed towards those that have included those categories listed.

Appendix D builds on the needs of employers, focusing on the occupations with the most openings. Many of the skills are similar to those requested by industry, but with a heavy emphasis on computer skills. The same goes for the most requested certifications, with computer-specific certifications such as GIAC Security-Cyber Defense certification appearing in many of the top ten occupations. The lack of available candidates that specify an interest in these occupations with the highest need does look worrisome.

In **Table 21** we explore the nebulous topic of a skills gap from another point of view. As mentioned previously, many of the desirable skills sought after by employers are “soft skills” that are difficult to measure and train. To recap, these include customer service, problem solving, flexibility, and time management. However, the table below focuses on the labor gap that exists in various forms. For instance, in each of the top five occupations according to job openings, there is less than one candidate per opening. A positive consequence of this is that it creates a potentially favorable situation to unemployed individuals looking for work. In opposition to that fact is that this also points to the equally real possibility that job seekers in Virginia are not interested in the available opportunities, or at least not as a first choice.

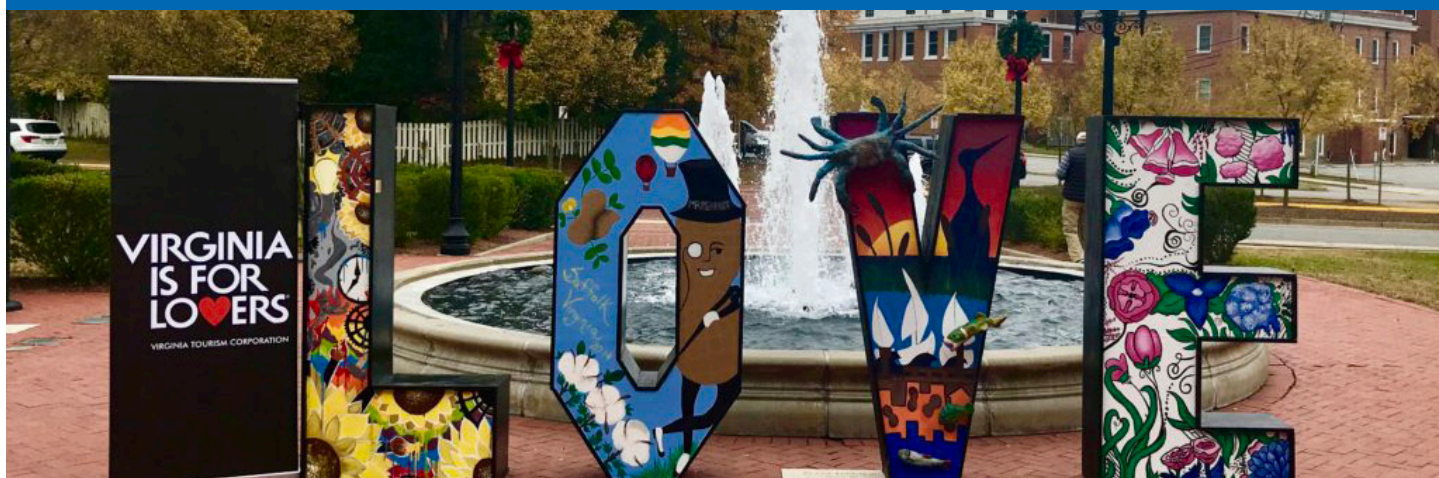
One particularly troubling gap shown in **Table 21** is the high proportion of experienced candidates—10 or more years of experience—to openings requiring said experience. At 170 candidates per opening in that category, the idea of underemployment and subsequent worker discouragement becomes more understandable. With the move to a less physically demanding service-based economy, individuals are working later in life. If these individuals face hardships, such as a layoff later in their career, the present economy may not be ready to meet them at their optimum level. Without addressing this shortcoming, it is unlikely to see underemployment decline, which in turn creates a potential for a more contentious labor force that is less likely to find benefit in participating in the labor market.

Table 21: Supply and Demand in Virginia

Subject		Job Openings	Potential Candidates	Potential Candidates per Job Opening
	Statewide Total	192,977	148,850	0.77
Top 5 Occupations by Job Openings	Registered Nurses	8,025	536	0.07
	Retail Salesperson	3,646	2,792	0.77
	First-Line Supervisors of Food Preparation and Serving Workers	3,029	607	0.20
	Computer Systems Engineers/Architects	2,996	162	0.05
	Computer Programmers	2,915	235	0.08
Educational Attainment	High School Diploma or Equivalent	12,013	58,672	4.88
	Vocational School Certificate	246	6,455	26.24
	Associate’s Degree	1,977	21,718	10.99
	Bachelor’s Degree	14,499	25,650	1.77
	Post-Graduate Degree	1,165	10,975	9.42
Work Experience	Less than 1 Year	814	7,215	8.86
	1 to 2 Years	173,697	5,031	0.03
	2 to 5 Years	6,478	11,824	1.83
	5 to 10 Years	3,094	15,326	4.95
	More than 10 Years	643	109,454	170.22

Source: Virginia Employment Commission. Jobs are online advertised jobs. Candidates are individuals with active resumes in the Virginia Workforce Connection.
Note: Both job and candidate information is self-reported by businesses and job-seekers as of September 2021

Part II: Substate Analysis



Overview of Local Economies

While the state economy overall has undergone drastic improvements in the post-recession years, the same cannot be said when viewed at the regional level. This section of the report focuses on the Local Workforce Development Area (LWDA) sub-state level. Broken up into 15 areas, each LWDA offers an opportunity to go deeper into some of the topics addressed in the previous section, allowing for more patterns to emerge. It is worth noting that at the sub-state level, less data is readily available. Moreover, the data that is kept is often accessible at a later date than that of state level data. As a result, data presented does not mirror that provided in the first section of the report.

Table 22 provides an overview of each of the LWDAs, and their share of the overall state economy. Much of the economy is driven by Northern Virginia and the suburbs of Washington DC, Hampton Roads, and the Capital Region. Together these four areas account for more than half of all employers in the state, over 59 percent of total employment, and over 68 percent of total wages. While this may not be too disproportionate given that the areas also comprise over half of the state's population, it creates an increased difficulty in equal service to every region in the state. As a result, many people seek out the stronger regions of the state to live and work in, creating a cycle that prevents many regions from growing to the level that the statewide economic outlook would suggest. In fact, areas in the southwestern portion of the state have seen employment decline over the last five years.



Table 22: Trends of State and Local Economies

Region	2016 Establishments	2021 Establishments (Share of State Total)	5-Year Change	2016 Employment	2021 Employment (Share of State Total)	5-Year Change	2016 Wages	2021 Wages (Share of State Total)	5-Year Change
I Southwestern Virginia	4,839	4,269 (1%)	-570	55,660	51,693 (1%)	-3,967	\$1,937,831,633	\$2,137,771,813 (1%)	\$199,940,180
II New River/ Mt. Rogers	9,524	9,477 (3%)	-47	141,111	136,468 (4%)	-4,643	\$5,211,078,559	\$6,137,476,534 (2%)	\$926,397,975
III Western Virginia	9,746	9,986 (3%)	240	159,467	152,496 (4%)	-6,971	\$6,766,923,692	\$7,756,140,771 (3%)	\$989,217,079
IV Shenandoah Valley	14,475	14,854 (5%)	379	217,209	220,028 (6%)	2,819	\$8,587,483,897	\$10,734,695,572 (4%)	\$2,147,211,675
VI Piedmont Workforce Network	13,689	14,241 (5%)	552	165,946	167,496 (4%)	1,550	\$7,883,112,630	\$9,755,679,357 (4%)	\$1,872,566,727
VII Central VA	7,268	7,513 (3%)	245	98,444	95,106 (2%)	-3,338	\$3,969,106,085	\$4,542,463,287 (2%)	\$573,357,202
VIII South Central	5,349	5,318 (2%)	-31	55,105	51,529 (1%)	-3,576	\$1,887,487,634	\$2,195,674,295 (1%)	\$308,186,661
IX Capital Region Workforce Partnership	33,495	35,495 (12%)	2,000	555,079	554,694 (14%)	-385	\$28,712,076,211	\$35,259,479,918 (14%)	\$6,547,403,707
XI Northern Virginia	62,079	64,241 (22%)	2,162	938,030	965,691 (25%)	27,661	\$67,425,139,036	\$85,338,593,551 (33%)	\$17,913,454,515
XII Alexandria/ Arlington	15,626	15,299 (5%)	-327	267,542	256,047 (7%)	-11,495	\$21,863,596,465	\$25,624,888,663 (10%)	\$3,761,292,198
XIII Bay Consortium	13,022	13,574 (5%)	552	163,655	164,687 (4%)	1,032	\$7,048,269,292	\$8,921,648,305 (3%)	\$1,873,379,013
XIV Greater Peninsula	11,775	12,430 (4%)	655	224,891	220,145 (6%)	-4,746	\$10,141,036,209	\$11,988,606,521 (5%)	\$1,847,570,312
XV Crater Area	4,052	4,198 (1%)	146	69,048	64,852 (2%)	-4,196	\$2,924,502,858	\$3,321,631,782 (1%)	\$397,128,924
XVI Hampton Roads	28,653	30,163 (11%)	1,510	507,627	499,649 (13%)	-7,978	\$23,012,396,136	\$27,813,302,142 (11%)	\$4,800,906,006
XVII West Piedmont	6,064	6,073 (2%)	9	69,138	64,468 (2%)	-4,670	\$2,296,565,507	\$2,585,295,082 (1%)	\$288,729,575
Virginia, Statewide	258,983	286,028	27,045	3,788,576	3,837,136	48,560	\$207,818,000,000	\$260,910,000,000	\$53,092,000,000

Source: Virginia Employment Commission, Quarterly Census of Employers and Wages Program. First quarter data utilized.

Industrial Landscape/ Current Demand

Table 23 displays the largest industry in each workforce area according to each QCEW metric. What is interesting is that this table illustrates the strength of the Northern Virginia LWDA. Looking at total wages, Professional, Scientific, and Technical Services is the top industry in the Commonwealth. Due to the size and economic might of Northern Virginia along with the Capital and Hampton Roads regions, also known as Virginia’s population crescent, other regions of the state are often left out of conversations regarding the state economy. What we see from the data provided in this section is that such an omission may prove to be harmful to some regions of the state. However, it is important not to understate the reality of economic disparity between regional economies.



Table 23: Largest Industry in Local Workforce Development Area

LWDA Region	Number of Establishments (Percent of LWDA Total)	Average Employment (Percent of LWDA Total)	Total Wage (Percent of LWDA Total)	Highest Average Weekly Wage
I Southwestern Virginia	Healthcare and Social Assistance (25%)	Retail Trade (16%)	Healthcare and Social Assistance (17%)	Mining, Quarrying, and Oil and Gas Extraction (\$1,531)
II New River/Mt. Rogers	Healthcare and Social Assistance (23%)	Manufacturing (18%)	Manufacturing (22%)	Professional, Scientific, and Technical Services (\$1,491)
III Western Virginia	Healthcare and Social Assistance (18%)	Healthcare and Social Assistance (19%)	Healthcare and Social Assistance (22%)	Management of Companies and Enterprises (\$1,810)

LWDA Region	Number of Establishments (Percent of LWDA Total)	Average Employment (Percent of LWDA Total)	Total Wage (Percent of LWDA Total)	Highest Average Weekly Wage
IV Shenandoah Valley	Healthcare and Social Assistance (19%)	Manufacturing (15%)	Manufacturing (18%)	Management of Companies and Enterprises (\$1,523)
VI Piedmont Workforce Network	Healthcare and Social Assistance (20%)	Educational Services (16%)	Educational Services (17%)	Management of Companies and Enterprises (\$2,687)
VII Region 2000/Central VA	Healthcare and Social Assistance (23%)	Healthcare and Social Assistance (17%)	Manufacturing (21%)	Professional, Scientific, and Technical Services (\$1,577)
VIII South Central	Healthcare and Social Assistance (31%)	Healthcare and Social Assistance (18%)	Healthcare and Social Assistance (19%)	Utilities (\$2,024)
IX Capital Region Workforce Partnership	Healthcare and Social Assistance (19%)	Healthcare and Social Assistance (14%)	Healthcare and Social Assistance (14%)	Management of Companies and Enterprises (\$2,680)
XI Northern Virginia	Professional, Scientific, and Technical Services (25%)	Professional, Scientific, and Technical Services (21%)	Professional, Scientific, and Technical Services (32%)	Management of Companies and Enterprises (\$3,486)
XII Alexandria/Arlington	Professional, Scientific, and Technical Services (25%)	Professional, Scientific, and Technical Services (25%)	Professional, Scientific, and Technical Services (34%)	Utilities (\$4,415)
XIII Bay Consortium	Healthcare and Social Assistance (20%)	Retail Trade (14%)	Public Administration (19%)	Public Administration (\$1,817)
XIV Greater Peninsula	Healthcare and Social Assistance (17%)	Manufacturing (15%)	Manufacturing (21%)	Management of Companies and Enterprises (\$2,370)
XV Crater Area	Healthcare and Social Assistance (24%)	Healthcare and Social Assistance (17%)	Healthcare and Social Assistance (16%)	Utilities (\$2,315)
XVI Hampton Roads	Healthcare and Social Assistance (17%)	Healthcare and Social Assistance (14%)	Healthcare and Social Assistance (15%)	Management of Companies and Enterprises (\$1,991)
XVII West Piedmont	Healthcare and Social Assistance (41%)	Manufacturing (18%)	Manufacturing (24%)	Management of Companies and Enterprises (\$1,640)
State	Professional, Scientific, and Technical Services (16%)	Healthcare and Social Assistance (13%)	Professional, Scientific, and Technical Services (21%)	Management of Companies and Enterprises (\$2,673)

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages

Local Labor Force Statistics

Table 24 illustrates the continuing story of strong success in four of the LWDA's, and the consequential positive statistics at the state level. It also shows the evidence of struggles in other regions of the state. Since reaching an all-time high in March of 2020, the unemployment rate has been steadily decreasing statewide. However, two thirds of LWDA's (10 out of 15) have an unemployment rate above the state average of 2.9%. Alexandria/Arlington has the lowest unemployment rate at 2.2%, well below that state average. The highest unemployment rates include the Crater Area, Southeast Virginia, and West Piedmont. These rates reflect some regions' struggles related to the decline of manufacturing and traditional goods-producing industries, along with the economic impact of COVID-19.

Table 24: Local Area Unemployment Statistics, June 2022 (Not Seasonally Adjusted)

LWDA Region	Labor Force	Employed	Unemployed	Unemployment Rate
I Southwestern Virginia	74,103	71,392	2,711	3.7%
II New River/Mt. Rogers	182,144	176,748	5,396	3.0%
III Western Virginia	162,850	158,040	4,810	3.0%
IV Shenandoah Valley	275,413	267,776	7,637	2.8%
VI Piedmont Workforce Network	225,575	219,509	6,066	2.7%
VII Region 2000/Central VA	120,212	116,233	3,979	3.3%
VIII South Central	83,407	80,519	2,888	3.5%
IX Capital Region Workforce Partnership	583,443	566,072	17,377	3.0%
XI Northern Virginia	1,157,561	1,128,093	29,468	2.5%
XII Alexandria/Arlington	253,774	248,172	5,602	2.2%
XIII Bay Consortium	264,211	256,525	7,686	2.9%
XIV Greater Peninsula	251,299	242,391	8,908	3.5%
XV Crater Area	72,537	69,487	3,050	4.2%
XVI Hampton Roads	577,989	559,584	18,405	3.2%
XVII West Piedmont	90,945	87,667	3,278	3.6%
State	4,375,469	4,248,208	127,261	2.9%

Source: Virginia Employment Commission, Local Area Unemployment Statistics Program
Totals may not add due to rounding.

Appendix E provides a breakdown of each area's labor force participation rate by LWDA and the counties and cities therein. The chart also outlines the percent change in labor force participation rates over the past year and over the past four years. Statewide, Virginia's labor force participation rate has trended down over the year, decreasing from 61.9% to 61.0% from 2020 to 2021. However, statewide labor force participation has increased long-term over the past four years, increasing from 59.4% to 61.0% from 2017 to 2021. Most of Virginia's LWDA's have followed a similar growth pattern. In fact, eight of Virginia's fifteen LWDA's (53.3%) showed short-term declines in labor force participation while maintaining longer-term growth since 2017. In contrast, five (33.3%) of Virginia's LWDA's experienced both long and short-term decreases in labor force participation. The exceptions to these trends were Shenandoah Valley (LWDA IV), which had an increasing labor force participation rate both over the year and over the last four years; and West Piedmont (LWDA XVII), whose rate held steady over the year and increased over the past four years.



Independent of employment figures, participation rates reflect the percentage of working age individuals that are either working or actively seeking employment. As with the alternative measures of labor underutilization addressed previously, analyzing participation rates allows us to gain a better understanding of the labor market. Declining participation rates reflect fewer individuals looking for work and choosing to work than would otherwise be expected to. Without an explanation such as a new and substantial economic downturn, or a massive catastrophe or population shift increasing the number of individuals with barriers to employment, declining participation rates signal a potential conflict in the future based on a few possible causes. In this case, these trends may be indicative of the effects of COVID-19 on Virginia's labor force. Factors such as long COVID, child care during virtual schooling, and other barriers to employment have led many Virginians to leave the labor force since the onset of COVID-19. However, as alluded to previously, it is important to note that Virginia's labor force participation rate has been generally trending down since the series high in June 1992.

As is typical according to Virginia's historical data, Alexandria/Arlington (LWDA XII) had the highest labor force participation rate in the state at 77.7%, and Southwestern Virginia (LWDA I) ranked lowest in the state with a rate of 45.4%. As was aforementioned, Virginia's economy is heavily driven by the Northern Virginia regions and Hampton Roads (LWDA XVI), where the highest labor force participation rates in Virginia can typically be observed. The areas of Virginia with the lowest labor force participation rates tend to be Southwestern Virginia (LWDA I) and South Central (LWDA VIII). Interestingly, the Capital Region Workforce Partnership (LWDA IX), which includes the Commonwealth's capital and surrounding areas, experienced the biggest percentage decline in labor force participation over both the short and long term. However, the labor force participation rate for that area, at 62.8%, still ranks above Virginia's overall rate of 61.0%. In contrast, notable four-year growth occurred in the Crater Area (LWDA XV) and the Greater Peninsula (LWDA XIV), which experienced 10.0% and 7.7% four-year growth respectively. Specific localities experiencing major growth over both the short and long-term periods include Prince George County and Prince Edward County. Prince George County saw the largest growth over-the-year and the second largest four-year growth, growing from 49.0% in 2017 to 60.1% in 2020 all the way to 73.7% in 2021.

While some counties and cities saw major growth in labor force participation rates, the vast majority of Virginia localities (105 out of 133, or 78.9%) saw a decline in short-term rates. Long-term rates were more varied, though the majority of localities (71 of 133, or 53.4%) did experience growth over the past four years, with one city holding steady and the remaining 61 localities experiencing declines in rates. Although rates are generally trending

downward in the short-term, long-term growth in labor force participation is good news for Virginia's economy and bodes well for continued recovery from the pandemic.

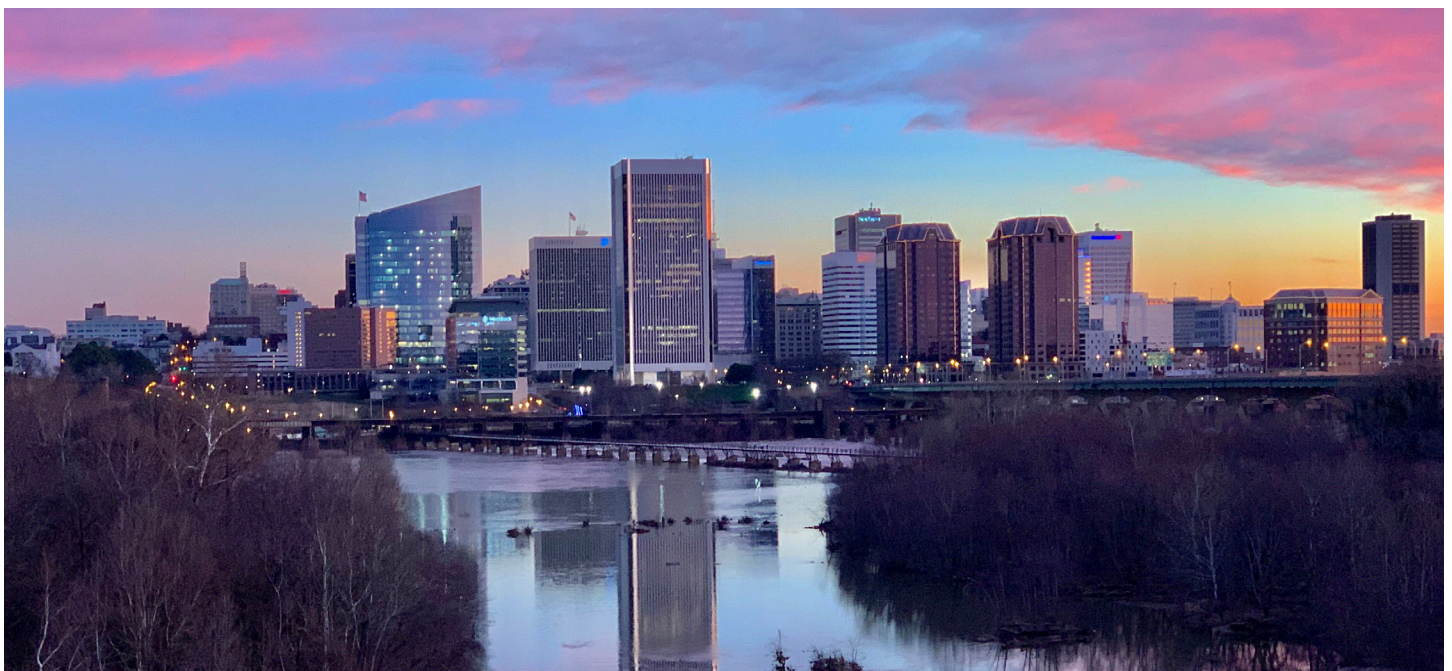
Regional Gap Analysis and Emerging Demand

As with the previous discussion regarding the current leading industries and occupations, the fastest growing across the workforce areas are largely the same as the state and in relation to one another. **Appendix F** illustrates the top growing occupations for each LWDA. Unsurprisingly, the Northern Virginia Alexandria/Arlington LWDA's look like outliers in their demand, skewing towards more technical and professional occupations. The dominance of the health care industry, as well as service industries such as retail and accommodation hold reign as the top occupations everywhere else in the state.

Appendix H and I further illustrate the gaps between labor supply and demand at the sub-state level, by examining the discrepancies between candidates seeking employment and the available jobs being offered. The trend that emerges is that although there are more job opportunities than candidates at the state level, regionally, the demand is not being met. Candidates tend to be over-educated and over-experienced for the positions that need to be filled, which further underscores the underemployment phenomenon discussed in the previous section. For example, in the Alexandria/Arlington and Northern Virginia Areas, 25 percent or more of job candidates have a Master's degree or higher, while less than three percent of the job openings require that level of educational attainment.

All workforce areas have less than one unemployed person per job opening, signaling a tight labor market. However, this good news for unemployment figures has potentially negative consequences for businesses that are seeking to fill positions. Employers are likely to be forced into making a decision between increasing wages to attract new hires, or potentially slowing growth and output. This cyclical paradox between workers finding gainful employment and employers filling positions while maintaining profits and growth is indeed one of the most difficult aspects of economics in practice. Full employment leaves little flexibility for alterations.

One argument that could be made regarding the supply and demand data presented here is that it is based on individuals and employers registering and searching for positions or workers in the Virginia Workforce Connection. Moreover, employee profiles and job orders must be filled out accurately and completely to obtain the information provided here. While this does likely mean that our data represent only a subset of jobs and job-seekers, this is a reliable sample as it is distributed across the state and relatively representative of the populations. Another reason to use this data as a reliable source is that it represents individuals and employers actively looking to fill vacant positions. In other words, it is less theoretical than other supply and demand analyses.



Glossary of Terms

Civilian Labor Force: All persons classified as employed or unemployed. Civilian meaning not living in institutions such as correctional facilities, long-term care hospitals, and nursing homes, and not on active duty in the Armed Forces

Discouraged Workers: Persons not in the labor force who want and are available for a job and who have looked for work sometime in the past 12 months (or since the end of their last job if they held one within the past 12 months), but who are not currently looking because they believe there are no jobs available or there are none for which they would qualify

Employed: Persons 16 years and older in the civilian non-institutional population who, during the reference week, (a) did any work at all (at least 1 hour) as paid employees; worked in their own business, profession, or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family; and (b) all those who were not working but who had jobs or businesses from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity/paternity leave, labor-management dispute, job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs. Each employed person is counted only once, even if they hold more than one job.

Involuntary Part-Time Workers: Persons who are available and want to work full-time, but accept part-time work for economic reasons.

Job Losers: Unemployed persons who involuntarily lost their last job or who had completed a temporary job. This includes persons who were on temporary layoff expecting to return to work, as well as persons not on temporary layoff. Those not on temporary layoff include permanent job losers and persons whose temporary jobs had ended.

Job-seeker Discouragement: A measurement of would-be job-seeker discouragement, calculated as the difference between alternative measures **U-4** and **U-3**. While the actual figure is somewhat artificial and difficult to interpret on its own, the overall trend gives an idea of perceptions about the labor market.

Marginally Attached Workers: Persons not in the labor force who want and are available for work, and who have looked for a job sometime in the prior 12 months (or since the end of their last job if they held one within the past 12 months), but were not counted as unemployed because they had not searched for work in the 4 weeks preceding the survey. Discouraged workers are a subset of the marginally attached.

Marginally Attached Workers Plus Civilian Labor Force: Measure of the "Full" labor force, often used when calculating alternative measures of underutilization in order to include discouraged workers

NAICS: The North American Industry Classification System, or "NAICS," is a system developed by Mexico, Canada, and the United States to provide a consistent framework of industrial statistics used by policy analysts, academics, and researchers. NAICS are given for all economic activity and go from the 2-digit NAICS sector, and down to the more detailed three, four, five, and six-digit industry sub-sectors. For example, the Construction Industry (23), can be broken down further to Construction of Buildings (236), Heavy and Civil Engineering Construction (237), and Specialty Trade Contractors (238). Construction of Buildings can then be divided into nonresidential (2362) versus residential (2361) construction. From here, Nonresidential construction can be broken down further into Commercial and Institutional (23622) versus Industrial (23621) Building Construction.

Underemployment: A measurement of the underemployment rate, calculated as the difference between alternative measures **U-6** and **U-5**. This essentially looks at the widest possible definition of unemployment and the labor force, and separates out those that, while employed, feel that they are not in a position which suits their needs and abilities.

Unemployed: Persons aged 16 years and older who had no employment during the reference week, were available for work, except for temporary illness, and had made specific efforts to find employment sometime during the 4-week period ending the reference week. Persons who were waiting to be recalled to a job from which they had been laid off need not have been looking for work to be classified as unemployed.

U-1: Persons unemployed 15 weeks or longer, as a percent of the civilian labor force

U-2: Job losers and persons who completed temporary jobs, as a percent of the civilian labor force

U-3: Total unemployed, as a percent of the civilian labor force (this is the definition used for the official unemployment rate)

U-4: Total unemployed, plus discouraged workers, as a percent of the civilian labor force, plus discouraged workers

U-5: Total unemployed, plus discouraged workers, plus all other marginally attached workers, as a percent of the civilian labor force, plus all marginally attached workers

U-6: Total unemployed, plus all marginally attached workers, plus total employed part-time for economic reasons, as a percent of the civilian labor force plus all marginally attached workers

Appendix

Appendix A

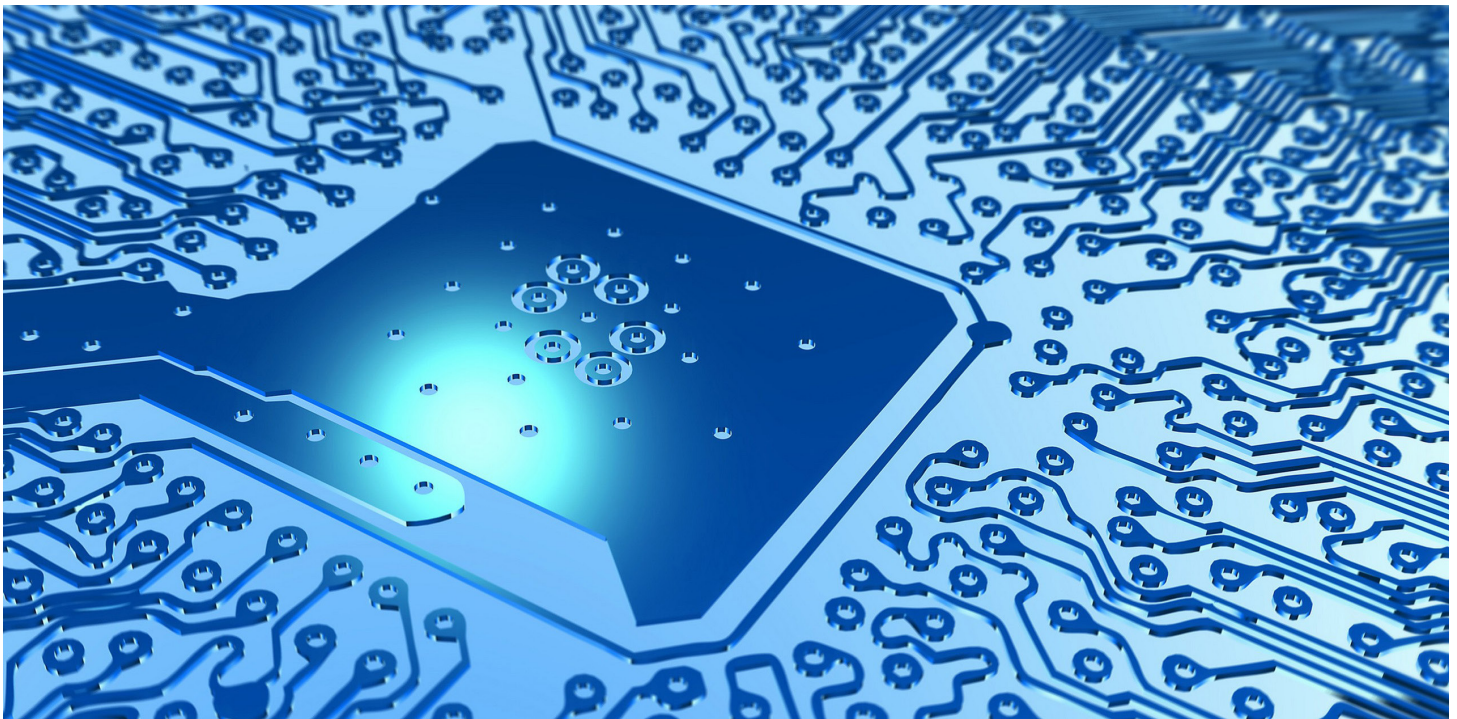
Existing Demand and Industry Sector Overview, Fourth Quarter 2021

Industry	Industry Sub-Sector	2016 Employment and Wages (in Millions of Dollars)	2021 Employment and Wages (in Millions of Dollars)	5-Year Change	2016 Location Quotients	2021 Location Quotients	Average Annual Growth Rate*	Top Occupation by Employment
Accommodation and Food Services		Employment: 343,737 Wages: \$1,637.2	Employment: 316,289 Wages: \$2,042.2	Employment: -8.0% Wages: 24.7%	Employment: 0.96 Wages: 0.88	Employment: 0.93 Wages: 0.85	2.11%	Combined Food Preparation and Serving Workers
Administrative and Support and Waste Management		Employment: 241,735 Wages: \$2,484.4	Employment: 258,119 Wages: \$3,709.9	Employment: 6.8% Wages: 52.6%	Employment: 0.98 Wages: 1.00	Employment: 1.01 Wages: 1.05	1.36%	Janitors and Cleaners
Agriculture, Forestry, Fishing and Hunting		Employment: 13,233 Wages: \$117.5	Employment: 12,926 Wages: \$154.2	Employment: -2.3% Wages: 31.2%	Employment: 0.41 Wages: 0.39	Employment: 0.40 Wages: 0.40	0.91%	Farmworkers and Laborers, Crop, Nursery, and Greenhouse
Arts, Entertainment and Recreation		Employment: 64,535 Wages: \$507.0	Employment: 63,550 Wages: \$608.0	Employment: -1.5% Wages: 19.9%	Employment: 0.85 Wages: 0.59	Employment: 0.91 Wages: 0.59	2.11%	Fitness Trainers and Aerobics Instructors
Construction		Employment: 201,315 Wages: \$2,953.6	Employment: 216,079 Wages: \$4,092.3	Employment: 7.3% Wages: 38.6%	Employment: 1.06 Wages: 0.95	Employment: 1.04 Wages: 0.99	1.01%	Construction Laborers
Educational Services		Employment: 365,966 Wages: \$4,092.3	Employment: 361,600 Wages: \$4,964.5	Employment: -1.2% Wages: 21.3%	Employment: 0.84 Wages: 0.71	Employment: 0.82 Wages: 0.75	1.81%	Elementary School Teachers, Except Special Education
Finance and Insurance		Employment: 136,556 Wages: \$2,975.1	Employment: 143,250 Wages: \$4,296.5	Employment: 4.9% Wages: 44.4%	Employment: 0.87 Wages: 0.74	Employment: 0.87 Wages: 0.75	0.58%	Customer Service Representatives
Health Care and Social Assistance		Employment: 485,505 Wages: \$6,323.7	Employment: 498,907 Wages: \$8,196.2	Employment: 2.8% Wages: 29.6%	Employment: 0.84 Wages: 0.84	Employment: 0.84 Wages: 0.84	1.54%	Registered Nurses
Information		Employment: 72,607 Wages: \$1,643.5	Employment: 71,307 Wages: \$2,372.7	Employment: -1.8% Wages: 44.4%	Employment: 0.91 Wages: 0.85	Employment: 0.86 Wages: 0.75	0.17%	Telecommunications Line Installers and Repairers



Industry	Industry Sub-Sector	2016 Employment and Wages (in Millions of Dollars)	2021 Employment and Wages (in Millions of Dollars)	5-Year Change	2016 Location Quotients	2021 Location Quotients	Average Annual Growth Rate*	Top Occupation by Employment
	Broadcasting	Employment: 7,854 Wages: \$119.7	Employment: 6,964 Wages: \$147.0	Employment: -11.3% Wages: 22.8%	Employment: Wages:	Employment: Wages:	N/A	Producers and Directors
	Data Processing, Hosting, and Related Service	Employment: 11,599 Wages: \$360.9	Employment: 15,446 Wages: \$767.2	Employment: 33.2% Wages: 112.5%	Employment: Wages:	Employment: 1.44 Wages: 1.65	3.27%	Software Developers, Applications
	Motion Picture and Sound Recording Industries	Employment: 5,242 Wages: \$44.8	Employment: 4,520 Wages: \$56.3	Employment: -13.8% Wages: 25.7%	Employment: Wages:	Employment: 0.42 Wages: 0.20	5.93%	Ushers, Lobby Attendants, and Ticket Takers
	Other Information Services	Employment: 9,274 Wages: \$144.2	Employment: 10,721 Wages: \$278.4	Employment: 15.6% Wages: 93.0%	Employment: Wages:	Employment: 0.61 Wages: 0.31	2.24%	Customer Service Representatives
	Publishing Industries	Employment: 13,893 Wages: \$309.6	Employment: 13,878 Wages: \$509.4	Employment: -0.1% Wages: 64.5%	Employment: Wages:	Employment: 0.64 Wages: 0.53	N/A	Editors
	Telecommunications	Employment: 24,744 Wages: \$664.3	Employment: 19,777 Wages: \$614.5	Employment: -20.1% Wages: -7.5%	Employment: Wages:	Employment: 1.13 Wages: 1.33	-1.55%	Telecommunications Line Installers and Repairers
Management of companies and Enterprises		Employment: 72,713 Wages: \$1913.1	Employment: 79,931 Wages: \$2,839.9	Employment: 9.9% Wages: 48.4%	Employment: 1.22 Wages: 1.14	Employment: 1.27 Wages: 1.20	1.59%	Accountants and Auditors
Manufacturing		Employment: 242,591 Wages: \$3,556.9	Employment: 248,154 Wages: \$4,472.6	Employment: 2.3% Wages: 25.7%	Employment: 0.71 Wages: 0.60	Employment: 0.72 Wages: 0.60	0.74%	Team Assemblers
Mining		Employment: 5,855 Wages: \$101.0	Employment: 5,103 Wages: \$115.9	Employment: -12.8% Wages: 14.8%	Employment: 0.37 Wages: 0.24	Employment: 0.36 Wages: 0.28	-2.00%	Operating Engineers and Other Construction Equipment Operators
Other Services		Employment: 141,150 Wages: \$1,526.1	Employment: 130,764 Wages: \$1,865.1	Employment: -7.4% Wages: 22.2%	Employment: 1.18 Wages: 1.34	Employment: 1.14 Wages: 1.29	1.14%	Hairdressers, Hairstylists, and Cosmetologists
	Personal and Laundry Services	Employment: 44,602 Wages: \$306.0	Employment: 42,586 Wages: \$394.9	Employment: -4.5% Wages: 29.0%	Employment: 1.13 Wages: 1.12	Employment: 1.12 Wages: 1.11	2.04%	Hairdressers, Hairstylists, and Cosmetologists
	Private Households	Employment: 12,023 Wages: \$76.3	Employment: 10,028 Wages: \$84.1	Employment: -16.6% Wages: 10.2%	Employment: 1.52 Wages: 1.53	Employment: 1.74 Wages: 1.49	-0.82%	Maids and Housekeeping Cleaners
	Religious, Grant-making, Civic, Professional, and Similar	Employment: 48,024 Wages: \$724.2	Employment: 42,920 Wages: \$879.8	Employment: -10.6% Wages: 21.5%	Employment: 1.30 Wages: 1.76	Employment: 1.23 Wages: 1.75	0.46%	Office Clerks, general
	Repair and Maintenance	Employment: 36,501 Wages: \$419.5	Employment: 35,229 Wages: \$506.4	Employment: -3.5% Wages: 20.7%	Employment: 1.03 Wages: 1.03	Employment: 0.96 Wages: 0.95	1.59%	Automotive Service Technicians and Mechanics

Industry	Industry Sub-Sector	2016 Employment and Wages (in Millions of Dollars)	2021 Employment and Wages (in Millions of Dollars)	5-Year Change	2016 Location Quotients	2021 Location Quotients	Average Annual Growth Rate*	Top Occupation by Employment
Professional, Scientific and Technical Services		Employment: 420,265 Wages: \$11,275.3	Employment: 460,138 Wages: \$15,095.8	Employment: 9.5% Wages: 33.9%	Employment: 1.73 Wages: 1.83	Employment: 1.67 Wages: 1.69	1.23%	Management Analysts
Public Administration		Employment: 248,561 Wages: \$4,713.4	Employment: 258,769 Wages: \$6,028.6	Employment: 4.1% Wages: 27.9%	Employment: 0.90 Wages: 0.73	Employment: 1.00 Wages: 1.00	N/A	Business Operations Specialists, All Other
	Admin. Of Economic Programs	Employment: 32,530 Wages: \$686.8	Employment: 32,550 Wages: \$853.0	Employment: 0.1% Wages: 24.2%	Employment: 1.09 Wages: 0.71	Employment: 1.23 Wages: 0.76	N/A	N/A
	Admin. Of Environmental Programs	Employment: 8,659 Wages: \$146.9	Employment: 7,567 Wages: \$160.0	Employment: -12.6% Wages: 8.9%	Employment: 0.54 Wages: 0.45	Employment: 0.50 Wages: 0.38	N/A	N/A
	Admin. of Housing Programs, and Urban Planning	Employment: 3,647 Wages: \$50.8	Employment: 3,587 Wages: \$63.7	Employment: -1.6% Wages: 25.4%	Employment: N/A Wages: N/A	Employment: N/A Wages: N/A	N/A	N/A
	Admin. Of Human Resource Programs	Employment: 16,098 Wages: \$238.0	Employment: 17,271 Wages: \$319.6	Employment: 7.3% Wages: 34.3%	Employment: 0.76 Wages: 0.73	Employment: 0.81 Wages: 0.73	N/A	N/A
	Executive, Legislative, Other General Government	Employment: 34,845 Wages: \$438.1	Employment: 36,366 Wages: \$575.4	Employment: 4.4% Wages: 31.3%	Employment: 0.53 Wages: 0.57	Employment: 0.55 Wages: 0.47	N/A	N/A
	Justice, Public Order, and Safety Activities	Employment: 80,703 Wages: \$1,272.2	Employment: 83,126 Wages: \$1,783.5	Employment: 3.0% Wages: 40.2%	Employment: 1.08 Wages: 0.85	Employment: 1.14 Wages: 0.98	N/A	N/A
	National Security and International Affairs	Employment: 70,119 Wages: \$1,827.0	Employment: 76,205 Wages: \$2,203.1	Employment: 8.7% Wages: 20.6%	Employment: N/A Wages: N/A	Employment: N/A Wages: N/A	N/A	N/A
	Space Research and Technology	Employment: 2,049 Wages: \$53.6	Employment: 2,098 Wages: \$70.2	Employment: 2.4% Wages: 31.0%	Employment: N/A Wages: N/A	Employment: N/A Wages: N/A	N/A	N/A



Industry	Industry Sub-Sector	2016 Employment and Wages (in Millions of Dollars)	2021 Employment and Wages (in Millions of Dollars)	5-Year Change	2016 Location Quotients	2021 Location Quotients	Average Annual Growth Rate*	Top Occupation by Employment
Real Estate and Rental & Leasing		Employment: 53,062 Wages: \$741.6	Employment: 56,099 Wages: \$1,106.1	Employment: 5.7% Wages: 49.2%	Employment: 0.92 Wages: 0.86	Employment: 0.92 Wages: 0.90	0.08%	Maintenance and Repair Workers, General
Retail Trade		Employment: 434,633 Wages: \$3,154.0	Employment: 413,098 Wages: \$4,050.3	Employment: -5.0% Wages: 28.4%	Employment: 0.99 Wages: 0.90	Employment: 0.98 Wages: 0.88	0.29%	Retail Salespersons
Transportation and Warehousing		Employment: 140,371 Wages: \$1,822.2	Employment: 163,222 Wages: \$2,575.0	Employment: 16.3% Wages: 41.3%	Employment: 0.88 Wages: 0.82	Employment: 0.84 Wages: 0.79	1.99%	Heavy and Tractor Trailer Truck Drivers
Utilities		Employment: 18,482 Wages: \$376.1	Employment: 18,431 Wages: \$447.5	Employment: -0.3% Wages: 19.0%	Employment: 0.74 Wages: 0.74	Employment: 0.74 Wages: 0.74	-0.29%	Electrical Power-line installers and Repairers
Wholesale Trade		Employment: 111,189 Wages: \$2,187.6	Employment: 109,744 Wages: \$2,862.3	Employment: -1.3% Wages: 30.8%	Employment: 0.71 Wages: 0.71	Employment: 0.72 Wages: 0.74	0.48	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
Total		Employment: 3,829,550 Wages: \$54,284.2	Employment: 3,910,506 Wages: \$72,395.3	Employment: 2.1% Wages: 33.4%	N/A	N/A	1.00%	N/A

Source: Virginia Employment Commission, Quarterly Census of Employment - 4th Quarter 2021

Source: Quarterly Census of Employment and Wages Location Quotient Calculator, Bureau of Labor Statistics

*Growth based on 2020-2030 Long-Term Industry Projections, Virginia Employment Commission

Note: Totals may not add due to rounding.

- Location quotients reflect data from privately owned establishments, with the exception of Public Administration and its industry sub-sectors, which reflect data from state government owned establishments. National Security and International Affairs and Space Research and Technology reflect data from federal government owned establishments.



Appendix B

Industrial Shares of the Statewide Economy Over 30 Years

Industry	2021			2011			2001		
	Share of Establishments	Share of Employment	Share of Total Wages	Share of Establishments	Share of Employment	Share of Total Wages	Share of Establishments	Share of Employment	Share of Total Wages
Accommodation & Food Services	6.0%	8.0%	3.0%	7.0%	8.0%	3.0%	6.0%	8.0%	3.0%
Administrative and Support & Waste Management	5.0%	6.0%	5.0%	5.0%	6.0%	4.0%	5.0%	6.0%	4.0%
Agriculture, Forestry, Fishing & Hunting	1.0%	0.0%	0.0%	1.0%	0.0%	0.0%	1.0%	0.0%	0.0%
Arts, Entertainment & Recreation	1.0%	2.0%	1.0%	1.0%	2.0%	1.0%	1.0%	2.0%	1.0%
Construction	8.0%	6.0%	5.0%	10.0%	5.0%	5.0%	12.0%	7.0%	6.0%
Educational Services	2.0%	9.0%	7.0%	1.0%	10.0%	8.0%	1.0%	8.0%	7.0%
Finance & Insurance	4.0%	4.0%	6.0%	5.0%	3.0%	5.0%	5.0%	4.0%	5.0%
Health Care & Social Assistance	16.0%	13.0%	11.0%	13.0%	12.0%	11.0%	7.0%	10.0%	9.0%
Information	2.0%	2.0%	3.0%	2.0%	2.0%	3.0%	2.0%	4.0%	7.0%
Management of Companies & Enterprises	1.0%	2.0%	4.0%	1.0%	2.0%	4.0%	1.0%	2.0%	4.0%
Manufacturing	3.0%	6.0%	6.0%	3.0%	7.0%	7.0%	3.0%	10.0%	11.0%
Mining, Quarrying, and Oil & Gas Extraction	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other Services (Except Public Administration)	10.0%	3.0%	3.0%	11.0%	4.0%	3.0%	12.0%	4.0%	3.0%
Professional, Scientific & Technical Services	16.0%	12.0%	21.0%	15.0%	11.0%	21.0%	13.0%	9.0%	15.0%
Public Administration	1.0%	7.0%	8.0%	2.0%	7.0%	9.0%	2.0%	6.0%	8.0%
Real Estate and Rental & Leasing	4.0%	1.0%	1.0%	4.0%	1.0%	1.0%	4.0%	2.0%	1.0%
Retail Trade	9.0%	11.0%	6.0%	11.0%	11.0%	6.0%	14.0%	12.0%	7.0%
Transportation & Warehousing	2.0%	4.0%	3.0%	3.0%	3.0%	3.0%	3.0%	4.0%	4.0%
Utilities	0.0%	0.0%	1.0%	0.0%	1.0%	1.0%	0.0%	1.0%	1.0%
Wholesale Trade	4.0%	3.0%	4.0%	5.0%	3.0%	4.0%	6.0%	3.0%	5.0%

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages, Annual 2021

Appendix C

Employer Needs by 2-Digit NAICS Industry

Industry	Quick Facts	Top 5 Occupations (Estimated Employment based on 2016 projections)	Top Advertised Skills	Top Advertised Certifications
Accommodation and Food Services	<ul style="list-style-type: none"> • 10.6% of VA Jobs • 10,988 Openings • 20,105 Employers • \$9.90 Average Hourly Wage • Top advertised Tool or Technology: Cash Register 	<ol style="list-style-type: none"> 1. Combined food Preparation and Serving Workers (74,873) 2. Waiters and Waitresses (66,326) 3. Cooks, Restaurant (31,780) 4. First-Line Supervisors of Food Preparation and Serving Workers (21,258) 5. Cashiers (14,522) 	<ol style="list-style-type: none"> 1. Customer service 2. Positive attitude 3. Food preparation 4. Cash handling 5. Must be flexible 	<ol style="list-style-type: none"> 1. National Restaurant Association (ServSafe) Certifications 2. American Heart Association (AHA) CPR & First Aid Certifications 3. ServSuccess Certifications 4. StateFoodSafety Certifications 5. TIPS Training Program
Administrative Support and Waste Management	<ul style="list-style-type: none"> • 7.5% of VA Jobs • 8,376 Openings • 10,056 Employers • \$22.58 Average Hourly Wage • Top advertised Tool or Technology: Cell Phone 	<ol style="list-style-type: none"> 1. Janitors and Cleaners, Except Maids and Housekeeping Cleaners (32,804) 2. Security Guards (22,030) 3. Landscaping and Groundskeeping Workers (18,361) 4. Customer Service Representatives (10,958) 5. Laborers and Freight, Stock, and Material Movers (8,781) 	<ol style="list-style-type: none"> 1. Customer service 2. Attention to detail 3. Time management 4. Mathematical skills 5. Organizational skills 	<ol style="list-style-type: none"> 1. American Heart Association (AHA) CPR & First Aid Certifications 2. Nursing Credentials and Certifications 3. Commercial Driver's License (CDL) 4. GIAC Certifications 5. (ISC) Certifications
Agriculture, Forestry, Fishing and Hunting	<ul style="list-style-type: none"> • 0.4% of VA Jobs • 220 Openings • 1,476 Employers • \$17.20 Average Hourly Wage • Top advertised Tool or Technology: Tractors 	<ol style="list-style-type: none"> 1. Farmworkers and Laborers (26,160) 2. Agricultural Equipment Operators (2,593) 3. First-Line Supervisors of Farming, Fishing and Forestry Workers (1,363) 4. Logging Equipment Operators (1,131) 5. Farmworkers, Farm, Ranch, and Aquacultural animals (950) 	<ol style="list-style-type: none"> 1. Attention to detail 2. Customer service 3. Work independently 4. Organizational skills 5. Problem solving 	<ol style="list-style-type: none"> 1. Commercial Driver's License (CDL) 2. American Heart Association (AHA) CPR & First Aid Certifications 3. American Institute of CPAs (AICPA) Certifications 4. Cisco Professional Certifications 5. Association for Driver Rehabilitation Specialists (ADED)
Arts, Entertainment and Recreation	<ul style="list-style-type: none"> • 1.6% of VA Jobs • 2,491 Openings • 5,814 Employers • \$13.58 Average Hourly Wage • Top advertised Tool or Technology: Microsoft (MS) Office 	<ol style="list-style-type: none"> 1. Amusement and Recreation Attendants (4,515) 2. Cashiers (1,857) 3. Waiters and Waitresses (1,812) 4. Receptionist and Information Clerks (1,544) 5. Lifeguards, Ski Patrol, and Other Recreational Protective Service (1,515) 	<ol style="list-style-type: none"> 1. Customer service 2. Positive attitude 3. Interpersonal skills 4. Attention to detail 5. Ability to empathize 	<ol style="list-style-type: none"> 1. American Heart Association (AHA) CPR & First Aid Certifications 2. American Sports and Fitness Association (ASFA) Certifications 3. Aerobics and Fitness Association of America (AFAA) Certifications 4. National Strength and Conditioning Association (NSCA) Certifications

Industry	Quick Facts	Top 5 Occupations (Estimated Employment based on 2016 projections)	Top Advertised Skills	Top Advertised Certifications
Construction	<ul style="list-style-type: none"> • 6.3% of VA Jobs • 5,107 Openings • 21,051 Employers • \$29.43 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Construction Laborers (17,063) 2. Supervisors of Construction and Extraction Workers (14,101) 3. Carpenters (14,073) 4. Electricians (10,715) 5. Plumbers, Pipefitters, and Steamfitters (8,855) 	<ol style="list-style-type: none"> 1. Customer service 2. Problem solving 3. Attention to detail 4. Work independently 5. Self-motivated 	<ol style="list-style-type: none"> 1. Commercial Driver's License (CDL) 2. American Heart Association (AHA) CPR & First Aid Certifications 3. Board of Certified Safety Professionals (BCSP) 4. Northwest Lineman College Certifications 5. Windstorm Insurance Network (WIND) Designations
Educational Services	<ul style="list-style-type: none"> • 2.1% of VA Jobs • 18,889 Openings • 7,178 Employers • \$23.35 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Teacher Assistants (24,496) 2. Bus Drivers, School or Special Client (12,906) 3. Janitors and Cleaners, Except Maids and Housekeeping Cleaners (11,414) 4. Office Clerks, General (10,176) 5. Combined Food Preparation and Serving Workers, Including Fast Food (8,961) 	<ol style="list-style-type: none"> 1. Attention to detail 2. Customer service 3. Work independently 4. Problem solving 5. Interpersonal skills 	<ol style="list-style-type: none"> 1. American Heart Association (AHA) CPR & First Aid Certifications 2. Nursing Credentials and Certifications 3. American Red Cross – First Aid Certifications 4. Commercial Driver's License (CDL)
Finance and Insurance	<ul style="list-style-type: none"> • 4.5% of VA Jobs • 5,588 Openings • 12,506 Employers • \$62.28 Average Hourly Wage • Top advertised Tool or Technology: Python 	<ol style="list-style-type: none"> 1. Customer Service Representatives (12,824) 2. Tellers (11,231) 3. Insurance Sales Agents (9,851) 4. First-Line Supervisors of Office and Administrative Support Workers (6,131) 5. Loan Interviewers and Clerks (5,343) 	<ol style="list-style-type: none"> 1. Problem solving 2. Customer service 3. Risk management 4. Decision making 5. Work independently 	<ol style="list-style-type: none"> 1. Information Systems Audit and Control Association (ISACA) 2. (ISC) Certifications 3. FINRA Financial Securities Professionals 4. American Institute of CPAs (AICPA) Certifications
Health Care and Social Assistance	<ul style="list-style-type: none"> • 14.2% of VA Jobs • 33,222 Openings • 42,595 Employers • \$24.33 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Registered Nurses (54,344) 2. Nursing Assistants (34,695) 3. Licensed Practical and Licensed Vocational Nurses (18,337) 4. Medical Assistants (11,577) 	<ol style="list-style-type: none"> 1. Customer service 2. Problem solving 3. Decision making 4. Must be flexible 5. Attention to detail 	<ol style="list-style-type: none"> 1. Nursing Credentials 2. American Heart Association (AHA) CPR & First Aid Certifications 3. Social Worker Credentials and Certifications 4. GIAC Certifications 5. National Registry of Emergency Medical Technicians (NREMT)
Information	<ul style="list-style-type: none"> • 2.1% of VA Jobs • 3,474 Openings • 6,173 Employers • \$59.75 Average Hourly Wage • Top advertised Tool or Technology: Python 	<ol style="list-style-type: none"> 1. Customer Service Representatives (4,210) 2. Sales Representatives, Services, All Other (3,850) 3. Telecommunications Line Installers and Repairers (3,229) 4. Software Developers, Applications (2,762) 5. Computer User Support Specialists (2,335) 	<ol style="list-style-type: none"> 1. Problem solving 2. Customer service 3. Attention to detail 4. Must be flexible 5. Work independently 	<ol style="list-style-type: none"> 1. (ISC) Certifications 2. GIAC Certifications 3. CompTIA Certifications 4. Cisco Associate Certifications 5. Information Systems Audit and Control Association (ISACA)

Industry	Quick Facts	Top 5 Occupations (Estimated Employment based on 2016 projections)	Top Advertised Skills	Top Advertised Certifications
Management of Companies and Enterprises	<ul style="list-style-type: none"> • 2.6% of VA Jobs • 2,373 Openings • 321 Employers • \$88.60 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Accountants and Auditors (3,725) 2. General Operations Managers (2,675) 3. Bookkeeping, Accounting, and Auditing Clerks (2,454) 4. Management Analysts (2,369) 5. Financial Managers (2,360) 	<ol style="list-style-type: none"> 1. Customer service 2. Interpersonal skills 3. Problem solving 4. Must be flexible 5. Attention to detail 	<ol style="list-style-type: none"> 1. American Heart Association (AHA) CPR & First Aid Certifications 2. Nursing Credentials and Certifications 3. American Organization for Nursing Leadership (AONL) Certifications 4. American Academy of Neurology (AAN) Designations 5. Social Worker Credentials & Certifications
Manufacturing	<ul style="list-style-type: none"> • 7.5% of VA Jobs • 9,888 Openings • 6,865 Employers • \$30.68 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Team Assemblers (11,822) 2. First-Line Supervisors of Production and Operating Workers (9,001) 3. Laborers and Freight, Stock, and Material Movers (6,896) 4. Inspectors, Testers, Sorters, Samplers, and Weighers (6,702) 5. Machinists (5,096) 	<ol style="list-style-type: none"> 1. Problem solving 2. Customer service 3. Must be flexible 4. Attention to detail 5. Decision making 	<ol style="list-style-type: none"> 1. (ISC) Certifications 2. Commercial Driver's License (CDL) 3. GIAC Certifications 4. Cisco Associate Certifications 5. CompTIA Certifications
Mining, Quarrying, and Oil and Gas Extraction	<ul style="list-style-type: none"> • 0.2% of VA Jobs • 282 Openings • 230 Employers • \$35.58 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Operating Engineers and Other Construction Equip. Operators (758) 2. Mine Cutting and Channeling Machine Operators (679) 3. Continuous Mining Machine Operators (632) 4. Helpers- extraction Workers (202) 5. Mobile heavy Equipment Mechanics, Except Engines (183) 	<ol style="list-style-type: none"> 1. Must be flexible 2. Maintain equipment 3. Customer service 4. Industrial maintenance 5. Preventative maintenance 	<ol style="list-style-type: none"> 1. Commercial Driver's License (CDL) 2. American Heart Association (AHA) CPR & First Aid Certifications 3. Project Management Institute (PMI) Certifications 4. Board of Certified Safety Professionals (BCSP)
Other Services (Except Public Administration)	<ul style="list-style-type: none"> • 4.3% of VA Jobs • 3,183 Openings • 38,902 Employers • \$22.63 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Hairdressers, Hairstylists, and Cosmetologists (9,368) 2. Automotive Service Technicians and Mechanics (7,170) 3. Office Clerks, General (5,187) 4. Cleaners of Vehicles and Equipment (4,945) 5. Childcare Workers (4,897) 	<ol style="list-style-type: none"> 1. Customer service 2. Problem solving 3. Attention to detail 4. Work independently 5. Interpersonal skills 	<ol style="list-style-type: none"> 1. American Heart Association (AHA) CPR & First Aid Certifications 2. Nursing Credentials and Certifications 3. Commercial Driver's License (CDL) 4. Licensed Massage Therapist 5. American Red Cross – First Aid Certifications
Professional, Scientific and Technical Services	<ul style="list-style-type: none"> • 13.8% of VA Jobs • 56,684 Openings • 27,353 Employers • \$55.40 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Management Analysts (27,472) 2. Software Developers, Applications (23,439) 3. Accountants and Auditors (18,825) 4. Software Developers, Systems Software (18,326) 5. Computer Systems Analysts (17,153) 	<ol style="list-style-type: none"> 1. Problem solving 2. Work independently 3. Must be flexible 4. Attention to detail 5. Customer service 	<ol style="list-style-type: none"> 1. (ISC) Certifications 2. GIAC Certifications 3. Cisco Associate Certifications 4. CompTIA Certifications 5. Information Systems Audit and Control Association (ISACA)

Industry	Quick Facts	Top 5 Occupations (Estimated Employment based on 2016 projections)	Top Advertised Skills	Top Advertised Certifications
Public Administration	<ul style="list-style-type: none"> • 66.7% of VA Jobs • 5,736 Openings • 8,462 Employers • \$48.95 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Correctional Officers and Jailers (6,834) 2. Highway Maintenance Workers (2,959) 3. Office and Administrative Support Workers, All Other (2,184) 4. Probation Officers and Correctional Treatment Specialists (2,007) 5. Office Clerks, General (1,943) 	<ol style="list-style-type: none"> 1. Customer service 2. Work independently 3. Maintains records 4. Problem solving 5. Verbal communication skills 	<ol style="list-style-type: none"> 1. American Heart Association (AHA) CPR & First Aid Certifications 2. Commercial Driver's License (CDL) 3. Nursing Credentials and Certifications 4. American Red Cross – First Aid Certifications 5. American Academy of Health Fitness and Rehab Professionals (AAHFRP) Certifications
Real Estate and Rental and Leasing	<ul style="list-style-type: none"> • 1.7% of VA Jobs • 2,368 Openings • 13,119 Employers • \$30.20 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Maintenance and Repair Workers (7,554) 2. Office Clerks, General (3,296) 3. Property, Real Estate, and Community Association Mgrs. (1,739) 4. Real Estate Brokers (1,622) 5. Secretaries and Administrative Assistants (1,614) 	<ol style="list-style-type: none"> 1. Customer service 2. Must be flexible 3. Organizational skills 4. Attention to detail 5. Preventative maintenance 	<ol style="list-style-type: none"> 1. Commercial Driver's License 2. National Apartment Association (NAA) Certifications 3. Institute of CPAs (AICPA) Certifications 4. American Heart Association (AHA) CPR & First Aid Certifications 5. Community Association Managers International Certification Board (CAMICB)
Retail Trade	<ul style="list-style-type: none"> • 12.4% of VA Jobs • 17,773 Openings • 32,796 Employers • \$15.28 Average Hourly Wage • Top advertised Tool or Technology: Cash Register 	<ol style="list-style-type: none"> 1. Retail Salespersons (109,799) 2. Cashiers (85,675) 3. Stock Clerks and Order Fillers (40,032) 4. First-Line Supervisors of Retail Sales Workers (27,868) 5. Automotive Service Technicians and Mechanics (10,725) 	<ol style="list-style-type: none"> 1. Customer service 2. Honesty 3. Stock merchandise 4. Willingness to learn 5. Interpersonal skills 	<ol style="list-style-type: none"> 1. Pharmacy Technician Certification Board (PTCB) 2. Commercial Driver's License (CDL) 3. ASE Parts Specialist Certifications 4. National Registry of Food Safety Professionals (NRFSP) Certifications 5. American Heart Association (AHA) CPR & First Aid Certifications
Transportation and Warehousing	<ul style="list-style-type: none"> • 3.9% of VA Jobs • 2,812 Openings • 5,538 Employers • \$25.78 Average Hourly Wage • Top advertised Tool or Technology: Microsoft (MS) Office 	<ol style="list-style-type: none"> 1. Heavy and Tractor-Trailer Truck Drivers (22,261) 2. Laborers and Freight, Stock, and Material Movers (16,175) 3. Light Truck or Delivery Services Drivers (6,641) 4. Industrial Truck and Tractor Operators (5,110) 5. Flight Attendants (4,080) 	<ol style="list-style-type: none"> 1. Customer service 2. Problem solving 3. Work independently 4. Must be flexible 5. Attention to detail 	<ol style="list-style-type: none"> 1. Commercial Driver's License (CDL) 2. American Heart Association (AHA) CPR & First Aid Certifications 3. National Registry of Emergency Medical Technicians (NREMT) 4. Cisco Associate Certifications 5. Project Management Institute (PMI) Certifications

Industry	Quick Facts	Top 5 Occupations (Estimated Employment based on 2016 projections)	Top Advertised Skills	Top Advertised Certifications
Utilities	<ul style="list-style-type: none"> • 0.3% of VA Jobs • 456 Openings • 290 Employers • \$67.98 Average Hourly Wage • Top advertised Tool or Technology: MS Office 	<ol style="list-style-type: none"> 1. Electrical Power-Line Installers and Repairers (1,645) 2. Electrical Engineers (603) 3. Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (564) 4. Customer Service Representatives (467) 5. Control and Valve Installers and Repairers (404) 	<ol style="list-style-type: none"> 1. Self-motivated 2. Customer service 3. Problem solving 4. Decision making 5. Interpersonal skills 	<ol style="list-style-type: none"> 1. Commercial Driver's License (CDL) 2. American Institute of CPAs (AICPA) Certifications 3. National Society of Professional Engineers (NSPE) Credentials 4. GIAC Certifications 5. Notary Public
Wholesale Trade	<ul style="list-style-type: none"> • 3.4% of VA Jobs • 4,366 Openings • 6,818 Employers • \$43.43 Average Hourly Wage • Top advertised Tool or Technology: Microsoft (MS) Office 	<ol style="list-style-type: none"> 1. Sales Reps, Wholesale and Manufacturing (19,774) 2. Laborers and Freight, Stock, and Material Movers, Hand (6,007) 3. Customer Service Representatives (4,220) 4. Heavy and Tractor-Trailer Truck Drivers (4,188) 5. Stock Clerks and Order Fillers (4,172) 	<ol style="list-style-type: none"> 1. Customer service 2. Problem solving 3. Interpersonal skills 4. Must be flexible 5. Attention to detail 	<ol style="list-style-type: none"> 1. Commercial Driver's License (CDL) 2. Cisco Associate Certifications 3. American Institute of CPAs (AICPA) Certifications 4. Cisco Professional Certifications 5. CompTIA Certifications

Source: Virginia Employment Commission, Industry Profile. Skills, certifications, and technologies based on employer self-identification in the Virginia Workforce Connection. Please note that as many job orders do not list these categories, data may skew towards those that do.



Appendix D

Employer Needs for Top Occupations by Current Openings

Occupation	Job Openings, ¹ Available Candidates ² and Average Advertised Annual wage ³	Top Employer Advertised Skills	Top Employer Advertised Certifications	Employer Advertised Education ⁴ and Experience
Registered Nurses	<ul style="list-style-type: none"> • 11,257 Openings • 71 Candidates • \$86,305 avg wage 	<ul style="list-style-type: none"> • Problem Solving • Customer Service • Critical Thinking • Decision making • Must be flexible 	<ul style="list-style-type: none"> • Registered Nurse (RN) • Advanced Cardiac Life Support Certification (ACLS) • Certification in Cardiopulmonary Resuscitation (CPR) • Basic Life Support (BLS) • Licensed Practical Nurse (LPN) 	<ul style="list-style-type: none"> • Associate's Degree • 1+ years of experience
Software Developers, Applications	<ul style="list-style-type: none"> • 6,082 Openings • 90 Candidates • N/A 	<ul style="list-style-type: none"> • Software development experience • Problem solving • System design • Must be flexible • Developing web based applications 	<ul style="list-style-type: none"> • Cisco Certified Network Associate (CCNA) • Systems Security Certified Practitioner (SSCP) • GIAC Security Essentials (GSEC) • Cisco Certified Network Associate (CCNA) Security • IAAPA Certified Attractions Leader (ICAL) 	<ul style="list-style-type: none"> • N/A
Computer Systems Engineers/Architects	<ul style="list-style-type: none"> • 4,303 Openings • 30 Candidates • \$93,693 avg wage 	<ul style="list-style-type: none"> • Problem solving • Risk management • Must be flexible • Work independently • System design 	<ul style="list-style-type: none"> • Certified Information Systems Security Professional (CISSP) • Cisco Certified Network Associate (CCNA) • Systems Security Certified Practitioner (SSCP) • Cisco Certified Network Associate (CCNA) Security • GIAC Security Essentials (GSEC) 	<ul style="list-style-type: none"> • Bachelor's Degree • 6+ years of experience
Retail Salespersons	<ul style="list-style-type: none"> • 3,585 Openings • 212 Candidates • \$30,929 avg wage 	<ul style="list-style-type: none"> • Customer service • Honesty • Stock merchandise • Check-in merchandise • Cash handling 	<ul style="list-style-type: none"> • Certification in Cardiopulmonary Resuscitation (CPR) • Commercial Drivers License (CDL) • Nationally Certified Emergency Medical Technician (NREMT) • Notary Public 	<ul style="list-style-type: none"> • High School diploma • No experience needed
Computer Programmers	<ul style="list-style-type: none"> • 3,225 Openings • 32 Candidates • \$90,057 avg wage 	<ul style="list-style-type: none"> • Developing web based applications • Problem Solving • Work independently • Agile software development • Software design 	<ul style="list-style-type: none"> • Certified Information Systems Security Professional (CISSP) • CompTIA Security+ Certification • Cisco Certified Network Associate (CCNA) • GIAC Security Essentials (GSEC) • Systems Security Certified Practitioner (SSCP) 	<ul style="list-style-type: none"> • Bachelor's degree • 6+ months of experience

Occupation	Job Openings, ¹ Available Candidates ² and Average Advertised Annual wage ³	Top Employer Advertised Skills	Top Employer Advertised Certifications	Employer Advertised Education ⁴ and Experience
Network and Computer Systems Administrators	<ul style="list-style-type: none"> • 2,652 Openings • 103 Candidates • \$75,731 avg wage 	<ul style="list-style-type: none"> • Problem solving • Conflict management • Customer service • Attention to detail • Work independently 	<ul style="list-style-type: none"> • Cisco Certified Network Associate (CCNA) • CompTIA Security+ Certification • Systems Security Certified Practitioner (SSCP) • GIAC Security Essentials (GSEC) • Cisco Certified Network Professional (CCNP) 	<ul style="list-style-type: none"> • Bachelor's degree • 6+ years of experience
Customer Service Representatives	<ul style="list-style-type: none"> • 2,433 Openings • 1,191 Candidates • \$33,059 avg wage 	<ul style="list-style-type: none"> • Customer service • Problem solving • Attention to detail • Verbal communication skills • Time management 	<ul style="list-style-type: none"> • Certified Insurance Service Representative (CISR) • Certification in Cardiopulmonary Resuscitation (CPR) • ITIL 4 Foundation Certification • Certified Scrum Product Owner (CSPO) • Series – 7 – General Securities Representative 	<ul style="list-style-type: none"> • High School diploma • 1+ years of experience
Licensed Practical and Licensed Vocational Nurses	<ul style="list-style-type: none"> • 2,161 Openings • 65 Candidates • \$56,130 avg wage 	<ul style="list-style-type: none"> • Customer service • Problem solving • Critical thinking • Decision making • Direct nursing care 	<ul style="list-style-type: none"> • Licensed Practical Nurse (LPN) • Registered Nurse (RN) • Certification in Cardiopulmonary Resuscitation (CPR) • Basic Life Support (BLS) Certification • Licensed Vocational Nurse (LVN) 	<ul style="list-style-type: none"> • Post-Secondary Certificate • No experience needed
Computer Systems Analysts	<ul style="list-style-type: none"> • 2,137 Openings • 70 Candidates • \$83,542 avg wage 	<ul style="list-style-type: none"> • Problem solving • Work independently • Interpersonal skills • Must be flexible • Attention to detail 	<ul style="list-style-type: none"> • Project Management Professional (PMP) • Certified Business Analysis Professional (CBAP) • Certified Information Systems Security Professional (CISSP) • CompTIA Security+ Certification • Certified Scrum Product Owner (CSPO) 	<ul style="list-style-type: none"> • Bachelor's degree • 1+ years of experience
First-Line Supervisors of Food Preparation and Serving Workers	<ul style="list-style-type: none"> • 1,971 Openings • 47 Candidates • \$39,532 avg wage 	<ul style="list-style-type: none"> • Customer service • Inventory management • Restaurant management • Problem solving • Decision making 	<ul style="list-style-type: none"> • Certification in Cardiopulmonary Resuscitation (CPR) • TIPS Certification • CPR/AED Certification • ServSafe Food Handler Certification • ServSafe Alcohol Certification 	<ul style="list-style-type: none"> • High School diploma • No experience needed

¹ Monthly Job Count for September 2022. Job openings include all online postings, after de-duplication efforts.

² Candidate Count is individuals with active resumes in the Virginia Workforce Connection that specify a preference for a given occupation as of September 6, 2022.

³ Not all positions advertised include wage information.

⁴ Not all positions advertised include education requirements

Source: Virginia Employment Commission, Occupation Profiles. Skills, Certifications, and Technologies are self-reported by employers in the Virginia Workforce Connection

Appendix E

Labor Force Participation Rates and Trends by Locality

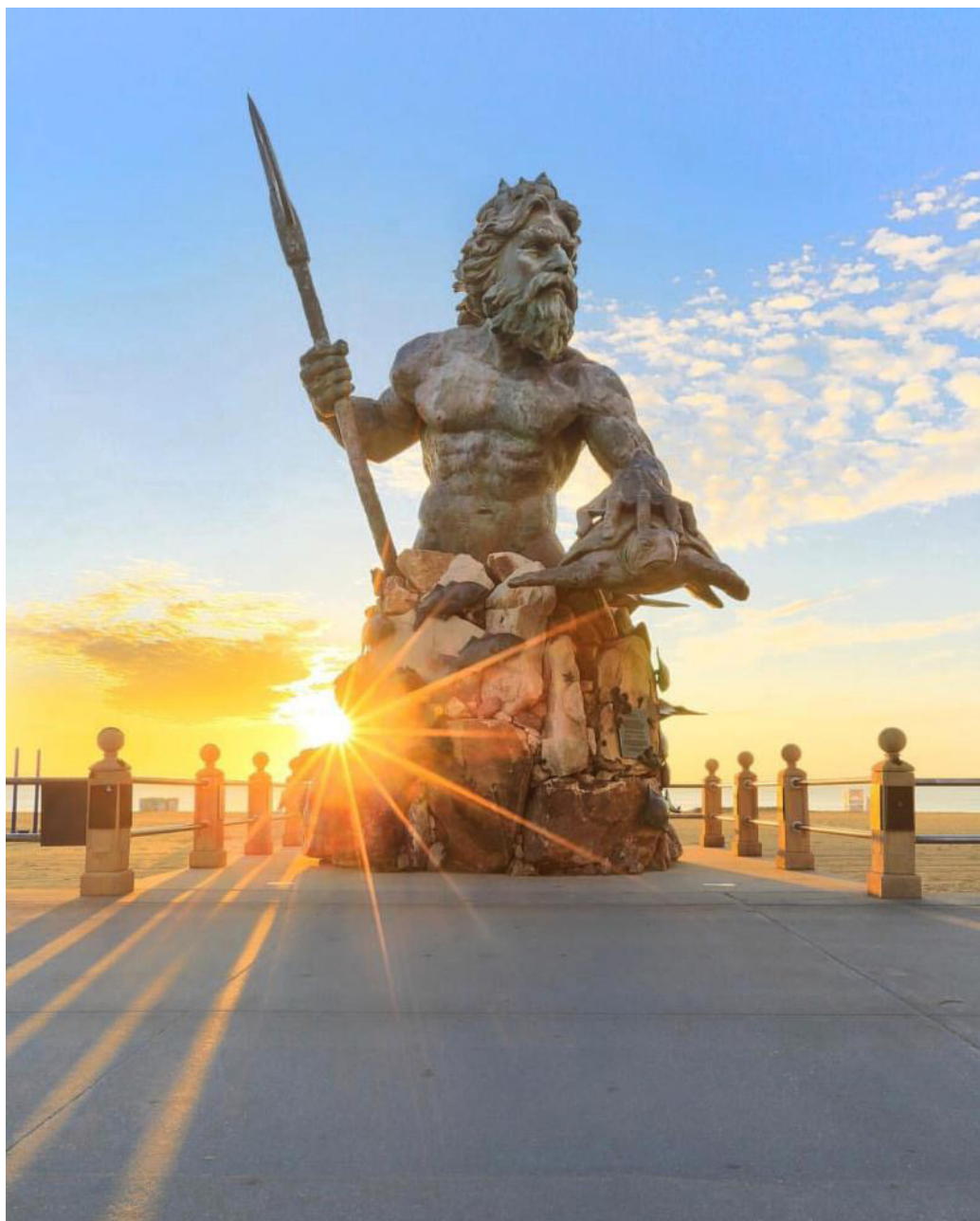
Locality	2017	2020	2021*	1-Yr Percent Change	4-Yr Percent Change
Virginia	59.4%	61.9%	61.0%	-1.5%	2.8%
Southwestern Virginia (LWDA I)	44.7%	46.2%	45.4%	-1.8%	1.5%
Buchanan County	36.8%	37.3%	36.5%	-2.1%	-0.8%
Dickenson County	37.3%	40.6%	40.5%	-0.3%	8.5%
Lee County	42.1%	45.1%	44.7%	-1.0%	6.1%
Russell County	49.9%	50.9%	49.7%	-2.3%	-0.4%
Scott County	50.4%	51.8%	50.7%	-2.2%	0.7%
Tazewell County	45.9%	48.2%	47.8%	-0.8%	4.1%
Wise County	41.8%	45.5%	44.4%	-2.6%	6.1%
Norton City	53.4%	50.0%	48.7%	-2.7%	-8.9%
New River/Mt. Rogers (LWDA II)	56.4%	60.0%	59.3%	-1.3%	5.1%
Bland County	51.2%	59.0%	59.0%	0.0%	15.2%
Carroll County	55.4%	52.7%	52.2%	-1.1%	-5.8%
Floyd County	63.2%	61.6%	61.7%	0.2%	-2.4%
Giles County	57.3%	57.3%	56.9%	-0.7%	-0.7%
Grayson County	57.9%	66.4%	70.9%	6.8%	22.5%
Montgomery County	59.3%	66.3%	65.5%	-1.3%	10.4%
Pulaski County	56.3%	58.2%	56.9%	-2.4%	0.9%
Smyth County	53.8%	54.5%	53.1%	-2.6%	-1.2%
Washington County	59.2%	59.7%	58.2%	-2.5%	-1.7%
Wythe County	59.1%	58.5%	57.6%	-1.5%	-2.5%
Bristol City	53.0%	53.4%	52.5%	-1.8%	-1.0%
Galax City	54.0%	63.9%	62.3%	-2.4%	15.4%
Radford City	53.1%	68.7%	63.6%	-7.4%	19.8%
Western Virginia (LWDA III)	58.7%	59.9%	58.6%	-2.2%	-0.2%
Alleghany County	54.4%	55.8%	54.9%	-1.6%	0.8%
Botetourt County	63.3%	62.2%	61.5%	-1.1%	-2.9%
Craig County	54.6%	54.0%	53.0%	-1.8%	-2.8%
Franklin County	56.5%	56.6%	55.6%	-1.7%	-1.6%
Roanoke County	64.1%	65.2%	63.9%	-2.0%	-0.4%
Covington City	52.8%	55.0%	53.0%	-3.6%	0.4%
Roanoke City	61.7%	64.1%	62.4%	-2.7%	1.1%
Salem City	61.9%	66.3%	64.3%	-3.0%	3.9%
Shenandoah Valley (LWDA IV)	61.1%	63.3%	63.7%	0.6%	4.2%
Augusta County	59.9%	61.8%	61.8%	-0.1%	3.1%
Bath County	71.9%	64.2%	62.3%	-3.0%	-13.4%
Clarke County	63.6%	63.0%	62.8%	-0.3%	-1.3%
Frederick County	69.9%	70.4%	70.4%	0.0%	0.7%
Highland County	66.9%	64.3%	65.3%	1.6%	-2.3%
Page County	61.3%	62.0%	62.5%	0.8%	2.1%
Rockbridge County	55.9%	56.1%	56.7%	1.0%	1.4%
Rockingham County	64.7%	65.2%	65.2%	0.1%	0.9%
Shenandoah County	62.6%	63.0%	63.7%	1.1%	1.8%
Warren County	63.9%	65.4%	64.2%	-1.8%	0.5%

Locality	2017	2020	2021*	1-Yr Percent Change	4-Yr Percent Change
Buena Vista City	64.0%	66.2%	74.4%	12.3%	16.2%
Harrisonburg City	55.0%	63.4%	62.7%	-1.2%	13.9%
Lexington City	31.9%	51.0%	50.6%	-0.8%	58.8%
Staunton City	58.9%	63.8%	64.3%	0.9%	9.3%
Waynesboro City	61.3%	61.6%	61.3%	-0.4%	0.0%
Winchester City	66.4%	70.6%	70.5%	-0.2%	6.1%
Piedmont Workforce Network (LWDA VI)	64.1%	64.6%	63.4%	-1.8%	-1.0%
Albemarle County	64.8%	67.7%	66.2%	-2.2%	2.1%
Culpeper County	62.3%	62.4%	61.6%	-1.4%	-1.2%
Fauquier County	66.6%	66.5%	65.7%	-1.2%	-1.4%
Fluvanna County	63.0%	66.2%	64.0%	-3.3%	1.6%
Greene County	67.9%	66.7%	64.7%	-3.0%	-4.7%
Louisa County	69.4%	67.0%	67.2%	0.3%	-3.1%
Madison County	68.8%	68.3%	69.1%	1.2%	0.4%
Nelson County	59.1%	59.0%	57.1%	-3.2%	-3.4%
Orange County	59.6%	58.9%	58.0%	-1.5%	-2.6%
Rappahannock County	58.8%	60.4%	60.0%	-0.7%	2.0%
Charlottesville City	64.9%	67.6%	64.3%	-4.9%	-0.9%
Region 2000/Central Virginia (LWDA VII)	57.5%	58.4%	56.7%	-3.0%	-1.4%
Amherst County	57.2%	58.3%	56.4%	-3.3%	-1.3%
Appomattox County	57.0%	55.2%	53.8%	-2.6%	-5.7%
Bedford County	60.4%	58.5%	57.0%	-2.6%	-5.7%
Campbell County	57.8%	56.5%	55.2%	-2.3%	-4.4%
Lynchburg City	55.1%	63.7%	61.1%	-4.1%	10.9%
South Central (LWDA VIII)	52.7%	56.6%	56.2%	-0.7%	6.6%
Amelia County	60.3%	59.4%	57.1%	-4.0%	-5.3%
Brunswick County	44.4%	49.9%	47.9%	-3.9%	7.9%
Buckingham County	44.9%	52.4%	50.1%	-4.4%	11.6%
Charlotte County	54.1%	53.8%	54.7%	1.6%	1.1%
Cumberland County	58.4%	54.5%	54.0%	-1.0%	-7.5%
Halifax County	54.6%	55.3%	54.6%	-1.3%	-0.2%
Lunenburg County	52.6%	58.2%	57.5%	-1.2%	9.5%
Mecklenburg County	49.6%	51.1%	51.4%	0.7%	3.7%
Nottoway County	55.8%	67.5%	68.0%	0.6%	21.9%
Prince Edward County	52.6%	63.7%	66.8%	5.0%	27.1%
Capital Region Workforce Partnership (LWDA IX)	65.5%	65.4%	62.8%	-4.0%	-4.2%
Charles City County	61.4%	59.8%	57.4%	-3.9%	-6.4%
Chesterfield County	69.8%	68.9%	66.4%	-3.5%	-4.8%
Goochland County	58.8%	59.1%	57.2%	-3.2%	-2.7%
Hanover County	70.5%	68.9%	66.5%	-3.5%	-5.7%
Henrico County	70.4%	69.4%	66.8%	-3.7%	-5.1%
New Kent County	71.9%	70.6%	68.4%	-3.1%	-4.9%
Powhatan County	57.7%	59.3%	56.6%	-4.6%	-2.0%
Richmond City	63.6%	67.2%	63.0%	-6.2%	-1.0%
Northern Virginia (LWDA XI)	72.3%	71.7%	70.4%	-1.8%	-2.6%
Fairfax County	69.5%	70.8%	69.8%	-1.5%	0.3%
Loudoun County	77.7%	74.0%	72.6%	-2.0%	-6.5%

Locality	2017	2020	2021*	1-Yr Percent Change	4-Yr Percent Change
Prince William County	70.8%	71.0%	69.5%	-2.1%	-1.9%
Fairfax City	68.3%	71.6%	69.5%	-2.9%	1.8%
Falls Church City	78.2%	74.6%	75.0%	0.6%	-4.1%
Manassas City	69.1%	69.1%	67.7%	-2.1%	-2.0%
Manassas Park City	72.5%	70.4%	68.7%	-2.5%	-5.2%
Alexandria/Arlington (LWDA XII)	77.6%	78.9%	77.7%	-1.6%	0.1%
Arlington County	77.9%	78.9%	78.2%	-1.0%	0.4%
Alexandria City	77.3%	78.9%	77.1%	-2.2%	-0.3%
Bay Consortium (LWDA XIII)	60.9%	62.7%	62.0%	-1.1%	1.9%
Accomack County	62.4%	61.9%	61.5%	-0.6%	-1.5%
Caroline County	63.7%	68.3%	65.5%	-4.1%	2.9%
Essex County	62.8%	60.8%	59.7%	-1.8%	-4.9%
King George County	65.9%	69.0%	68.8%	-0.2%	4.4%
King William County	69.5%	66.9%	64.6%	-3.5%	-7.0%
King and Queen County	65.6%	65.2%	64.6%	-0.9%	-1.5%
Lancaster County	56.8%	57.4%	59.7%	4.0%	5.1%
Mathews County	53.8%	53.1%	52.0%	-2.1%	-3.3%
Middlesex County	57.4%	58.5%	58.5%	0.0%	2.0%
Northampton County	56.2%	57.1%	57.5%	0.8%	2.3%
Northumberland County	52.5%	53.9%	55.2%	2.5%	5.1%
Richmond County	54.0%	68.3%	67.4%	-1.4%	24.8%
Spotsylvania County	65.0%	64.6%	63.3%	-2.0%	-2.7%
Stafford County	64.4%	66.8%	65.5%	-2.0%	1.6%
Westmoreland County	64.6%	65.0%	65.3%	0.5%	1.0%
Fredericksburg City	60.0%	66.9%	63.6%	-4.9%	6.0%
Greater Peninsula (LWDA XIV)	60.3%	66.5%	65.0%	-2.3%	7.7%
Gloucester County	63.5%	63.7%	62.2%	-2.4%	-2.1%
James City County	60.1%	60.1%	58.5%	-2.7%	-2.7%
York County	61.7%	66.0%	64.7%	-1.9%	4.8%
Hampton City	58.8%	64.9%	62.3%	-4.1%	5.9%
Newport News City	62.7%	72.2%	69.4%	-3.8%	10.6%
Poquoson City	64.6%	64.7%	63.8%	-1.3%	-1.3%
Williamsburg City	50.7%	74.0%	73.9%	-0.2%	45.8%
Crater Area (LWDA XV)	53.9%	60.6%	59.2%	-2.3%	10.0%
Dinwiddie County	59.1%	59.5%	56.5%	-5.1%	-4.5%
Greensville County	45.1%	66.8%	61.8%	-7.4%	37.2%
Prince George County	49.0%	60.1%	73.7%	22.5%	50.3%
Surry County	67.1%	66.8%	65.7%	-1.7%	-2.1%
Sussex County	38.2%	53.7%	45.9%	-14.5%	20.2%
Colonial Heights City	63.1%	62.9%	60.5%	-3.8%	-4.1%
Emporia City	55.9%	60.6%	60.5%	-0.2%	8.3%
Hopewell City	56.5%	58.1%	55.2%	-5.0%	-2.2%
Petersburg City	50.7%	57.3%	53.4%	-6.8%	5.2%
Hampton Roads (LWDA XVI)	61.4%	67.9%	65.5%	-3.5%	6.6%
Isle of Wight County	65.4%	64.1%	62.6%	-2.2%	-4.1%
Southampton County	60.6%	68.9%	67.5%	-2.2%	11.4%
Chesapeake City	65.7%	68.4%	66.5%	-2.7%	1.2%

Locality	2017	2020	2021*	1-Yr Percent Change	4-Yr Percent Change
Franklin City	55.4%	61.1%	61.4%	0.6%	10.9%
Norfolk City	55.8%	80.5%	71.8%	-10.8%	28.8%
Portsmouth City	59.2%	65.4%	63.2%	-3.3%	6.7%
Suffolk City	64.6%	64.8%	63.6%	-1.9%	-1.6%
Virginia Beach City	64.8%	69.6%	67.1%	-3.6%	3.6%
West Piedmont (LWDA XVII)	55.9%	57.7%	57.7%	0.0%	3.2%
Henry County	55.6%	57.1%	57.9%	1.2%	4.1%
Patrick County	50.9%	49.3%	48.5%	-1.6%	-4.7%
Pittsylvania County	60.1%	60.3%	60.7%	0.5%	0.9%
Danville City	59.7%	61.9%	61.1%	-1.4%	2.2%
Martinsville City	53.4%	59.9%	60.5%	0.9%	13.2%
Source: Virginia Employment Commission					

*Preliminary Data



Appendix F

Top 5 Growing Minor Group Occupations by Employment Growth

Workforce Area	Occupation	2018 Estimated Employment	2028 Employment Forecast	Forecasted Employment Change	Average Annual Growth
LWDA I – Southwestern Virginia	Other Personal Care and Service Workers	1,276	1,99	703	5.51%
	Nursing, Psychiatric, and Home Health Aides	901	1,185	284	3.15%
	Animal Care and Service Workers	77	100	23	2.99%
	Occupational Therapy and Physical Therapist Assistants	176	225	49	2.78%
	Other Healthcare Support Occupations	404	484	80	1.98%
LWDA II – New River/ Mt. Rogers	Other Personal Care and Service Workers	3,433	5,042	1,609	4.69%
	Occupational Therapy and Physical Therapist Assistants	197	262	65	3.30%
	Media and Communication Equipment Workers	142	186	44	3.10%
	Animal Care and Service Workers	434	552	118	2.72%
	Other Healthcare Support Occupations	1,214	1,530	316	2.60%
LWDA III – Western Virginia	Other Personal Care and Service Workers	2,192	3,425	1,233	5.63%
	Animal Care and Service Workers	94	129	35	3.72%
	Social Scientists and Related Workers	162	218	56	3.46%
	Nursing, Psychiatric, and Home Health Aides	1,702	2,068	366	2.15%
	Supervisors of Farming, Fishing, and Forestry Workers	113	133	20	1.77%
LWDA IV – Shenandoah Valley	Other Professional Care and Service Workers	5,942	8,276	2,334	3.93%
	Occupational Therapy and Physical Therapist Assistants	379	498	119	3.14%
	Social Scientists and Related Workers	380	483	103	2.71%
	Counselors, Social Workers, and Other Community and Social Support Occupations	2,476	3,112	636	2.57%
	Nursing, Psychiatric, and Home Health Aides	3,966	4,978	1,012	2.55%
LWDA VI – Piedmont Workforce Network	Other Personal Care and Service Workers	5,764	8,053	2,289	3.97%
	Mathematical Science Occupations	176	243	67	3.81%
	Occupational Therapy and Physical Therapist Assistants	135	179	44	3.26%
	Animal Care and Service Workers	303	393	90	2.97%
	Other Healthcare Support Occupations	1,396	1,739	343	2.46%
LWDA VII – Central Virginia	Other Personal Care and Service Workers	3,170	4,422	1,252	3.95%
	Occupational Therapy and Physical Therapist Assistants	194	266	72	3.71%
	Other Healthcare Support Occupations	1,168	1,510	342	2.93%
	Counselors, Social Workers, and Other Community and Social Support Occupations	2,043	2,626	583	2.85%
	Nursing, Psychiatric, and Home Health Aides	2,031	2,558	527	2.59%
LWDA VIII – South Central Virginia	Other Personal Care and Service Workers	2,192	3,425	1,233	5.63%
	Animal Care and Service Workers	94	129	35	3.72%
	Social Scientists and Related Workers	162	218	56	3.46%
	Nursing, Psychiatric, and Home Health Aides	1,702	2,068	366	2.15%
	Supervisors of Farming, Fishing, and Forestry Workers	113	133	20	1.77%

Workforce Area	Occupation	2018 Estimated Employment	2028 Employment Forecast	Forecasted Employment Change	Average Annual Growth
LWDA IX – Capital Region Workforce Partnership	Other Personal Care and Service Workers	13,877	18,808	4,931	3.55%
	Mathematical and Science Occupations	1,205	1,566	361	3.00%
	Occupational Therapy and Physical Therapist Assistants	662	857	195	2.95%
	Nursing, Psychiatric, and Home Health Aides	7,373	9,476	2,103	2.85%
	Animal Care and Service Workers	1,164	1,495	331	2.84%
Combined LWDA XI and XII– Northern Virginia and Alexandria/ Arlington*	Occupational Therapy and Physical Therapist Assistants	941	1,309	368	3.91%
	Mathematical Science Occupations	6,457	8,934	2,477	3.84%
	Nursing, Psychiatric, and Home Health Aides	10,238	13,671	3,433	3.35%
	Other Healthcare Support Occupations	11,620	14,910	3,290	2.83%
	Animal Care and Service Workers	3,436	4,399	963	2.80%
LWDA XIII – Bay Consortium	Media and Communication Equipment Workers	139	230	91	6.55%
	Occupational Therapy and Physical Therapist Assistants	281	430	149	5.30%
	Other Personal Care and Service Workers	5,752	8,139	2,387	4.15%
	Mathematical Science Occupations	658	860	202	3.07%
	Other Healthcare Support Occupations	1,726	2,203	477	2.76%
LWDA XIV – Greater Peninsula	Media and Communication Equipment Workers	414	605	191	4.61%
	Occupational Therapy and Physical Therapist Assistants	399	546	147	3.68%
	Mathematical Science Occupations	207	276	69	3.33%
	Other Personal Care and Service Workers	5,007	6,431	1,424	2.84%
	Animal Care and Service Workers	614	786	172	2.80%
LWDA XV – Crater Area	Other Personal Care and Service Workers	2,312	3,296	984	4.26%
	Occupational Therapy and Physical Therapist Assistants	76	100	24	3.16%
	Nursing, Psychiatric, and Home Health Aides	1,280	1,616	336	2.63%
	Other Healthcare Support Occupations	718	906	188	2.62%
	Animal Care and Service Workers	191	237	46	2.41%
LWDA XVI – Hampton Roads	Mathematical Science Occupations	951	1,377	426	4.48%
	Other Personal Care and Service Workers	12,513	16,953	4,440	3.55%
	Occupational Therapy and Physical Therapist Assistants	822	1,103	281	3.42%
	Nursing, Psychiatric, and Home Health Aides	9,563	12,564	3,001	3.14%
	Other Healthcare Support Occupations	6,109	7,918	1,809	2.96%
LWDA XVII – West Piedmont	Other Personal Care and Service Workers	3,336	5,086	1,750	5.25%
	Occupational Therapy and Physical Therapist Assistants	161	217	56	3.48%
	Animal Care and Service Workers	125	158	33	2.64%
	Other Healthcare Support Occupations	431	540	109	2.53%
	Nursing, Psychiatric, and Home Health Aides	1,832	2,274	442	2.41%

Source: Virginia Employment Commission, Long-Term Occupational Projections

Note: Occupations based on 2018 data, and estimated through 2028

*Long-Term Occupational Projections are not available for Alexandria/Arlington and Northern Virginia LWDAs individually

Appendix G

Top 5 Occupations by Employment

Workforce Area	Occupation	Employment	Median Annual Salary	Growth Rate (%)
LWDA I – Southwestern Virginia	Cashiers	2,240	\$21,453.37	-1.06
	Customer Service Representatives	1,600	\$31,372.68	0.29
	Correctional Officers and Jailers	1,510	\$41,091.56	-1.20
	Fast Food and Counter Workers	1,290	\$19,342.08	0.26
	Stockers and Order Fillers	1,130	\$24,872.83	-0.89
LWDA II – New River/ Mt. Rogers	Fast Food and Counter Workers	4,670	\$20,057.88	0.50
	Cashiers	4,460	\$20,955.66	-0.70
	Retail Salespersons	3,210	\$26,405.12	-0.52
	Office Clerks, General	2,810	\$30,885.45	-0.80
	Stockers and Order Fillers	2,670	\$25,285.58	0.04
LWDA III – Western Virginia	Fast Food and Counter Workers	4,350	\$20,216.37	0.59
	Registered Nurses	4,300	\$66,987.13	0.79
	Retail Salespersons	4,210	\$27,031.75	-0.61
	Stockers and Order Fillers	3,670	\$25,749.79	0.18
	Customer Service Representatives	3,370	\$34,577.50	-0.28
LWDA IV – Shenandoah Valley	Fast Food and Counter Workers	7,560	\$21,542.30	0.91
	Cashiers	7,400	\$24,381.52	-0.28
	Retail Salespersons	5,420	\$27,290.65	0.03
	Laborers and Freight, Stock, and Material Movers, Hand	5,070	\$32,159.19	0.31
	Heavy and Tractor-Trailer Truck Drivers	4,870	\$46,491.04	0.66
LWDA VI – Piedmont Workforce Network	Cashiers	4,470	\$23,977.85	-0.04
	Registered Nurses	4,300	\$70,863.21	0.98
	Office Clerks, General	4,070	\$36,336.01	-0.27
	Retail Salespersons	4,060	\$28,063.10	0.21
	Fast Food and Counter Workers	4,030	\$23,770.49	1.08
LWDA VII – Central Virginia	Fast Food and Counter Workers	3,720	\$19,707.75	1.05
	Cashiers	3,060	\$21,844.35	-0.43
	Registered Nurses	2,320	\$66,501.47	0.93
	Retail Salespersons	2,220	\$25,666.48	-0.12
	Laborers and Freight, Stock, and Material Movers, Hand	2,200	\$27,571.63	-0.06
LWDA VIII – South Central Virginia	Cashiers	1,290	\$22,088.45	-0.74
	Fast Food and Counter Workers	1,140	\$19,142.15	0.76
	Heavy and Tractor-Trailer Truck Drivers	1,120	\$41,696.60	0.68
	Correctional Officers and Jailers	1,110	\$40,301.18	-0.76
	Office Clerks, General	1,050	\$25,313.09	-0.72
LWDA IX – Capital Region Workforce Partnership	Retail Salespersons	15,250	\$26,010.97	-0.04
	Cashiers	14,960	\$24,015.90	-0.17
	Customer Service Representatives	12,840	\$36,853.94	-0.09
	Fast Food and Counter Workers	11,910	\$21,449.07	1.06
	Office Clerks, General	11,360	\$35,778.16	-0.42

Workforce Area	Occupation	Employment	Median Annual Salary	Growth Rate (%)
LWDA XI – Northern Virginia	Software Developers and Software Quality Assurance Analysts and Testers	45,650	\$119,843.25	2.11
	Retail Salespersons	24,150	\$29,625.98	0.18
	Cashiers	22,870	\$26,561.52	0.44
	Fast Food and Counter Workers	22,310	\$28,769.68	1.70
	Management Analysts	19,510	\$107,548.87	1.43
LWDA XII – Alexandria/Arlington	Management Analysts	10,880	\$102,793.56	1.72
	Software Developers and Software Quality Assurance Analysts and Testers	9,230	\$124,185.60	1.99
	Project Management Specialists and Business Operations Specialists, All Other	8,340	\$103,817.03	1.25
	General and Operations Managers	7,690	\$159,505.43	1.05
	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	6,040	\$147,224.73	0.65
LWDA XIII – Bay Consortium	Cashiers	6,340	\$25,044.08	0.13
	Fast Food and Counter Workers	4,140	\$23,497.02	1.27
	Retail Salespersons	3,680	\$28,499.53	0.02
	Customer Service Representatives	3,490	\$38,868.34	-0.03
	Stockers and Order Fillers	3,480	\$29,430.53	0.38
LWDA XIV – Greater Peninsula	Retail Salespersons	7,970	\$24,564.33	-0.64
	Fast Food and Counter Workers	7,950	\$21,387.96	0.82
	Cashiers	7,410	\$22,828.15	-0.54
	Stockers and Order Fillers	5,180	\$30,232.35	0.16
	Office Clerks, General	4,910	\$33,896.82	-0.52
LWDA XV – Crater Area	Cashiers	3,330	\$23,238.16	-0.84
	Stockers and Order Fillers	1,770	\$26,531.02	0.15
	Correctional Officers and Jailers	1,650	\$40,308.43	-0.77
	Retail Salespersons	1,520	\$22,526.99	-0.67
	Nursing Assistants	1,370	\$29,521.74	1.44
LWDA XVI – Hampton Roads	Fast Food and Counter Workers	16,460	\$21,566.13	0.88
	Retail Salespersons	11,980	\$25,606.25	-0.49
	Cashiers	11,320	\$23,830.97	-0.32
	Office Clerks, General	10,540	\$31,581.49	-0.54
	Registered Nurses	10,290	\$70,969.32	0.87
LWDA XVII – West Piedmont	Cashiers	4,240	\$21,400.53	-1.19
	Fast Food and Counter Workers	2,360	\$19,179.44	0.05
	Retail Salespersons	1,840	\$27,442.81	-1.18
	Stockers and Order Fillers	1,720	\$26,325.16	-0.52
	Laborers and Freight, Stock, and Material Movers, Hand	1,350	\$29,908.12	-0.47

Source: Virginia Employment Commission, Occupational Employment and Wage Rates Program
Growth based on 2018-2028 Long-term Occupational Projections, Virginia Employment Commission.

*Higher Level of SOC code used

Appendix H

Top 5 Growing Industries (3 Digit NAICS) by Forecasted Employment Growth

Workforce Area	Occupation	2018 Estimated Employment	2028 Employment Forecast	Forecasted Employment Change	Average Annual Growth
LWDA I – Southwestern Virginia	Social Assistance	1,645	2,627	982	5.97%
	Ambulatory Health Care Services	3,293	4,411	1,118	3.40%
	Oil and Gas Extraction	214	260	46	2.15%
	Nursing and Residential Care Facilities	1,686	1,976	290	1.72%
	Professional, Scientific, and Technical Services	2,119	2,454	335	1.58%
LWDA II – New River/ Mt. Rogers	Social Assistance	3,186	4,859	1,673	5.25%
	Ambulatory Health Care Services	5,466	7,220	1,754	3.21%
	Warehousing and Storage	1,052	1,307	255	2.42%
	Nursing and Residential Care Facilities	3,456	4,041	585	1.69%
	Professional, Scientific, and Technical Services	4,413	5,138	725	1.64%
LWDA III – Western Virginia	Ambulatory Health Care Services	7,368	9,826	2,458	3.34%
	Support Activities for Agriculture and Forestry	104	132	28	2.69%
	Warehousing and Storage	1,682	2,064	382	2.27%
	Nursing and Residential Care Facilities	4,856	5,882	1,026	2.11%
	Religious, Grantmaking, Civic, Professional, and Similar Organizations	1,666	1,987	321	1.93%
LWDA IV – Shenandoah Valley	Social Assistance	4,906	7,563	2,657	5.42%
	Other Information Services	379	561	182	4.80%
	Ambulatory Health Care Services	8,118	10,755	2,637	3.25%
	Support Activities for Agriculture and Forestry	585	771	186	3.18%
	Warehousing and Storage	5,013	6,333	1,320	2.63%
LWDA VI – Piedmont Workforce Network	Social Assistance	3,766	5,973	2,207	5.86%
	Ambulatory Health Care Services	6,613	8,675	2,062	3.12%
	Support Activities for Agriculture and Forestry	312	405	93	2.98%
	Nursing and Residential Care Facilities	3,643	4,410	767	2.11%
	Building Material and Garden Equipment and Supplies Dealers	2,123	2,554	431	2.03%
LWDA VII – Central Virginia	Social Assistance	2,767	4,082	1,315	4.75%
	Ambulatory Health Care Services	5,290	7,089	1,799	3.40%
	Nursing and Residential Care Facilities	2,963	3,588	625	2.11%
	Warehousing and Storage	225	271	46	2.04%
	Religious, Grantmaking, Civic, Professional, and Similar Organizations	921	1,084	163	1.77%
LWDA VIII – South Central Virginia	Social Assistance	1,708	2,848	1,140	6.67%
	Ambulatory Health Care Services	2,916	3,960	1,044	3.58%
	Warehousing and Storage	966	1,185	219	2.27%
	Religious, Grantmaking, Civic, Professional, and Similar Organizations	276	328	52	1.88%
	Nursing and Residential Care Facilities	2,131	2,514	383	1.80%

Workforce Area	Occupation	2018 Estimated Employment	2028 Employment Forecast	Forecasted Employment Change	Average Annual Growth
LWDA IX – Capital Region Workforce Partnership	Social Assistance	12,850	19,025	6,175	4.81%
	Other Information Services	352	521	169	4.8%
	Ambulatory Health Care Services	26,193	34,875	8,682	3.31%
	Support Activities for Agriculture and Forestry	115	148	33	2.87%
	Warehousing and Storage	5,590	7,011	1,421	2.54%
Combined LWDA XI and XII– Northern Virginia and Alexandria/Arlington*	Other Information Services	2,593	3,909	1,316	5.08%
	Ambulatory Health Care Services	50,492	67,859	17,367	3.44%
	Social Assistance	19,678	26,331	6,653	3.38%
	Nursing and Residential Care Facilities	13,915	17,310	3,215	2.31%
	Heavy and Civil Engineering Construction	8,318	10,122	1,804	2.17%
LWDA XIII – Bay Consortium	Social Assistance	4,476	6,726	2,250	5.03%
	Other Information Services	130	192	62	4.77%
	Ambulatory Health Care Services	8,282	11,074	2,792	3.37%
	Nursing and Residential Care Facilities	3,235	3,910	675	2.09%
	Professional, Scientific, and Technical Services	9,895	11,780	1,885	1.91%
LWDA XIV – Greater Peninsula	Other Information Services	168	249	81	4.82%
	Social Assistance	4,117	5,691	1,574	3.82%
	Ambulatory Health Care Services	10,805	14,325	3,520	3.26%
	Nursing and Residential Care Facilities	5,032	6,047	1,015	2.02%
	Health and Personal Care Stores	1,684	2,004	320	1.90%
LWDA XV – Crater Area	Social Assistance	1,507	2,319	812	5.39%
	Ambulatory Health Care Services	3,566	4,843	1,277	3.58%
	Warehousing and Storage	3,704	4,516	812	2.19%
	Nursing and Residential Care Facilities	2,268	2,747	479	2.11%
	Professional, Scientific, and Technical Services	1,623	1,924	301	1.85%
LWDA XVI – Hampton Roads	Social Assistance	9,741	13,956	4,215	4.33%
	Ambulatory Health Care Services	28,532	38,472	9,940	3.48%
	Warehousing and Storage	3,392	4,185	793	2.34%
	Support Activities for Agriculture and Forestry	152	186	34	2.24%
	Nursing and Residential Care Facilities	11,539	13,993	2,454	2.13%
LWDA XVII – West Piedmont	Social Assistance	2,499	4,147	1,648	6.59%
	Ambulatory Health Care Services	3,601	4,848	1,247	3.46%
	Nursing and Residential Care Facilities	2,264	2,713	449	1.98%
	Professional, Scientific, and Technical Services	2,125	2,538	413	1.94%
	Religious, Grantmaking, Civic, Professional, and Similar Organizations	460	542	82	1.78%

Source: Virginia Employment Commission, Long-Term Industry Projections

Note: Industries based on 2018 data, and estimated through 2028

*Long-Term Industry Projections are not available for Alexandria/Arlington and Northern Virginia LWDAs individually

Appendix I

Regional Education Gap

Local Workforce Development Area	Education Level	Job Openings (Percent of Total Openings)*	Potential Candidates (Percent of Total Candidates)
LWDA I – Southwest Virginia	No Minimum Required	296 (12.28%)	0 (N/A)
	High School Diploma or Equivalent	214 (8.88%)	2,666 (38.30%)
	Vocational School Certificate	4 (0.17%)	341 (4.90%)
	Associate's Degree	47 (1.95%)	1,188 (17.07%)
	Bachelor's Degree	66 (2.74%)	1,300 (18.68%)
	Master's Degree	30 (1.24%)	639 (9.18%)
	Doctorate Degree	2 (0.08%)	94 (1.35%)
LWDA II – New River/Mt. Rogers	No Minimum Required	557 (6.95%)	0 (N/A)
	High School Diploma or Equivalent	650 (8.11%)	3,009 (38.59%)
	Vocational School Certificate	16 (0.20%)	403 (5.17%)
	Associate's Degree	106 (1.32%)	1,376 (17.65%)
	Bachelor's Degree	275 (3.43%)	1,443 (18.51%)
	Master's Degree	50 (0.62%)	690 (8.85%)
	Doctorate Degree	18 (0.22%)	101 (1.30%)
LWDA III – Western Virginia	No Minimum Required	596 (5.46%)	0 (N/A)
	High School Diploma or Equivalent	904 (8.28%)	2,835 (37.58%)
	Vocational School Certificate	13 (0.12%)	403 (5.34%)
	Associate's Degree	153 (1.40%)	1,332 (17.76%)
	Bachelor's Degree	393 (3.60%)	1,455 (19.29%)
	Master's Degree	69 (0.63%)	702 (9.31%)
	Doctorate Degree	6 (0.05%)	96 (1.27%)
LWDA IV – Shenandoah Valley	No Minimum Required	356 (2.93%)	0 (N/A)
	High School Diploma or Equivalent	843 (6.94%)	2,779 (36.96%)
	Vocational School Certificate	11 (0.09%)	379 (5.04%)
	Associate's Degree	143 (1.18%)	1,273 (16.93%)
	Bachelor's Degree	369 (3.04%)	1,540 (20.48%)
	Master's Degree	57 (0.47%)	762 (10.13%)
	Doctorate Degree	5 (0.04%)	107 (1.42%)
LWDA VI – Piedmont Workforce Network	No Minimum Required	234 (1.90%)	0 (N/A)
	High School Diploma or Equivalent	1,259 (10.23%)	2,850 (34.05%)
	Vocational School Certificate	19 (0.15%)	426 (5.09%)
	Associate's Degree	231 (1.88%)	1,414 (16.89%)
	Bachelor's Degree	1,148 (9.33%)	1,882 (22.49%)
	Master's Degree	133 (1.08%)	929 (11.10%)
	Doctorate Degree	46 (0.37%)	132 (1.58%)
LWDA VII – Central Virginia	No Minimum Required	110 (2.38%)	0 (N/A)
	High School Diploma or Equivalent	190 (4.10%)	2,610 (36.95%)
	Vocational School Certificate	2 (0.04%)	362 (5.13%)
	Associate's Degree	7 (0.15%)	1,245 (17.63%)
	Bachelor's Degree	154 (3.33%)	1,389 (19.67%)
	Master's Degree	10 (0.22%)	686 (9.71%)
	Doctorate Degree	0 (N/A)	97 (1.37%)
LWDA VIII – South Central Virginia	No Minimum Required	196 (7.00%)	0 (N/A)
	High School Diploma or Equivalent	183 (6.53%)	2,736 (36.96%)
	Vocational School Certificate	3 (0.11%)	381 (5.15%)
	Associate's Degree	19 (0.68%)	1,299 (17.55%)
	Bachelor's Degree	77 (2.75%)	1,467 (19.82%)
	Master's Degree	8 (0.29%)	716 (9.67%)
	Doctorate Degree	0 (N/A)	97 (1.31%)

Local Workforce Development Area	Education Level	Job Openings (Percent of Total Openings)*	Potential Candidates (Percent of Total Candidates)
LWDA IX – Capital Region	No Minimum Required	1,663 (4.53%)	0 (N/A)
	High School Diploma or Equivalent	1,605 (4.37%)	3,399 (35.05%)
	Vocational School Certificate	48 (0.13%)	503 (5.19%)
	Associate's Degree	849 (2.31%)	1,809 (18.66%)
	Bachelor's Degree	1,362 (3.71%)	2,019 (20.82%)
	Master's Degree	136 (0.37%)	933 (9.62%)
	Doctorate Degree	15 (0.04%)	129 (1.33%)
LWDA XI – Northern Virginia	No Minimum Required	4,092 (4.08%)	0 (N/A)
	High School Diploma or Equivalent	3,173 (3.17%)	2,861 (29.45%)
	Vocational School Certificate	62 (0.06%)	469 (4.83%)
	Associate's Degree	627 (0.63%)	1,603 (16.50%)
	Bachelor's Degree	11,730 (11.71%)	2,511 (25.85%)
	Master's Degree	700 (0.70%)	1,302 (13.40%)
	Doctorate Degree	208 (0.21%)	162 (1.67%)
LWDA XII - Alexandria/Arlington	No Minimum Required	1,608 (6.27%)	0 (N/A)
	High School Diploma or Equivalent	655 (2.55%)	2,391 (30.40%)
	Vocational School Certificate	6 (0.02%)	385 (4.90%)
	Associate's Degree	200 (0.78%)	1,259 (16.01%)
	Bachelor's Degree	5,138 (20.04%)	1,981 (25.19%)
	Master's Degree	703 (2.74%)	1,062 (13.50%)
	Doctorate Degree	107 (0.42%)	137 (1.74%)
LWDA XIII – Bay Consortium	No Minimum Required	514 (5.38%)	0 (N/A)
	High School Diploma or Equivalent	512 (5.36%)	2,469 (34.00%)
	Vocational School Certificate	6 (0.06%)	353 (4.86%)
	Associate's Degree	69 (0.72%)	1,136 (15.65%)
	Bachelor's Degree	450 (4.71%)	1,787 (24.61%)
	Master's Degree	30 (0.31%)	737 (10.15%)
	Doctorate Degree	7 (0.07%)	103 (1.42%)
LWDA XIV – Greater Peninsula	No Minimum Required	499 (3.83%)	0 (N/A)
	High School Diploma or Equivalent	883 (6.78%)	2,331 (35.59%)
	Vocational School Certificate	8 (0.06%)	364 (5.53%)
	Associate's Degree	131 (1.01%)	1,108 (16.82%)
	Bachelor's Degree	559 (4.29%)	1,504 (22.83%)
	Master's Degree	104 (0.80%)	596 (9.05%)
	Doctorate Degree	22 (0.17%)	77 (1.17%)
LWDA XV – Crater Area	No Minimum Required	233 (5.44%)	0 (N/A)
	High School Diploma or Equivalent	225 (5.25%)	2,346 (37.75%)
	Vocational School Certificate	9 (0.21%)	299 (4.81%)
	Associate's Degree	49 (1.14%)	987 (15.88%)
	Bachelor's Degree	125 (2.92%)	1,406 (22.62%)
	Master's Degree	8 (0.19%)	543 (8.74%)
	Doctorate Degree	1 (0.02%)	75 (1.21%)
LWDA XVI – Hampton Roads	No Minimum Required	1,132 (4.12%)	0 (N/A)
	High School Diploma or Equivalent	1,558 (5.66%)	2,505 (35.13%)
	Vocational School Certificate	52 (0.19%)	389 (5.46%)
	Associate's Degree	190 (0.69%)	1,240 (17.39%)
	Bachelor's Degree	1,243 (4.52%)	1,608 (22.55%)
	Master's Degree	113 (0.41%)	632 (8.86%)
	Doctorate Degree	26 (0.09%)	81 (1.14%)
LWDA XVII – West Piedmont	No Minimum Required	285 (8.46%)	0 (N/A)
	High School Diploma or Equivalent	519 (15.41%)	2,252 (39.09%)
	Vocational School Certificate	23 (0.68%)	282 (4.90%)
	Associate's Degree	71 (2.11%)	940 (16.32%)
	Bachelor's Degree	150 (4.45%)	1,222 (21.21%)
	Master's Degree	24 (0.71%)	453 (7.86%)
	Doctorate Degree	2 (0.06%)	65 (1.13%)

*Not all job postings list an educational requirement

Source: Virginia Employment Commission. Area Labor Market Profiles, September 2022

Appendix J

Regional Supply and Demand

Region	Candidates Per Job	Unemployed Per Job*	Candidates Per Job of Top 5 Advertised Occupation Groups
LWDA I - Southwestern VA	2.33	0.70	Registered Nurses (0.13)
			Cashiers (0.83)
			Physicians, All Other (0)
			Fast Food and Counter Workers (0.34)
			Licensed Practical and Licensed Vocational Nurses (0.26)
LWDA II – New River/ Mt. Rogers	0.80	0.43	Registered Nurses (0.04)
			Licensed Practical and Licensed Vocational Nurses (0.16)
			Cashiers (0.60)
			Physicians, All Other (0)
			Retail Salespersons (0.50)
LWDA III – Western VA	1.76	0.42	Registered Nurses (0.05)
			Customer Service Representatives (6.73)
			Nursing Assistants (1.45)
			Retail Salespersons (1.43)
			Licensed Practical and Licensed Vocational Nurses (0.57)
LWDA IV – Shenandoah Valley	0.57	0.27	Registered Nurses (0.02)
			Licensed Practical and Licensed Vocational Nurses (0.06)
			Nursing Assistants (0.34)
			Retail Salespersons (0.37)
			Physicians, All Other (0)

Region	Candidates Per Job	Unemployed Per Job*	Candidates Per Job of Top 5 Advertised Occupation Groups
LWDA VI – Piedmont Workforce Network	0.54	0.50	Registered Nurses (0.03)
			Nursing Assistants (0.24)
			Licensed Practical and Licensed Vocational Nurses (0.11)
			Retail Salespersons (0.30)
			Fast Food and Counter Workers (0.23)
LWDA VII – Central VA	1.20	0.61	Registered Nurses (0.11)
			Retail Salespersons (0.55)
			Fast Food and Counter Workers (0.40)
			Customer Service Representatives (3.97)
			Licensed Practical and Licensed Vocational Nurses (0.21)
LWDA VIII – South Central VA	1.98	0.65	Registered Nurses (0.10)
			Licensed Practical and Licensed Vocational Nurses (0.15)
			Nursing Assistants (0.76)
			Physical Therapists (0)
			Cashiers (1.49)
LWDA IX – Capital Region	0.20	0.48	Registered Nurses (0.01)
			Retail Salespersons (0.12)
			Physicians, All Other (0.01)
			Licensed Practical and Licensed Vocational Nurses (0.05)
			Computer Programmers (0.06)

Region	Candidates Per Job	Unemployed Per Job*	Candidates Per Job of Top 5 Advertised Occupation Groups
LWDA XI – Northern VA	0.07	0.30	Computer Occupations, All Other (0.04)
			Software Developers (0.02)
			Computer Programmers (0.01)
			Registered Nurses (0.01)
			Network and Computer Systems Administrators (0.03)
LWDA XII – Alexandria/ Arlington	0.24	0.23	Software Developers (0.03)
			Computer Occupations, All Other (0.16)
			Management Analysts (0.13)
			Information Security Analysts (0.14)
			Network and Computer Systems Administrators (0.13)
LWDA XIII– Bay Consortium	0.76	0.56	Registered Nurses (0.06)
			Computer Occupations, All Other (0.60)
			Retail Salespersons (0.31)
			First-Line Supervisors of Food Preparation and Serving Workers (0.11)
			Customer Service Representatives (0.41)
LWDA XIV – Greater Peninsula	0.50	0.69	Registered Nurses (0.06)
			Retail Salespersons (0.17)
			First-Line Supervisors of Food Preparation and Serving Workers (0.07)
			Licensed Practical and Licensed Vocational Nurses (0.10)
			Fast Food and Counter Workers (0.19)

Region	Candidates Per Job	Unemployed Per Job*	Candidates Per Job of Top 5 Advertised Occupation Groups
LWDA XV – Crater Area	4.01	0.64	Registered Nurses (0.09)
			Retail Salespersons (2.39)
			Nursing Assistants (3.06)
			First-Line Supervisors of Retail Sales Workers (2.23)
			Customer Service Representatives (19.20)
LWDA XVI – Hampton Roads	0.88	0.64	Registered Nurses (0.07)
			Retail Salespersons (0.81)
			Customer Service Representatives (3.86)
			Nursing Assistants (0.95)
			Computer Occupations, All Other (1.64)
LWDA XVII – West Piedmont	4.46	0.79	Registered Nurses (0.16)
			Retail Salespersons (2.97)
			First-Line Supervisors of Retail Sales Workers (2.14)
			Licensed Practical and Licensed Vocational Nurses (1.02)
			Physicians and Surgeons, All Other (N/A)

Source: Virginia Employment Commission, Area Labor Market Profiles. Candidate and Job data based on posts in the Virginia Workforce Connection as of September 2021.

*Preliminary Data

**Not all job postings list a work experience requirement.