

GO VIRGINIA REGION 8: ECONOMIC GROWTH & DIVERSIFICATION PLAN 2021 UPDATE

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Introduction

In compliance with the 2016 Growth and Opportunity Act, the GO Virginia Region 8 Council updated its Growth and Diversification Plan during the 2021 calendar year. This report aligns with the Department of Housing and Community Development (DHCD) issued guidance for this Growth and Diversification Plan update. The Region 8 Council utilized its Growth and Diversification Committee to oversee the process.

Our process focused heavily on the input of over 100 stakeholders with interest and expertise in one or more of our targeted industry sectors and/or framework initiatives. Stakeholder engagement also included discussion on the impacts of the COVID-19 pandemic and identified opportunities and challenges related to economic recovery and resiliency. The Growth and Diversification Committee also assessed potential interregional and statewide partnerships, connecting with GO Virginia counterparts and service organizations.

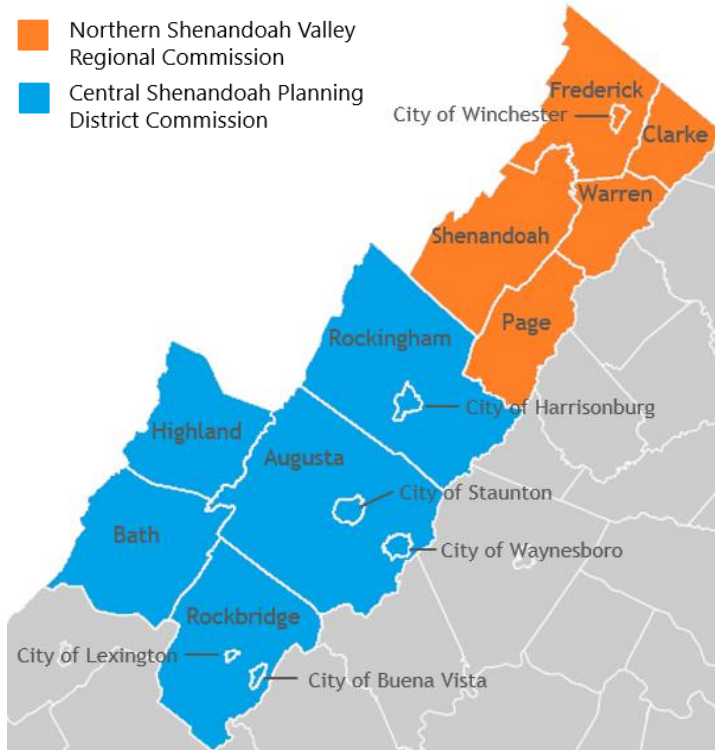
Data were compiled from multiple sources including Chmura's JobsEQ, VEDP, and TEconomy. In addition, Region 8 staff incorporated elements and themes present in the strategic plans of the region's economic development organizations and workforce development board. Special attention was given to the themes presented in the original Growth and Diversification Plan and current funded projects as well as evolving GO Virginia program guidance.

The Region 8 Council presents herein a robust exploration of the historical, current, and forecasted challenges and opportunities facing the Shenandoah Valley and furthermore presents strategic priorities for GO Virginia investment to support responding initiatives.

About Region 8

Region 8 is located in the Shenandoah Valley area of Virginia and is comprised of 16 localities, shown in the map.

Region 8 Localities



Region 8 is home to two planning district organizations: Central Shenandoah Planning District Commission (CSPDC) and the Northern Shenandoah Valley Regional Commission (NSVRC). The Central Shenandoah Planning District Commission is comprised of Rockingham County, City of Harrisonburg, Highland County, Augusta County, City of Staunton, City of Waynesboro, Bath County, Rockbridge County, City of Lexington, and City of Buena Vista. The Northern Shenandoah Valley Regional Commission is comprised of Frederick County, City of Winchester, Clarke County, Shenandoah County, Warren County and Page County.

While the area is divided into two separate planning districts, Region 8 is fortunate to be served by one single workforce development entity – the Shenandoah Valley Workforce Development Board (SVWDB).

Acknowledgments

Without the support of the Region 8 Council, Committees, and Staff none of this would be possible. Special contributions to this deliverable were provided by the Council's support Organizations: Shenandoah Valley Partnership, Central Shenandoah Planning District Commission, and Northern Shenandoah Valley Regional Commission.

The partnership and collaboration exhibited throughout this region is recognized as a driver of economic growth in the region as well as the success of the GO Virginia program. The Region 8 Council provided forums to engage all institutions of higher education, public school divisions, representatives of each of our targeted industry sectors, non-profit and community organizations, and government leaders all of whom provided valuable perspective for our Situational Analysis and potential solutions to the Region's challenges.

Special thanks to the Region 8 Advisory Committees for their contributions:
Economic Development Ad Hoc Group
Entrepreneurial Ecosystem Advisory Committee
Workforce Advisory Committee



Region 8 Council:

Council Member	Affiliation	Region 8 Committee(s)
Jon Alger	James Madison University	Nominating
Devon Anders	Interchange Group	Grant Review
Kim Blosser	Lord Fairfax Community College (becoming Laurel Ridge Community College)	Grant Review
Kathlynn Brown	SRI International	Grant Review
Greg Campbell	Shenandoah Valley Airport (SHD)	Nominating
Robin Crowder	Retired - K-12 Superintendent	Growth & Diversification
John Downey	Blue Ridge Community College	Nominating
Ashley Driver	AG Stacker	Grant Review
Joanie Eiland	Elk Trucking, Inc.	Executive
Tracy Fitzsimmons	Shenandoah University	Grant Review
Mike Goertzen	Serco, Inc.	Grant Review, Growth & Diversification
Conrad Helsley	Northern Shenandoah Valley Regional Commission (NSVRC) Board	Nominating
Chiedo John	GitHub	Growth & Diversification
Diar Kaussler	Abrahamic House	Grant Review
Mike Keyser	BARC Electric	Growth & Diversification
John King	Virginia Poultry Growers Cooperative	Grant Review
Chris Kyle	Shentel	Executive
Lai Lee	High Meadow Strategies, LLC	Grant Review, Growth & Diversification
Connie Loughhead	Des Champs Technologies	Executive, Nominating, Growth & Diversification
Emily Marlow-Beck	Marlow Motors	Nominating
Keith May	Cottonwood Commercial	Executive
Mark Merrill	Retired - Valley Health System	Grant Review, Nominating
Kathy Moore	Moore Public Relations	Growth & Diversification
Yolanda Shields	Yesbuilds	Growth & Diversification
Terry Short	Waynesboro City Council	Growth & Diversification
Jeff Stapel	Shickel Corporation	Nominating
Rick Till	HR Dynamics	Executive, Grant Review

Executive Summary

GO Virginia Region 8 includes 16 localities in the central and northwest part of the Commonwealth, also known as the Shenandoah Valley. These 16 localities are represented by two planning districts: Northern Shenandoah Valley Regional Commission (NSVRC) and Central Shenandoah Planning District Commission (CSPDC) and the Shenandoah Valley Workforce Development Board (SVWDB). Two regional economic development organizations operate in Region 8: Shenandoah Valley Partnership and the Economic Coalition of the Northern Shenandoah Valley.

Counties of: Augusta, Bath, Clarke, Frederick, Highland, Page, Rockbridge, Rockingham, Shenandoah, Warren

Cities of: Buena Vista, Harrisonburg, Lexington, Staunton, Waynesboro, Winchester

The 2021 Economic Growth and Diversification Plan update includes a refinement of the sub-sectors within each identified cluster. No significant changes were identified, as our clusters represent the concentration of export-oriented industries operating in the Region. During the review special attention was given to current and projected employment growth, high earnings potential, concentration of existing businesses and recent or projected announcements. In addition, GO Virginia state board guidance on export-oriented industries was considered.

Regional Economy

The average annual wage for all industries in Region 8 as of the end of quarter 1 2019 was \$41,052. Average annual wage has increased as of the same quarter 2022 to \$46,672, a 12% increase over the last 2 years. The region experienced job decline at a rate of 1.5% per year over the last two years, reducing employment by a total of 7,043 jobs, but can expect .4% average annual job growth over the next five years. Job growth was slower over the 2019-2021 period versus the 2017-2019 period, a considerable impact of the pandemic. A snapshot of 2 year historical and 5 year forecasted employment data for all industries can be found in Appendix A.

Pre-pandemic, Region 8 observed full employment, with unemployment rates below 3% and nearing 2%. The region experienced its highest unemployment rate in the last two years during May of 2020 at 7.4%. Since then, the region has recovered the majority of jobs lost and is nearing full employment again at 3.4% seasonally adjusted unemployment rate. Charts depicting employment and unemployment in the region can be found in Appendix A.

The employment decrease during the pandemic for Region 8 target industries was lower than all industries as a whole showing resilience in our industry base. Employment decreased mid-quarter 1, 2020 by 10% versus the prior year. During this same period, our targeted industries showed a decrease of just more than 5%. Our targeted industries recovered sooner and quicker than all industries reaching the pre-pandemic benchmark prior to the end of the first quarter 2021.

Region 8 target industries account for 68,043 jobs in the region, with private employment accounting for 89.5% and self-employment accounting for 6.1%. The remaining 4.4% are government employees. Data was retrieved from JobsEQ and source information is available in the appendices.

[Region 8 Framework Initiatives & Targeted Industry Sectors](#)

The Region 8 Targeted Industry North American Industry Classification Codes (NAICS) largely remained the same, removing only those general healthcare sectors not recognized as traded sectors or presented by TEconomy data.

Modification in the arrangement of the industries were made and detailed below. This categorization matches more closely with how DHCD presents the target clusters as well as the TEconomy data cluster definitions.

Manufacturing (Light and Advanced)	Life Sciences	Business Services	Agriculture and Value-Added Food	Transportation and Logistics	IT and Emerging Technologies
Materials (Plastic, Metal, Wood) Parts Machinery	Biomedical/Biotechnical Pharmaceutical and medical device manufacturing Specialized Healthcare	Engineering and Consulting Finance	Food and Beverage Manufacturing Animal processing	Warehousing Distribution and Logistics Aviation	Information Technology, including Cyber Security, and telecommunications

[Strategic Priorities](#)

In all frameworks, projects that take a regional approach to addressing identified opportunities are preferred. Additionally, Region 8 will continue to promote existing resources and GO Virginia investments and will favor projects that build on versus duplicate those efforts.

1. Talent Pipeline
 - a. Increase Skills Availability
 - i. Drive utilization of existing or development of new Earn and Learn programs (Adult and Youth)
 - ii. Strengthen Work Based Learning Opportunities within our school divisions (grades 9-12)
 - iii. Increase labor force participation
 - b. Align Career Pathways with Employer Needs
 - i. Promote educator engagement with industry
 - ii. Drive business engagement in sector partnerships
 - iii. Identify and fil career pathway gaps

- c. Strengthen Regional Talent Retention
 - i. Drive internship availability and placement
 - ii. Increase job placement efforts
- d. Increase Talent Attraction*
 - i. Recruit talent to locate to the region to fill high paying jobs

*The Region 8 Council recognizes that general marketing activities associated with the Talent Attraction strategy are discouraged as a use for GO Virginia funds by the State Board. It is therefore assumed that these activities will be implemented using matching funds.

2. Entrepreneurial Ecosystem

- a. Increase Access to Capital
 - i. Identify opportunities to fill the gap in early-stage seed funding
 - ii. Increase access to and utilization of SBA federal funding
- b. Drive Student Entrepreneurship as a Work Based Learning (WBL) Experience
 - i. Identify opportunities to experience entrepreneurship for youth (grades 9-12)
- c. Encourage the development of a Technology, Innovation, and Startup Hub
 - i. Drive advanced technology incubation and acceleration

3. Cluster Scale-up

- a. Support business to business ecosystem
 - i. Enhance existing and identify new intra-regional supply chain opportunities
- b. Support expanding R&D efforts in cluster relevant areas
 - i. Identify expanding R&D efforts and align with cluster needs
- c. Encourage Sector Partnerships
 - i. Increase opportunity for business clusters to connect on regionally relevant topics
 - ii. Build industry association presence in the region
- d. Increase Access to Capital
 - i. Increase access to Venture Capital and Seed-funding
 - ii. Increase utilization of federal and state funding for cluster or business expansion

4. Site Development

- a. Increase Readiness of High Priority Sites
 - i. Continue site enhancement work to increase VBRS tier level
 - ii. Identify necessary infrastructure investments at regionally significant sites
- b. Continue to Explore Opportunities for Mega-Site Development
 - i. Identify revenue sharing opportunities for joint investments in site development

5. Economic Resilience and Recovery

- a. Continue to support small businesses in all sectors, including locally-traded

- i. Identify opportunities to provide technical assistance for activities associated with recovery and resilience
- b. Support traded sector and large employers
 - i. Evaluate the need for technical assistance within our large employer base
- c. Connect dislocated workers with in-demand jobs
 - i. Drive transition of employment from highly impacted sectors with employment declines to more stable, in-demand, traded-sectors
 - ii. Increase the availability of low cost digital training, and utilization of low to no cost credentialing programs for career changes
- d. Support out of work labor force that wish to be self-employed
 - i. Increase access to information for starting, maintaining, and growing a business

Measures of Performance

The Region 8 Council will measure the success of each program through quarterly reports in DHCD's Centralized Application and Management System (CAMS) and contracted metrics. In addition, the Region 8 Council will review employment and wage growth in target industry sectors annually.

Strategic Priorities

Council determined the strategic priorities for this update by pairing strengths and opportunities from the situational analysis (stakeholder engagement). In addition, there was careful review of the strategic priorities and recommendations from the original Growth and Diversification plan as well as the 2019 update; a review of funded projects and outcomes to date; and a review of DHCD project guidance for each framework initiative. All strategies align with allowable uses unless otherwise noted. In cases where the priority is not appropriate for GO Virginia funding, it is expected that the activity will be funded with project match.

To achieve these goals, the Region 8 Council will pursue a project pipeline and prioritization process as it did in 2019. Council will seek guidance from its three advisory committees in the development of these projects and consult with DHCD early and often to ensure the success of each proposal and investment. As well, after a very successful stakeholder engagement process, Region 8 has reached more than 60 new stakeholders and will continue to encourage regular conversation about opportunities in the region.

Regional Entrepreneurship initiative (REI) and Broadband are not listed as strategic priorities below. Currently, James Madison University provides faculty support as the regional “Entrepreneurial Quarterback”. The quarterback chairs the Entrepreneurial Ecosystem Advisory Committee and organizes the ecosystem activity throughout the region. This does not currently require REI funding, though council will continue to monitor this. Extensive Virginia Telecommunications Initiative (VATI) applications were submitted from Region 8 localities in September 2021. The region 8 Council will continue to monitor the outcomes of those applications and implementation projects to determine if middle mile broadband investments are needed to support the overall connectivity of the region.

Talent Pipeline		
Strategy	Priorities	Measures of Success
Increase Skills Availability	Encourage Earn and Learn Programs (Adult and Youth)	Programs established, credentials earned, jobs created
	Support Work-Based-Learning opportunities (Grades 9-12)	Number of WBL opportunities created, graduate job placement
	Increase labor force participation	Number of disenfranchised workers re-entering the workforce
Align Career Pathways with Employer Needs	Increase educator engagement with Industry	Number of businesses engaged in guaranteed interviews; number of businesses engaged in WBL experiences
	Engage business in sector partnerships	Established industry consortiums

	Identify and fill career pathway gaps	New or updated employer needs assessments, new or revised curriculum
Strengthen Talent Retention	Drive internship availability and participation	New internship opportunities created
	Increase job placement efforts	Number of jobs created
Increase Talent Attraction*	Encourage talent to re-locate to the region to fill high paying jobs	Number of jobs filled through recruitment

Entrepreneurial Ecosystem

Strategy	Priorities	Measures of Success
Increase Access to Capital	Fill gap in early-stage seed funding	Seed-fund established, number and value of investments, increased revenues and job creation
	Increase access and utilization of SBA federal funding	Number of SBA products originated
Support Student Entrepreneurship	Increase opportunities to experience entrepreneurship	Number of student exposures to entrepreneurship
Encourage the Development of a Technology, Innovation and Startup Hub	Focus on advanced technology incubation and acceleration	Tech companies and tech jobs creation

Cluster Scale Up

Strategy	Priorities	Measures of Success
Support Business to Business Ecosystem Building	Build on existing and identify new intra-regional supply chain opportunities	Number of new supply chain connections made, increased revenue, job creation
Support Expanding R&D Efforts in Cluster Relevant Areas	Respond to additional R&D needs	Amount of R&D expenditure increase
Encourage Sector Partnerships	Increase opportunity for business clusters to connect on regionally relevant topics	Number of opportunities to connect
	Increase Industry association presence in the region	Connections made, resources leveraged
Increase Access to Capital	Venture Capital and Seed Fund availability	Number of SBIR, SBA 7(a), small business loans and grants; number and amount of equity investments
	Increase utilization of available small business funding	Number of investments

Site Development		
Strategy	Priorities	Measures of Success
Increase Readiness of High Priority Sites	Continue site enhancement work to increase VBRS Tier Level	Tier level increase
	Identify necessary infrastructure investments at regionally significant sites	Investigation complete
Continue to Explore Opportunities for Mega-site Development	Identify natural revenue sharing organizations for common investment in site development	Site identified, projected job creation
Economic Recovery and Resilience (This funding expires April 2022)		
Strategy	Priorities	Measures of Success
Continue to Support Small Businesses in Locally Traded Sectors	Technical assistance for fiscal management, e-commerce, and marketing.	Number of businesses served; number of businesses retained
Support Traded Sector and Large Employers	Evaluate the need for technical assistance within our large employer base	Number of businesses served, number of jobs created, number of jobs retained
Connect Dislocated Workers with In-Demand Job Opportunities	Drive transition of employment from highly impacted sectors with employment declines such as hospitality, tourism, and food service, to more stable, in-demand traded-sectors	Jobs created
	Increase the availability of low-cost digital training, and utilization of low to no cost credentialing programs for career changes	Jobs created, credentials awarded
Support Out of Work Labor Force that wish to be Self-Employed	Increase access to information for starting, maintaining, and growing a business	New businesses formed; number of clients served

*The Region 8 Council recognizes that general marketing activities associated with the Talent Attraction strategy are discouraged as a use for GO Virginia funds by the State Board. It is therefore assumed that these activities will be implemented using matching funds.

Region 8 Economic Performance

Industry Performance

The average annual wage for all industries in Region 8 as of the end of quarter 1 2019 was \$41,052. Average annual wage has increased as of the same quarter 2021 to \$46,672, a 12% increase over the last 2 years. Average annual wages in the NSVRC and CSPDC footprints are \$48,111 and \$45,106, respectively. The region experienced job decline at a rate of 1.5% per year over the last two years, reducing employment by a total of 7,043 jobs, but can expect .4% average annual job growth over the next five years. Job growth was slower over the 2019-2021 period versus the 2017-2019 period, a considerable impact of the pandemic. Over the longer-term, Region 8 has experienced a 3.0% average annual job growth between 2011 and 2021.

The Shenandoah Valley celebrated 32 individual announcements from July 2019 thru June 2021. Eight new and 24 expanding businesses committed more than \$595M in capital expenditures and promised 1,800 new jobs. New operations support existing priority clusters in agriculture, distribution, business services, and manufacturing. Of special note are the increase in hemp product manufacturers and the location of an unmanned aircraft systems provider suggesting an opportunity to attract more of the same. A table of all announcements for July 2019-June 2021 is available in Appendix A.

The 2021 Growth and Diversification Plan update includes a refinement of the sub-sectors within each identified cluster. No significant changes were identified, as our clusters represent the concentration of export-oriented industries operating in the Region. The modifications to each industry are described in the sub-sections below and detailed cluster definitions can be found at the end of each cluster data report in Appendix A. During the review special attention was given to current and projected employment growth, high earnings potential, concentration of existing businesses and recent or projected announcements. In addition, GO Virginia state board guidance on export-oriented industries was considered. Below is a discussion of each of Region 8's targeted industry sectors presented in order of employment, highest to lowest.

Business Services

Business and professional services is the largest cluster by definition. This cluster includes all business, computer, consulting engineering, finance, and business services as well as research and development activities.

This is the largest cluster by employment with 19,862 jobs, but the smallest in concentration relative to the U.S. The biggest competitive advantage exists in depository credit intermediation with employment of 3,729 and an LQ of 1.37. This is likely due to Navy Federal in Frederick County. This cluster accounts for 8.4% of the region's total employment. Average wages in this sector are \$68,009 per worker. The cluster has grown by .3% annually for the last two years and is expected to continue to grow by .3% annually for the next 5 years. Average annual growth for the 2011-2021 period was 1.7%, meaning growth in the industry is slowing. Total demand by 2026 is 9,817 primarily due to exits and transfers.

The top occupation groups associated with Business and Professional services are office and administrative, business and financial operations, and sales and related. The top two occupations by employment in this cluster are Tellers and Customer Service Representatives, with average wages of \$33,700 and \$36,600 respectively.

In addition to Navy Federal in Frederick County, the city of Winchester and the city of Harrisonburg are the next most dense by employment. Most of this cluster is private employment followed by a small percentage of self-employment.

The business and professional services cluster accounts for 13.9% of the Region's GDP, this output has been increasing at a faster rate than the nation over the last 10 years.

As of 2021Q2, this cluster is estimated to make \$2.0 billion in annual purchases from suppliers in the United States with about 51% or \$1.0 billion of these purchases being made from businesses located in the GO Virginia Region 8.

A variety of programs to support this diversified cluster are available from one or more of the regions colleges and universities.

[Transportation and Logistics](#)

This cluster includes warehousing, distribution, logistics, and aviation sub-sectors. This cluster definition was modified to remove all locally traded sub-sectors such as postal service and local delivery. In addition, wholesale suppliers for all clusters are represented here. It is important to note, that Aviation and Unmanned systems were identified as emerging and expanding clusters in Region 8. While aviation and its sub-industries are represented with their own NAICS codes, unmanned systems are not. It is likely that unmanned systems and some aviation support industries will be represented by the IT and Emerging Technologies cluster. Region 8 will monitor the growth of these industries and amend this target as needed.

The transportation cluster accounts for 16,543 jobs, 7.0% of the region's total employment. Average wages per worker are \$50,048 and the cluster experienced a 2.0% average annual growth over the last 10 years. Most recently, while the region's total jobs declined over a 2-year period, the Transportation cluster grew by 3.1% annually. This growth is expected to continue by 1% annually for the next five years. In that period a total demand of 10,310 workers is expected, primarily due to transfers and exits.

The Transportation cluster has a location quotient of 1.39 with the greatest density in general and refrigerated warehousing, supporting the agriculture and value-added food cluster. Interestingly, other non-scheduled air transportation has an unusually high location quotient at 39.94 and has and will continue to experience significant growth based on the forecasting model. This NAICS code can include any non-scheduled air transportation of passengers or cargo, flying clubs and schools, crop dusting, sightseeing, mapping and surveying, and air ambulance or firefighting.

The top performing industries in this cluster are general warehousing and storage, with average annual employment growth of 7.9% and couriers and express delivery services with 8.5% average annual growth. Of the top 10 industries in this cluster, all but two will experience annual employment growth. More information on forecasted job growth can be found in Appendix A.

Primary occupations in this cluster are transportation and material moving (65.9%); office and administrative support (13%); and installation, maintenance, and repair (5.5%). Truck drivers and material movers are the highest demand occupations in the cluster and have averages annual wages of \$5,700 and \$32,600 respectively.

This cluster is most dense In Frederick, Rockingham, Augusta, and Warren Counties. More information on employment by locality for this sector can be found in Appendix A along with a map.

Of the 604 establishments operating in this cluster 95.5% are private, 0.6% are self-employed, and the remainder are government or non-covered employment. This cluster accounts for 5.4% of the regions GDP and growing as well as outpacing the clusters growth nationally.

As of 2021Q2, the Transportation cluster is estimated to make \$1.2 billion in annual purchases from suppliers in the United States with about 29% or \$0.3 billion of these purchases being made from businesses located in the GO Virginia Region 8. More detail on top suppliers can be found in Appendix A.

Each of the region's community colleges offer licensing programs for CDL, and additionally, Blue Ridge Community College offers programs for Aircraft Technology/Technician and well as Airframe Mechanics and Maintenance. Completion data for credentialing programs can be found in Appendix A.

[Manufacturing \(Light and Advanced\)](#)

This cluster includes the manufacturing of materials, parts, and machinery. To ensure there was no duplication of data, all food and beverage manufacturing and pharmaceutical manufacturing were removed from this target definition. These sub-sectors are not represented in any other cluster. Computer and Peripheral Equipment Manufacturing (NAICS 3341) is included in the Information Technology and Emerging Technology cluster. The cluster definition can be found in Appendix A.

This cluster accounts for 16,081 jobs in Region 8 with an average wage per worker of \$50,092. Wages have increased nearly 3% per year on average for the last 10 years. This cluster has a location quotient of 1.42. Employment has declined in this sector over the last two years by 1.3% per year on average. Though employment in this cluster is expected to continue to decline over the next five years, an estimated total demand for employment is 7,908 jobs, more than 3,000 of which are due to labor force exits. The consistent average annual decliner can be attributed to automation of processes.

Of the total employment in this cluster, 55% of the jobs are in production, 9.4% in office and administrative occupations, and 9.3% are related to transportation and material moving.

The top three industries in this cluster by employment are plastics product manufacturing, printing and related support activities, and wood product manufacturing. Of these, printing is likely to experience the greatest decline in employment annually at -2.8% per year. Employment in plastics and wood products will decline by a modest .1% per year. Of all industries in this cluster, only architectural and structural metals manufacturing is expected to show annual growth in employment.

The top 10 occupations by employment in this cluster can be found in Appendix A. Of those, the greatest demand is in team assemblers, first-line supervisors, printing press operators, and material movers by hand. The highest paying occupations in this cluster are Sales Representatives (\$72,400), First-line Supervisors (\$65,600), Industrial Machinery Mechanics (\$53,100), and Machinists (\$50,500). Ninety-eight percent of employment in this cluster is private, with only 1.7% self-employed.

There are currently 367 establishments operating in the cluster. The greatest density of these jobs can be found in Frederick County, but jobs are distributed throughout the region. A map showing the density of this cluster can be found in Appendix A.

Manufacturing of materials, parts and machinery accounts for 7.1% of the Region's GDP, greater than 5.5% of GDP in the nation. Over the last 10 years GDP has grown by 1.8% annually trailing the nation by 1.3% GDP growth annually.

As of 2021Q2, businesses in this cluster in Region 8 are estimated to make \$2.8 billion in annual purchases from suppliers in the United States with about 23% or \$0.7 billion of these purchases being made from businesses located in Region 8.

Lord Fairfax Community College, Blue Ridge Community College, Dabney Lancaster Community College, James Madison University, and Virginia Military Institute all offer programs to support this cluster. Credentialing information for all three community colleges as well as the number of awards for degree programs can be found in Appendix A.

[Agriculture and Value Added Food](#)

This cluster now includes food and beverage manufacturing, animal food manufacturing, and agricultural supply industries. Other clusters were refined to remove over-lapping or duplicate sub-sectors.

As a cluster, average annual wages fall approximately \$400 below the average of all industries at \$46,003. However, this cluster represents 15,844 jobs, or 6.7% of total employment. Industries in this cluster have a combined location quotient of 2.98. In addition, wages in this sector continue

to increase, specifically, by an average of 3.2% annually for the last 10 years outpacing the average growth of all industries combined.

Production, Management, and Transportation occupations represent 73.4% of employment in this cluster.

The top four industries by employment in this cluster are Poultry Processing (5,138), Animal Production-Proprietors (1,800), Fluid Milk Manufacturing (1,321) and Confectionary Manufacturing (1,259). While the total of all industries lost jobs over the last two years, Agriculture and Value-added food grew by 1.2% annually. Average annual growth over the next five years is projected to be .1% with a total demand of nearly 9,000 jobs primarily due to industry transfers and labor force exits.

Production, Management, and Transportation occupations dominate this cluster, with the highest annual demand in Agriculture managers, Meat and Poultry cutters, and Packing and Filling Machine Operators.

Rockingham County accounts for more than 33% of total employment in this cluster followed by Augusta County, with more equal distribution between Shenandoah and Frederick Counties and the City of Harrisonburg. A map of the industry concentration for this sector can be found in Appendix A.

Over the last 10 years there has been a steady increase in the number of establishments operating in this cluster, a total of 175 currently. A higher rate of self employment exists in this cluster versus other targets at 18.3%. The bulk of employment is private.

Agriculture and Value-added Food Production account for 20.4% of the region's GDP, increasing annually by 3.2%.

As of 2021Q2, Agriculture and Value Added Food in the GO Virginia Region 8 are estimated to make \$6.3 billion in annual purchases from suppliers in the United States with about 30% or \$1.9 billion of these purchases being made from businesses located in the GO Virginia Region 8.

Lord Fairfax Community College, Blue Ridge Community College, and James Madison University all have degree or credential programs that support this sector.

Life Sciences

This cluster includes those industries previously represented in the Biomedical/Biotechnical cluster as well as the remaining healthcare industries after removing those which do not comply with the requirements of GO Virginia. All industries associated with this cluster can be found in Appendix A. This cluster accounts for a total of 5,332 jobs in Region 8 with an average wage per worker of \$70,574. Wages have increased more than 4% per year over the last 10 years. This cluster has an LQ below 1.00 on the whole due to lower than average R&D related industries in the region. It is

important to note however, that the location quotients for Pharmaceutical Manufacturing (2.99), Psychiatric and Substance Abuse Hospitals (2.31), Surgical Appliance and Supplies Manufacturing (3.35), and In-vitro Diagnostic Substance Manufacturing (8.33) are all above the competitive advantage threshold of 1.25. The Life Sciences cluster experienced growth of 2.3% annually between 2019 and 2021 and is expected to continue growing over the next five years at an average annual rate of .2%.

Of the total employment in this cluster, Healthcare Support occupations account for 19.9% of employment, Healthcare Practitioners and Technical accounts for 18.6% of employment, and Production accounts for 15.9%. Healthcare assistants and aides are the highest demand occupations in this cluster, however, they represent the lowest earning in the group. Private sector employment leads by distribution followed (83.1%) by state government (16.4%).

Rockingham County (Merck) and City of Staunton (Cadence and residential psychiatric care facilities) lead the region in concentration of these firms. A map of employment distribution for the region can be found in Appendix A.

The 66 firms operating in the cluster within Region 8 account for 2.9% of the region's GDP and 3.7% annual growth in GDP over the last 10 years, both measures of success are in line with the national average.

As of 2021Q2, firms of the Life Sciences Cluster in Region 8 are estimated to make \$641.9 million in annual purchases from suppliers in the United States with about 27% or \$173.5 million of these purchases being made from businesses located in the GO Virginia Region 8.

Eastern Mennonite University (EMU), Shenandoah University (SU), James Madison University (JMU), Lord Fairfax Community College (LFCC), Dabney S. Lancaster Community College (DSLCC), and Blue Ridge Community College (BRCC) all have degree and/or credential programs that support this cluster. In addition, one of the largest employers in this cluster, Merck, is supplied a pipeline of workforce through partnership with BRCC and JMU for all levels of employment including production and technical occupations.

[IT and Emerging Technologies](#)

This cluster includes computer system and software design, cybersecurity, and telecommunications. While the definition for this cluster is limited, Region 8 recognizes the growth in drones, robotics, autonomous systems, augmented and virtual reality, and aerospace in the region as shown by recent announcements as well as new and continued investments within our institutions of higher education. These emerging technologies will rely heavily on computer systems and software but may also incorporate manufacturing and R&D, not represented in this cluster. The Region 8 Council will continue to monitor the advancements in these areas and amend the cluster as needed.

The Information and Emerging Technology cluster accounts for 2,416 jobs in Region 8 with average annual wages per worker of \$91,101. The cluster overall has decreased by 1.5% annually since 2011. More recently, the decline in employment has reached 4.7% annually from 2019-2021. Interestingly, some major industries by employment experience a sharp decline in employment over the last 2 years but are expected to grow for the next 5 years: Computer Systems Design decreased 7.0% annually from 2019-2021 but is projected to grow 1.9% annually for the next 5 years; software declined 3.9% but will grow 1.2% annually over the next 5 years. Data processing declined 6% per year for the last 2 years but will grow .9% per year for the next five.

A major decline in employment for this sector is in wired and wireless communications, declining 15.6% annually from 2019-2021, a loss of more than 100 jobs, the data shows a continued decline in this sector, 1.4% annually.

Though a small sector by employment, Satellite Communications grew by nearly 104% between 2011-2021. This growth is not expected to continue for the 2021–2026-time frame.

Wages have increased 3.8% annually over the last 10 years, trailing the average wage increase for the industry in the US. The top occupations in this industry are Computer and Mathematical (41.3%), Installation, Maintenance, and Repair (13.2%) Business and Financial Operations and Office and Administrative Occupations account for approximately 10% of employment. Software developers and equipment installers are the highest demand occupations in this sector.

Shenandoah County (Shentel) and the City of Harrisonburg have the highest density of jobs in this sector, followed by Frederick County, Waynesboro, Winchester, Augusta County, and Warren. A density map and employment details can be found in Appendix A.

Ninety percent of employment in this sector is private and 7.2% self-employed. Local and State Government represent the remaining 2.5%.

The number of establishments operating in this cluster has decreased over the last 5 years. Currently 270 firms account for 1.9% of the Regions GDP. Though output from this cluster trails the nation by \$100,000 per worker, GDP is increasing annually by 2.1%.

As of 2021Q2, Information Technology is estimated to make \$422.7 million in annual purchases from suppliers in the United States with about 40% or \$170.9 million of these purchases being made from businesses located in the GO Virginia Region 8.

Credentials and degrees supporting this cluster are available at all Community Colleges and Universities in the Region. A breakdown of awards can be found in Appendix A.

Framework Initiatives

The Region 8 Council will continue to focus investments in the four GO Virginia Framework Initiatives: Talent Pipeline, Entrepreneurial Ecosystem, Cluster Scale-up, and Site Development.

This section relied heavily on input from over 150 representatives of key stakeholder groups in Region 8. Fourteen virtual small group stakeholder engagement sessions were led by Region 8 Council members and engaged more than 100 public, private, non-profit, and education representatives to discuss the region's targeted industry sectors through the lenses of the four framework initiatives below. Through this process Council was able to interface with new potential partners, applicants, and subject matter experts that will maximize the impact of future Region 8 investments.

Talent Pipeline

Strengths

- Economic diversity supports the talent pipeline
- Existing collaboration between training providers, support organizations, and employers is strong and effective
- Health systems have built sustainable pipelines for talent, very little outside recruiting, providing models to be replicated in other industries
- Community College Consortiums have defined pathways for most occupations and levels
- Quality of life supports talent retention and recruitment
- Innovative employers that want to engage
- Demographic diversity in cities
- Virginia Department of Education (VDOE) expanding work-based learning (WBL) support with platform to organize WBL opportunities and providers
- School divisions have strong traditional trades programs in place
- Institutions of higher education are actively measuring programs against employer needs
- JMU established new Economic Development Council & Shenandoah Valley Collective Action Pact (SVCAP) and leaning on the power of convening for resiliency
- LFCC investing in new Mechatronics Lab with Industry 4.0 curriculum
- DSLCC is building a new workforce center in Buena Vista
- EMU focusing on internships for talent retention
- Virginia Military Institute (VMI) is encouraging career exploration and bringing industry into the classroom
- Relationships: Shenandoah University and Valley Health, BRCC and Merck, JMU and SHD
- Shenandoah University HIVE
- More than 3,700 credentials awarded in academic years 2020 and 2021 from the region's Community Colleges to support in-demand occupations

Challenges and Opportunities

- Completed and anticipated automation in manufacturing and value-added food sectors
- Worker shortage, labor supply challenge, labor force participation
- High percentage of skilled workers do not have the “essential skills” (soft skills) to succeed in the workplace
- Increased costs of transition to remote work
- Applications of information technology across all sectors requires worker training
- Incumbent worker training is hard to find
- For IT occupations, employee retention was no issue during pandemic. However, businesses are competing with out of state offers for remote workers.
- Increased job requirements for high tech positions need seamless up-skilling
- Strong desire from Economic Development organizations to implement talent attraction strategies
- Low unemployment – high opportunity for remote work and marketable quality of life
- New Career and Technical Education (CTE) equipment for providing current training needs is outdated and expensive
- Human resource crisis is a struggle for schools and private sector needed to engage in CTE
- School divisions need human resources to connect with and manage employer relationships
- Truck driver shortage impacts supply chain issues, reliance on more independent contractors for truck driving – occupation is not appealing to labor force

Entrepreneurial Ecosystem

Strengths

- Startups are drivers of new employment
- Startup activity well dispersed throughout the region, hot spots exist in Winchester, Harrisonburg, Staunton, Waynesboro, and Lexington
- JMU is increasing R&D efforts and expenditures annually
- Increased federal investments into the Entrepreneurial ecosystem in the Shenandoah Valley through Shenandoah Community Capital Fund (SCCF), increased local expenditures on new entrepreneur programming
 - Partnership with the Walker program, B-Cubed, RISE, Grow Waynesboro, and Shenandoah University to implement 3 strategies:
 - Additional ecosystem builders
 - Regional coalition with Spoke program partners to create collaborative outreach strategies to raise awareness of support available to women and entrepreneurs of color
 - Create more consistent access across the region for underserved communities
 - REV Initiative – Region-wide support for ecosystem

- Engage local communities to create a regional vision and share our Region's story
 - Build a digital, interactive hub to host our Entrepreneurial Ecosystem resources and participants
 - Valley Tech Entrepreneur incubation
- New EMU Center for Innovation and Entrepreneurship
- Firms 0-5 years old have strong job growth
- New business formation rate is within 1% of Virginia new business formation rate for past 10 years
- Start-up density creates multiple hubs of entrepreneurial activity throughout the Valley: Winchester, Front Royal, Harrisonburg, Staunton, Waynesboro, and Lexington
- New business formation rate exceeds that of the state for 2019 in Engineering, R&D, Testing and Technical Services; IT and Communications; Life Sciences; and Transportation, Distribution, and Logistics
- Venture capital deal counts consistent for 10 years, with a recent high of 4 in 2019 with an average deal of \$5M and 2 in 2020 with an average deal of \$33M

Challenges and Opportunities

- Early-stage seed funding and mid-stage investments \$1.5-\$5M are lacking
- Low utilization of SBA funding
- Active promotion of emerging clusters and innovations will position the Valley as a high-tech hub
- Lack of manufacturing space available for early-stage companies
- SBIR funding counts low, 19 awards in 10 years
- Venture capital deal counts are low, 28 investments in 10 years
- SBA 7(a) loan counts are lower than U.S. but marginally higher than the state

Cluster Scale-Up

Strengths

- Less congested air space
- Business diversity and supplier availability
- Demand exists for business expansion, but the investment is risky without labor
- VA and US Agriculture exports are increasing
- Agricultural Enterprise Center Study Complete

Challenges and Opportunities

- Talent availability is the greatest determinant of ability to scale business
- High tech cluster scale up require more robust broadband
- Process refinement and R&D require more skills, pathways are not clearly defined
- Support for Innovators that do not want to be entrepreneurs
- Supply chain fragility – container shortage
- Significant increases in cyber security requirements for defense contractors

- No incentive funding for automation
- Partnerships on trade missions
- Automation requires robotics and electro-technical training
- Pandemic related corrugated supply issues
- Take advantage of the density of value-added food for co-op of commodities
- Food processing experiencing USDA inspector shortages limiting the opportunity to add second shift for production
- Lack of state funding to assist companies in automation

Site Development

Strengths

- Following the completion of the Sites Enhancement Project there will be 4 tier 4 sites on the market
- Prospect activity is strong and resulting in new locations
- Regional airports are high potential opportunities for shared costs and revenue
- Largest contiguous acreage for pseudo mega-site development is Blue Mountain (Augusta County)

Challenges and Opportunities

- Water has become a critical resource in Virginia which could impact the Value-Added food cluster. Align industrial parks with proper sectors and support water infrastructure
- Few Tier 3 or higher sites available
- Overall inventory low

Economic Resilience and Recovery

Strengths

- Economic diversification supported the region's resilience
- Rise in small business development support through SBDCs and local programs: CoStarters, Launch, Bricks and Clicks, B3
- Regional industry diversification

Challenges and Opportunities

- Workforce requires higher wages and sign on bonuses to return to work
- Most private-sector transition during the pandemic are seen as long term and sustainable, e.g., implementing technology in HR, automation, and e-commerce
- Limited supply chain issues with mechanical and electrical components
- Workforce availability remains the biggest issue for employers
- Leisure and hospitality and retail industries hardest hit, biggest impact in city centers
- In the rural horseshoe, Covid disproportionately impacted the less educated, women, and people of color

- CTE struggled to provide critical hands-on training during school shut down
- Regional Broadband issues impacted students and remote workers in a big way
- Child and elder-care availability and cost impacted ability to get workers to work (including before and after school care)
- Availability and condition of available housing is a challenge
- Vacant storefront from small businesses lost
- Capital improvement plans were halted during COVID, catching up to do.
- Nationally, 50% of adults considering career change
- Most requested social service is housing identification and assistance
- Vulnerable populations became highest priority and are now, and will continue to be, permanent points of investment
- Prioritizing community and care will increase economic performance
- Employers considering alternative schedules in response to day care issue, untested and costs associated
- Choices and consequences of forced vaccinations may have considerable impacts on labor availability.
- Rural areas that rely heavily on small tourism related businesses struggling to keep businesses alive
- Local priorities are on site and infrastructure development

Performance Outcomes from Region 8 Investments

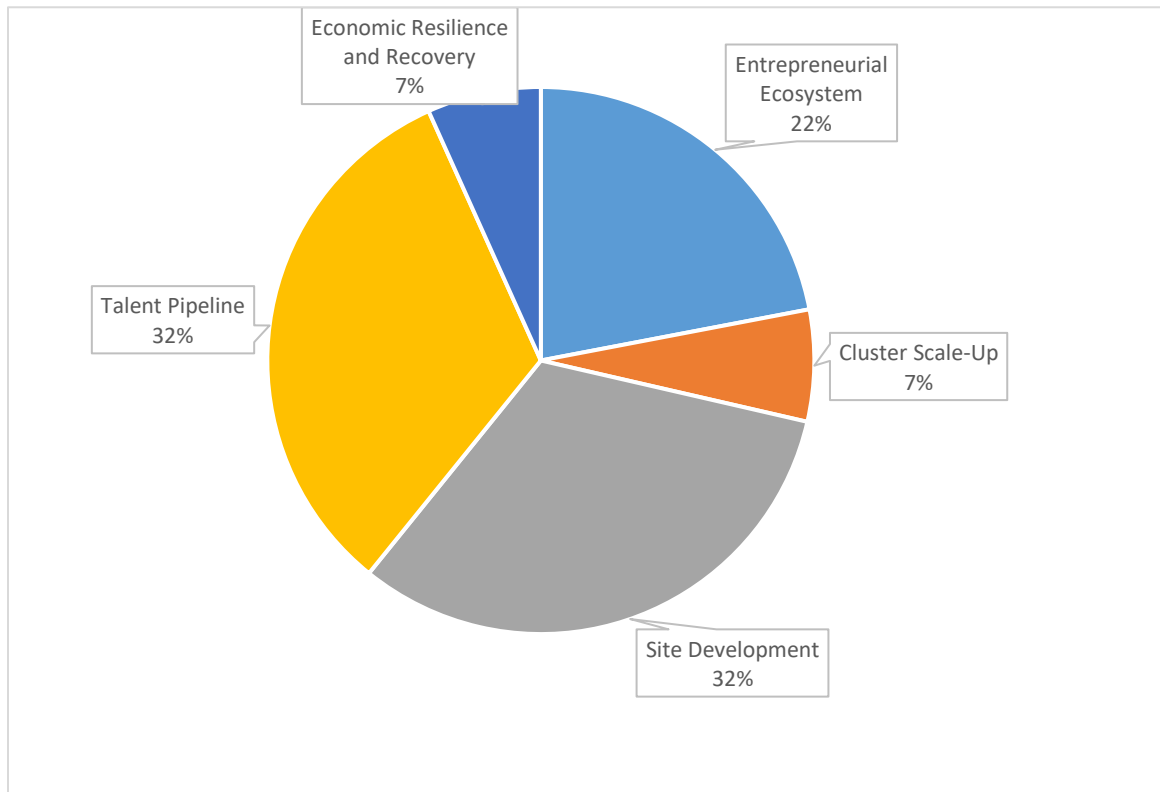
To date, the Region 8 Council has awarded 14 projects totaling \$2,858,816. Of these 14 projects 3 were Economic Resilience and Recovery totaling \$192,413. For the remaining 11 projects, the breakdown of investments is below, followed by a table summarizing the investments.

Talent Pipeline - \$927,800 (5 Projects)

Entrepreneurial Ecosystem - \$628,953 (1 Project)

Scale-Up - \$188,650 (3 Projects)

Site Development - \$921,000 (2 Projects)



GO Virginia Region 8 Project Status Summary – October 2021

Name of Project	GOVA Funds	Framework/Industry	Project Status as of October 2021
Rockbridge Area Advanced Manufacturing Program (RAAMP) – PC	\$100,000	FW: Talent Development TI: Light Manufacturing	The project has been closed out. Fifty (50) graduates have been hired by 20 different companies. The average starting salary is \$44,864.
BRCC Cyber Security Workforce Training Program - PC	\$200,000	FW: Talent Development TI: Information Technology and Communications	The contract ended January 31, 2021. Blue Ridge Community College partnered with the private sector to deliver training and credentials in Cybersecurity. Classes and on-the-job training were completed for 5 student cohorts, training 67 students in cybersecurity and awarding 60 Security+ credentials. Thirty-six (36) students have been placed into jobs in the cyber security industry with an average starting wage of \$49,500.
Staunton Innovation League –Tech-Lab Feasibility Study - ECB	\$23,000	FW: Startups TI: Financial and Business Services	The project is closed out – final study is available upon request. The Staunton Innovation League procured a consultant to deliver a study determining the feasibility of a mobile tech-lab capable of bringing high tech equipment to partnering public schools.
Shenandoah Valley Talent Solutions Strategy - ECB	\$64,800	FW: Talent Development TI: Biomed/Biotech and Financial and Business Services	Economic Development Organizations of the Northern Shenandoah Valley partnered to procure a study to determine course of action for Talent Retention, Attraction, and Development. The project is closed out – final study is available upon request.
Emil & Grace Shihadeh Innovation Center- PC	\$540,000	FW: Talent Development TI: Light Manufacturing and Information Technology and Communications	Winchester Public Schools was awarded funding to equip 5 labs within the Center. The Innovation Center will provide CTE classes to all WPS students in three academies: Advanced Technologies, Professional Skills, and Healthcare. Nearly 375 students are currently enrolled at the Center. In addition, LFCC is offering adult credentialing courses in the evenings. The first new job creation will be calculated at the end of the 2022 AY.

Name of Project	GOVA Funds	Framework/Industry	Project Status as of October 2021
JMU Industrial Hemp Initiative – Phase I -ECB	\$53,630	FW: Startups TI: Biomedical/Biotechnical	JMU was awarded funding to explore opportunities for the region to support and scale the Industrial Hemp industry. The team has completed the Economic Analysis of the Hemp Market and the Agricultural analysis (field study) these reports are available upon request. In addition, JMU launched the Industrial Hemp Initiative webpage. They continue to collaborate with other University research teams within the state.
Shenandoah Valley Ag. Enterprise Center Feasibility Study - ECB	\$85,000	FW: Startups TI: Value-Added Food Manufacturing	Project complete and GO Virginia grant closed out. Final report presented at public meeting in May 2021 with over 50 stakeholders in attendance. Next steps include seeking implementation grant funds through EDA American Rescue Plan – Build Back Better Regional Challenge.
Scale-up Shenandoah Valley - PC	\$50,000	FW: Growing Existing Businesses TI: All Targeted Industries	The goal of this project is for companies to enroll and successfully complete the Economic Gardening program hosted by the National Center for Economic Gardening. Three companies have enrolled in the program and SVP recently hosted a webinar to promote, attract, and increase enrollment.
Startup Shenandoah Valley - PC	\$628,953	FW: Startups TI: Biomed/Biotech, Light Manufacturing, Value-Added Food Manufacturing	Startup Shenandoah Valley’s third cohort will begin programming shortly. Since the program began, participants were selected from all 7 of Region 8’s targeted industry sectors.
Reopening Staunton-Augusta-Waynesboro (SAW) - ERR	\$50,000	TI: Growing Existing Businesses	Project completed in August 2021. “Explore SAW” landing page created; social media pages launched and maintained; passport program launched (40 participating businesses and over 550 users); Reopening SAW micro-site created and launched; two promotions videos created (10+ businesses featured. All original performance measures exceeded.
Small Business Resiliency Team - ERR	\$81,813	TI: Growing Existing Businesses	At the completion of the project milestones a budget review revealed more than \$10,000 available to continue to support

Name of Project	GOVA Funds	Framework/Industry	Project Status as of October 2021
			small businesses. Staff submitted a contract extension and a budget amendment. The program has served 45 businesses so far.
LOCAL-I - ERR	\$60,602	FW: Scale-up TI: Food Processing	The Local Ordering, Communication, and Agriculture Logistics Initiative began with a survey of producers and distributors to determine the opportunity for establishing new cooperatives. The Local Food network has prepared the web application for maximizing route efficiency and 67 stakeholders have been surveyed. 2 new routes are underway.
Shenandoah Valley Site Enhancement Project - PC	\$821,000	FW: Sites TI: Site Development	GOVA contract executed in July 2021. Consultant, Draper Aden, has begun mobilizing and will begin conducting “due diligence” on the sites. Due to market changes a contract amendment with GOVA expected in Fall 2021 to include new or revised sites for project that were included in the original site prioritization process.
Shenandoah Valley Airport Site Enhancement Project - ECB	\$100,000	FW: Sites TI: Site Development	Project includes water and sewer engineering at SHD Aviation Technology Park to prepare site for further investment. GOVA contract executed in September and project will begin Fall 2021.
Agricultural Innovation Center -PC	\$550,000	FW: Growing Existing Businesses TI: Value-Added Food Manufacturing; Light Manufacturing; Business Services	GO Virginia Board deferred the application at their September meeting. The Advancement Foundation is preparing to resubmit application to DHCD by October 29 th deadline. The GOVA request includes funds to establish business acceleration and product development programs, including hiring key staff and purchasing manufacturing equipment. Project activities are ready to begin immediately, dependent on funding.

Opportunities for Partnership and Collaboration

Intra-Regional Collaboration Opportunities

To implement these strategies, Region 8 Council will look to any and all previous applicants and explore opportunities to engage with the following organizations.

The Region 8 Council has identified the following organizations as having high potential but they have yet to apply for nor meaningfully supported GO Virginia projects:

- Shenandoah Valley Workforce Development Board
- Virginia Port Authority
- AUVSI – Ridge and Valley Chapter
- Chambers of Commerce operating in Region 8
- United Way Organizations operating in Region 8
- Shenandoah Valley Technology Council
- Metropolitan Planning Organizations
- Shenandoah Valley Tourism Partnership

Inter-Regional Collaboration Opportunities

Region 8 identified opportunities to collaborate on project development with other GO Virginia regions by evaluating common target industries, common strategic themes, and proximity. Four high-potential regions were identified: Regions 2, 3, 7, and 9. The Region 8 Council will continue to seek opportunities for collaboration with GO Virginia Regions 1, 4, 5, and 6.



GO Virginia Region	1	2	3	4	5	6	7	9	8
Bordering Region		Y					Y	Y	
Broad Sector Matches	3	6	7	4	7	6	3	6	7
Detailed Sector Matches	11	22	20	22	25	17	16	25	30
Strategy Matches	4	4	5	3	4	4	4	6	6
Successful Competitive Proposals			2	2	1		2		

Region 8 Growth and Diversification Committee Chair and Region 8 staff met with counterparts in each of the 4 prioritized regions to discuss opportunities for partnership. Common themes are listed below.

Region 2:

- Retaining the skilled population is critical
- Agribusiness and Food Processing, controlled environment agriculture center
- Dabney S. Lancaster Community College as a shared workforce training provider
- AUVSI Ridge and Valley Chapter is a common asset
- Supply Chain opportunities for automotive and parts manufacturers
- Industrial Hemp

Region 3:

- Controlled environment agriculture
- Unmanned systems and robotics
- Industrial Hemp
- Energy efficiency and improvements
- Successful GO TEC program provides a model for engaging school divisions in workforce development in a big way

Region 7:

- Biometric Laboratory (wet-lab) – BSL II was a statewide effort to support bio- and health-sciences, opportunities may exist for a mobile wet/dry laboratory
- High wages jobs with employers' physical location in Northern Virginia creating telework opportunities for Region 8 workers
- Primary skill needs in CompTIA+ and project management requiring a security clearance
- Opportunities in exploring AR/VR markets

Region 9:

- VIA BioConnect/CVile Bio – Thermo Fisher and Merck are partners
- Identified common difficulty in the number of potential applicants within the region
- Opportunity to activate the Chamber network between the Regions
- Industrial Hemp/CBD
- Broadband in rural bordering counties
- Aviation and Unmanned Systems
- Growing capital investments for startups
- Business-to-business supply chains

Appendices

Appendix A: Economic Performance

Industry Snapshot – All Industries in Region 8

GO Virginia Region 8, 2021Q2¹

NAICS	Industry	Current			2-Year History		5-Year Forecast				
		Empl	Avg Ann Wages	LQ	Empl Change	Ann %	Total IDemand	Exits	Transfers	Empl Growth	Ann % Growth
31	Manufacturing	33,690	\$59,008	1.74	65	0.1%	17,337	6,450	11,044	-157	-0.1%
62	Health Care and Social Assistance	31,832	\$51,451	0.91	-927	-1.4%	17,459	7,580	7,836	2,043	1.3%
44	Retail Trade	27,302	\$30,495	1.11	67	0.1%	17,522	7,973	10,074	-525	-0.4%
61	Educational Services	22,559	\$42,273	1.19	-2,208	-4.6%	10,627	5,028	5,426	173	0.2%
72	Accommodation and Food Services	19,527	\$19,824	1.09	-3,805	-8.5%	16,422	7,059	8,890	473	0.5%
48	Transportation and Warehousing	15,953	\$49,358	1.37	983	3.2%	9,505	3,692	4,996	817	1.0%
23	Construction	15,838	\$48,896	1.13	272	0.9%	8,235	2,813	5,033	388	0.5%
92	Public Administration	10,263	\$57,124	0.88	337	1.7%	4,862	2,003	2,725	135	0.3%
81	Other Services (except Public Administration)	10,254	\$30,090	1.00	-611	-2.9%	6,173	2,693	3,215	265	0.5%
56	Administrative and Support and Waste Management and Remediation Services	9,290	\$32,533	0.62	-454	-2.4%	5,770	2,301	3,138	330	0.7%
54	Professional, Scientific, and Technical Services	7,763	\$62,745	0.46	-370	-2.3%	3,585	1,247	2,110	229	0.6%

52	Finance and Insurance	6,084	\$77,298	0.62	19	0.2%	2,985	1,083	1,777	125	0.4%
42	Wholesale Trade	5,696	\$57,180	0.64	-238	-2.0%	2,955	1,122	1,859	-26	-0.1%
11	Agriculture, Forestry, Fishing and Hunting	5,047	\$37,253	1.52	-107	-1.0%	2,598	1,151	1,552	-105	-0.4%
55	Management of Companies and Enterprises	3,521	\$114,106	0.98	719	12.1%	1,705	593	1,013	99	0.6%
71	Arts, Entertainment, and Recreation	3,141	\$26,611	0.84	-486	-6.9%	2,424	1,011	1,248	166	1.0%
53	Real Estate and Rental and Leasing	2,830	\$45,899	0.69	-185	-3.1%	1,417	649	777	-9	-0.1%
51	Information	2,651	\$76,147	0.57	-373	-6.4%	1,166	453	803	-90	-0.7%
22	Utilities	1,427	\$67,262	1.14	18	0.6%	636	232	409	-5	-0.1%
99	Unclassified	680	\$36,312	2.24	267	28.3%	397	163	223	11	0.3%
21	Mining, Quarrying, and Oil and Gas Extraction	275	\$51,057	0.34	-26	-4.4%	157	47	97	14	1.0%
	Total - All Industries	235,622	\$46,410	1.00	-7,043	-1.5%	133,795	55,290	74,072	4,434	0.4%

Occupation Snapshot:

GO Virginia Region 8, 2021Q2¹

SOC	Occupation	Current						2-Year History		5-Year Forecast				
		Empl	Mean Ann Wages ²	LQ	Unem	Unem Rate	Online Job Ads ³	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
43-0000	Office and Administrative Support Occupations	25,583	\$37,900	0.86	1,005	3.6%	1,169	-1,162	-2.2%	13,980	6,071	8,498	-589	-0.5%
53-0000	Transportation and Material Moving Occupations	25,569	\$37,100	1.26	1,467	5.2%	2,253	710	1.4%	17,418	6,003	10,607	809	0.6%
41-0000	Sales and Related Occupations	22,742	\$39,400	1.01	1,325	5.5%	1,950	-524	-1.1%	15,798	6,495	9,639	-336	-0.3%
51-0000	Production Occupations	20,519	\$39,900	1.50	925	4.3%	767	-398	-1.0%	11,661	4,114	7,839	-292	-0.3%
35-0000	Food Preparation and Serving Related Occupations	18,316	\$24,300	1.04	2,117	9.4%	1,730	-2,651	-6.5%	16,829	6,597	9,617	614	0.7%
11-0000	Management Occupations	14,592	\$100,200	0.92	266	1.9%	805	95	0.3%	6,421	2,256	3,993	172	0.2%
25-0000	Educational Instruction and Library Occupations	14,318	\$57,300	1.11	551	3.9%	785	-1,420	-4.6%	6,671	2,941	3,487	243	0.3%
29-0000	Healthcare Practitioners and Technical Occupations	12,956	\$82,700	0.93	208	1.6%	2,075	11	0.0%	4,233	1,740	2,042	452	0.7%
47-0000	Construction and Extraction Occupations	11,627	\$44,000	1.06	746	5.1%	266	41	0.2%	6,837	1,896	4,646	296	0.5%
13-0000	Business and Financial Operations Occupations	10,856	\$72,600	0.79	236	2.3%	574	370	1.7%	5,605	1,526	3,775	304	0.6%
31-0000	Healthcare Support Occupations	10,429	\$27,900	0.98	370	3.3%	713	-112	-0.5%	8,041	3,353	3,641	1,048	1.9%

49-0000	Installation, Maintenance, and Repair Occupations	10,207	\$48,300	1.13	423	3.4%	641	-191	-0.9%	5,325	1,636	3,430	258	0.5%
37-0000	Building and Grounds Cleaning and Maintenance Occupations	8,588	\$29,300	1.12	564	5.4%	591	-1,007	-5.4%	6,073	2,475	3,305	293	0.7%
39-0000	Personal Care and Service Occupations	5,348	\$29,600	0.89	571	8.4%	244	-505	-4.4%	4,454	1,852	2,365	237	0.9%
15-0000	Computer and Mathematical Occupations	4,582	\$84,300	0.62	79	1.6%	368	24	0.3%	1,929	394	1,344	192	0.8%
33-0000	Protective Service Occupations	4,339	\$45,900	0.86	185	3.9%	252	41	0.5%	2,324	965	1,303	57	0.3%
21-0000	Community and Social Service Occupations	4,212	\$48,800	1.00	52	1.4%	427	-218	-2.5%	2,655	805	1,576	275	1.3%
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	3,224	\$51,200	0.77	195	6.5%	212	-176	-2.6%	1,812	656	1,139	17	0.1%
17-0000	Architecture and Engineering Occupations	2,874	\$80,800	0.71	59	2.2%	225	51	0.9%	1,192	347	795	50	0.3%
19-0000	Life, Physical, and Social Science Occupations	1,745	\$71,200	0.81	41	2.7%	159	26	0.8%	866	182	643	41	0.5%
45-0000	Farming, Fishing, and Forestry Occupations	1,680	\$32,400	1.06	92	5.1%	31	-55	-1.6%	1,360	334	1,024	2	0.0%
23-0000	Legal Occupations	1,317	\$81,300	0.65	20	1.5%	21	8	0.3%	478	174	285	19	0.3%
00-0000	Total - All Occupations	235,622	\$48,400	1.00	11,495	4.5%	16,256	-7,043	-1.5%	142,085	52,810	84,991	4,284	0.4%

[Source: JobsEQ®](#)

Data as of 2021Q2 unless noted otherwise

Note: Figures may not sum
due to rounding.

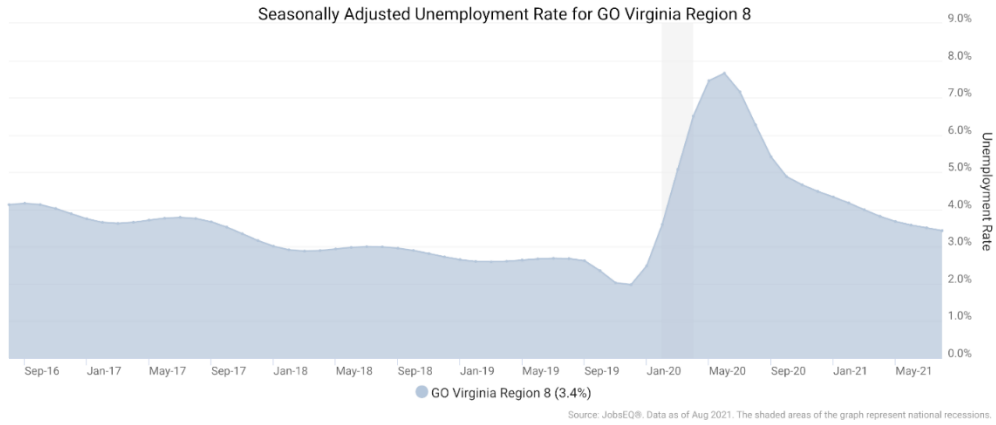
1. Data based on a four-quarter moving
average unless noted otherwise.

2. Wage data are as of 2020 and represent the
average for all Covered Employment

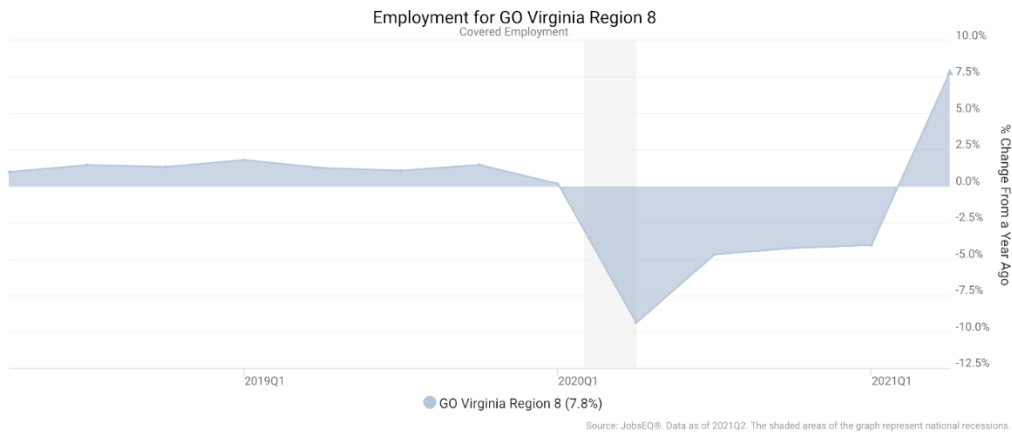
3. Data represent found online ads active within the last thirty days in the selected region; data represents a sampling rather than the complete universe of postings. Ads lacking zip code information but designating a place (city, town, etc.) may be assigned to the zip code with greatest employment in that place for queries in this analytic. Due to alternative county-assignment algorithms, ad counts in this analytic may not match that shown in RTI (nor in the popup window ad list).

Exported on: Wednesday,
December 8, 2021 11:47 AM

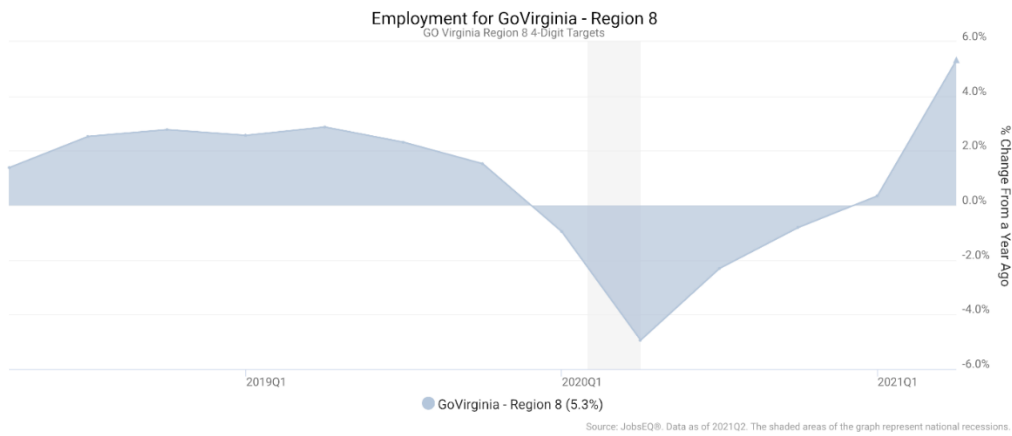
Seasonally Adjusted Unemployment Rate – 3 Year Change



Total Employment – 3 Year Change



Total Employment in Target Sectors – 3 Year Change



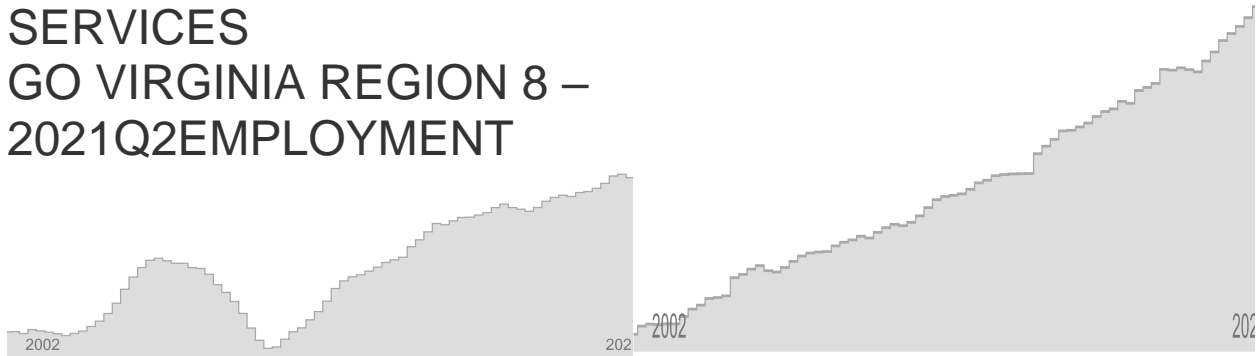
Region 8 Announcements July 2019-June 2021

Company Name	Locality	NAICS	Business Description	New / Expansion	New Jobs	Investment (\$M)
Hershey Chocolate of Virginia, Inc.	Augusta	311511	Leading North American chocolate producer and global snacks company	E	110	135
The Plant Company of Virginia LLC	Augusta	111421	Greenhouse operations	N	22	10.55
Cerio, LLC	Frederick	518210	Data center	E	25	90
Geodis Logistics	Frederick	493110	Provider of logistic services	E	15	14.4
Mercury Paper	Frederick	493110	Distributes tissue products	E	15	14.4
Melnor, Inc.	Frederick	423820	Distributes lawn and gardening watering products	E	0	6.11579
Trex Company, Inc.	Frederick	321219	Manufacturer of wood-alternative decking and railing	E	277	160
Blue Ridge Industries, Inc.	Frederick	326199	Manufactures custom injection mold	E	13	3.7
Kirklands	Frederick	493110	Distributes home decor and gifts	N	10	2.9
CareerBuilder	Frederick	561990	Leading provider of Hello to Hire HR technology solutions to global employers and candidates	N	250	2.512
SIBO USA	Harrisonburg	326199	Manufacturer of closure solutions for tubes, containers, and other packaging systems	E	24	2.61
Christian Light Publications	Harrisonburg	511130	Publisher of Christian learning materials	E	0	0.4
Shenandoah Valley Organic	Harrisonburg	311615	Organic poultry processing	E	110	64.25
Artisan Packaging	Harrisonburg	326160	Manufacturer of plastic bottles for pharmaceutical and personal care industry	E	18	0
Artisan Packaging	Harrisonburg	326160	Manufacturer of plastic bottles for pharmaceutical and personal care industry sectors	E	15	0
Shenandoah Valley Organics	Harrisonburg	311224	Organic Poultry Processing	E	0	5
Valley Guard Supply	Harrisonburg	423450	Personal protective equipment manufacturing	N	45	1
Modine Manufacturing Co.	Rockbridge	333415	Manufacturer of thermal management technology and solutions	E	60	7.025
Devils Backbone Brewery	Rockbridge	312120	Brewery	E	0	1.6
Rockbridge Vineyard	Rockbridge	312130	Winery	E	4	0.3
Dynovis, Inc.	Rockbridge	314910	Manufacturer of rapid development shelters and aerostats	E	44	0.592

Overlook Produce and Farm Adventures	Rockingham	424480	Vegetable wholesaler	E	6	0.85
Smiley's Ice Cream	Rockingham	311520	Produces premium, homemade-style ice cream	E	8	1.15
Dynamic Aviation Group, Inc.	Rockingham	423860	Provider of special-mission aviation solutions for government and commercial organizations worldwide	E	207	47.869647
Shenandoah Valley Hemp	Rockingham	311224	Hemp fiber and cannabidiol manufacturing	N	24	3.282
IAC	Shenandoah	336390	Global supplier of automotive components and systems	E	47	4.645374
Howell Metal Co.	Shenandoah	331420	Manufacturer of copper tubes and fittings	E	102	8.039
Ryzing Technologies	Staunton	314910	Designs and manufactures textile-based engineering solutions	E	31	0.149
Parallel	Warren	325411	Produces cannabis products	N	0	0.5
Silent Falcon UAS Technologies	Warren	336411	Unmanned aircraft systems services provider and original equipment manufacturer	N	249	6.023
VIRTEX	Waynesboro	334419	Provides strategic Electronic Manufacturing Services (EMS) to military, aerospace, and medical industries	E	50	0
Raven Engineered Films	Waynesboro	326112	Designs and manufactures flexible films and sheets	N	11	0.31
					1792	595.172811
					New: 8	
					Expansion:	
					24	

GO VIRGINIA – BUSINESS WAGES AND PROFESSIONAL SERVICES

GO VIRGINIA REGION 8 – 2021Q2 EMPLOYMENT



19,862

Regional employment / 21,746,119 in the nation

\$68,009

Avg Wages per Worker / \$100,171 in the nation

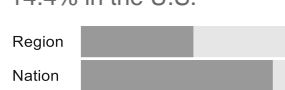
1.7% ↑

Avg Ann % Change Last 10 Years / +1.3% in the U.S.



8.4%

% of Total Employment / 14.4% in the U.S.

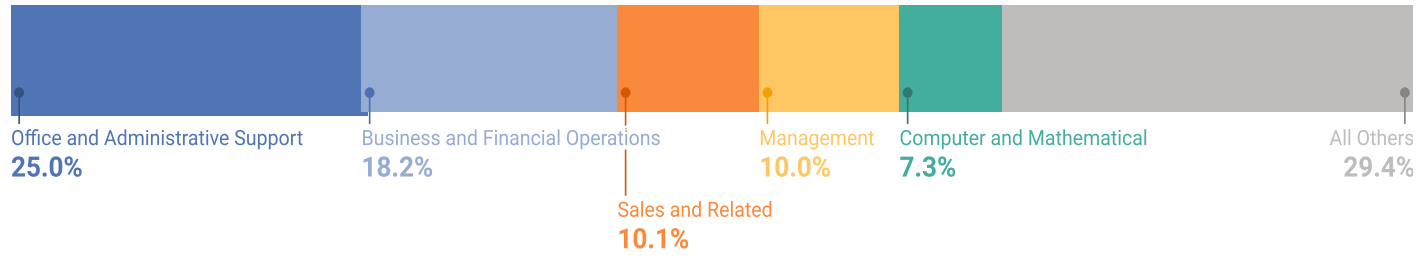


4.2% ↑

Avg Ann % Change Last 10 Years / +3.9% in the U.S.



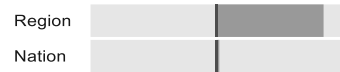
Top Occupation Groups



Top Industries

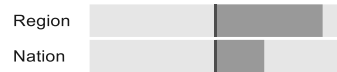
Avg Ann % Change in Employment, Last 10 Years

3.8% ↑



Depository Credit Intermediation

4.4% ↑



Management of Companies and Enterprises

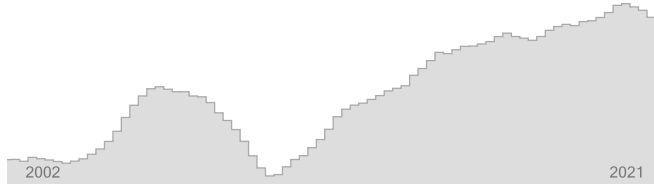
-1.7% ↓



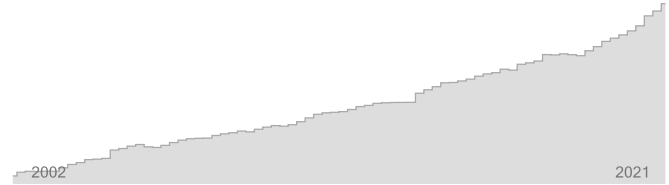
Employment Services

Industry Snapshot

EMPLOYMENT



WAGES

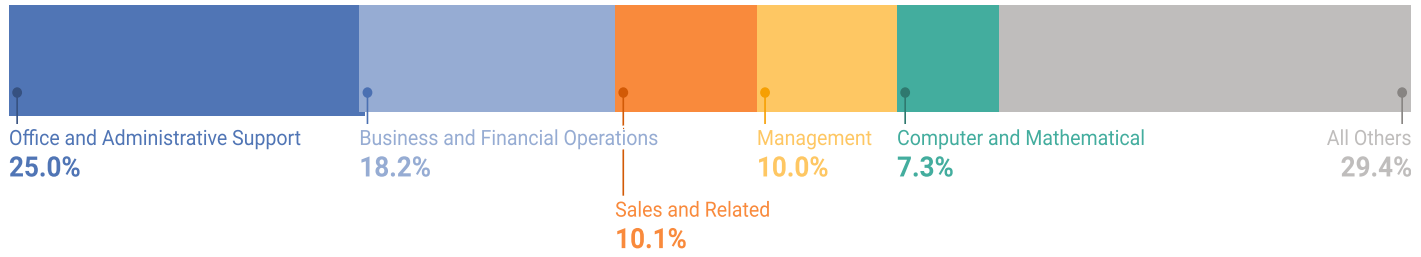


4-Digit Industry	Empl	Avg Ann Wages	LQ	5yr History	Annual Demand	Forecast Ann Growth
Depository Credit Intermediation	3,729	\$59,938	1.37		379	0.5%
Management of Companies and Enterprises	3,521	\$114,106	0.98		338	0.6%
Employment Services	2,114	\$31,923	0.41		253	0.4%
Other Professional, Scientific, and Technical Services	1,608	\$42,825	0.94		164	1.0%
Architectural, Engineering, and Related Services	1,560	\$73,171	0.61		129	0.0%
Accounting, Tax Preparation, Bookkeeping, and Payroll Services	1,027	\$47,547	0.57		95	-0.2%
Activities Related to Real Estate	975	\$48,088	0.70		96	0.0%
Legal Services	941	\$63,122	0.49		69	-0.5%
Agencies, Brokerages, and Other Insurance Related Activities	929	\$60,323	0.44		91	0.3%
Lessors of Real Estate	562	\$35,166	0.57		57	0.0%
Remaining Component Industries	2,894	\$84,382	0.31		281	-0.2%
GO Virginia - Proposed Professional Services	19,862	\$68,009	0.59		1,953	0.3%

Employment is one of the broadest and most timely measures of a region's economy. Fluctuations in the number of jobs shed light on the health of an industry. A growing employment base creates more opportunities for regional residents and helps a region grow its population.

Since wages and salaries generally compose the majority of a household's income, the annual average wages of a region affect its average household income, housing market, quality of life, and other socioeconomic indicators.

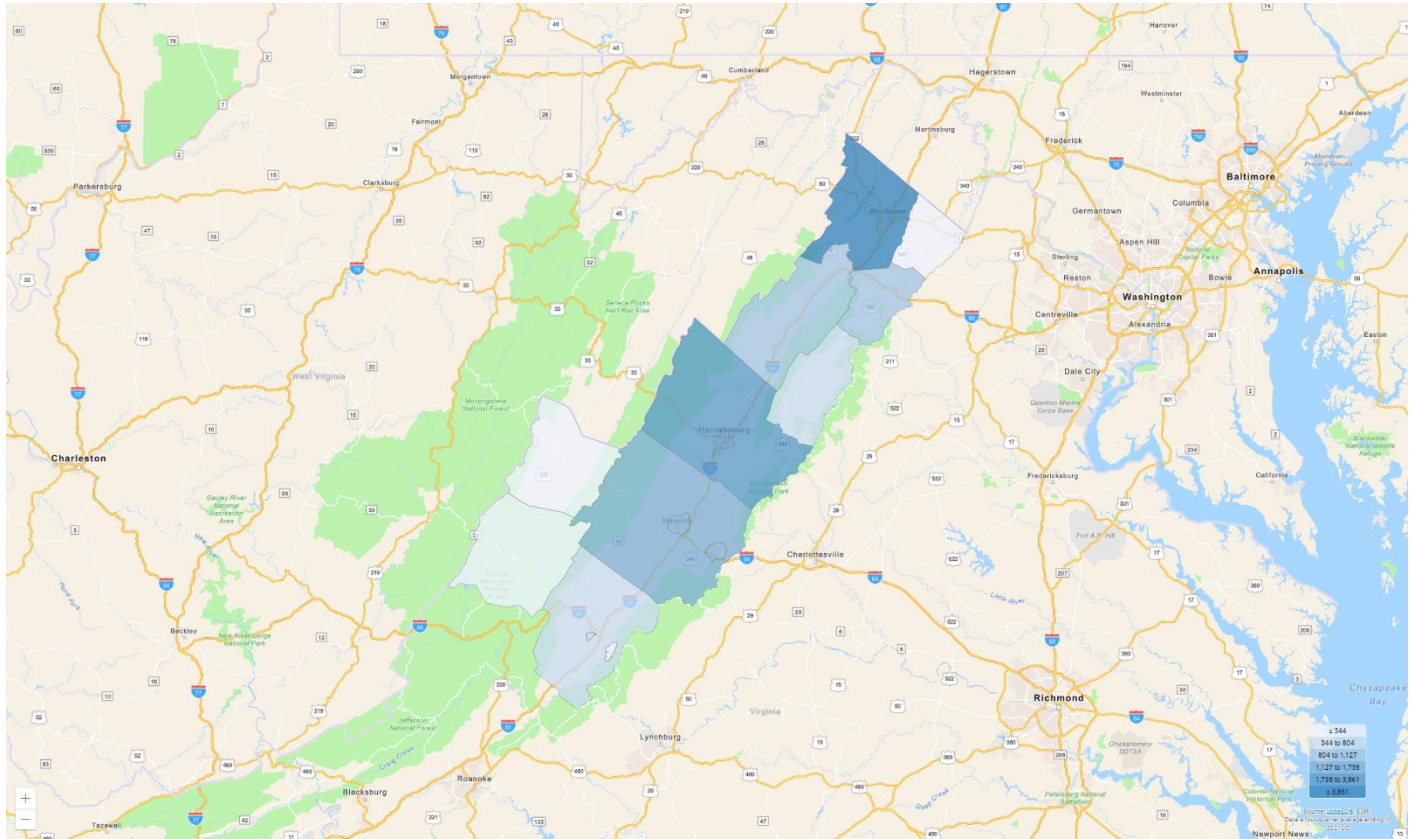
Staffing Pattern



6-digit Occupation	Empl	Avg Ann Wages	Annual Demand
Tellers	851	\$33,700	91
Customer Service Representatives	831	\$36,000	110
Accountants and Auditors	759	\$80,100	72
Securities, Commodities, and Financial Services Sales Agents	507	\$71,800	54
Lawyers	468	\$106,900	22
Office Clerks, General	465	\$32,200	52
Loan Officers	461	\$64,200	43
Software Developers and Software Quality Assurance Analysts and Testers	439	\$96,500	39
Bookkeeping, Accounting, and Auditing Clerks	430	\$41,800	47
First-Line Supervisors of Office and Administrative Support Workers	426	\$58,100	43
Remaining Component Occupations	14,182	\$58,800	1,482
Total	19,820		

 The mix of occupations points to the ability of a region to support an industry and its flexibility to adapt to future demand. Industry wages are a component of the cost of labor for regional employers.

Geographic Distribution



Region	Empl	Region	Empl
Frederick County, Virginia	4,523	Staunton City, Virginia	1,161
Winchester City, Virginia	3,861	Waynesboro City, Virginia	1,128
Harrisonburg City, Virginia	2,521	Shenandoah County, Virginia	818
Rockingham County, Virginia	1,738	Warren County, Virginia	805
Augusta County, Virginia	1,419	Page County, Virginia	449
		All Others	1,439

Source: JobsEQ®

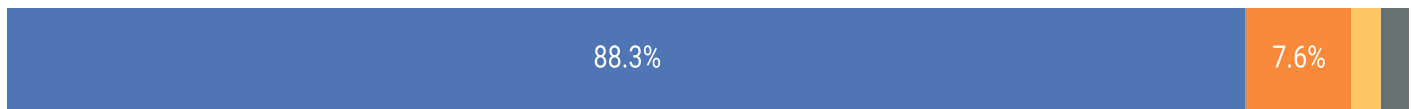


A geographic concentration of firms in related fields of business may reduce production costs, attract more suppliers and customers, and increase supply and demand for specialized labor, but may also increase competitive pressure and drive down prices.

Employment Distribution by Type

The table below shows the employment mix by ownership type for GO Virginia - Proposed Professional Services for the GO Virginia Region 8. Four of these ownership types — federal, state, and local government and the private sector — together constitute “Covered Employment” (employment covered by the Unemployment Insurance programs of the United States and reported via the Quarterly Census of Employment and Wages).

“Self-Employment” refers to unincorporated self-employment and represents workers whose primary job is self-employment (that is, these data do not include workers whose primary job is a wage-and-salary position that is supplemented with self-employment).



	Empl	%
Private	17,547	88.3%
Self-Employment	1,505	7.6%
Local Government	426	2.1%
Federal Government	385	1.9%
Other Non-Covered	0	0.0%

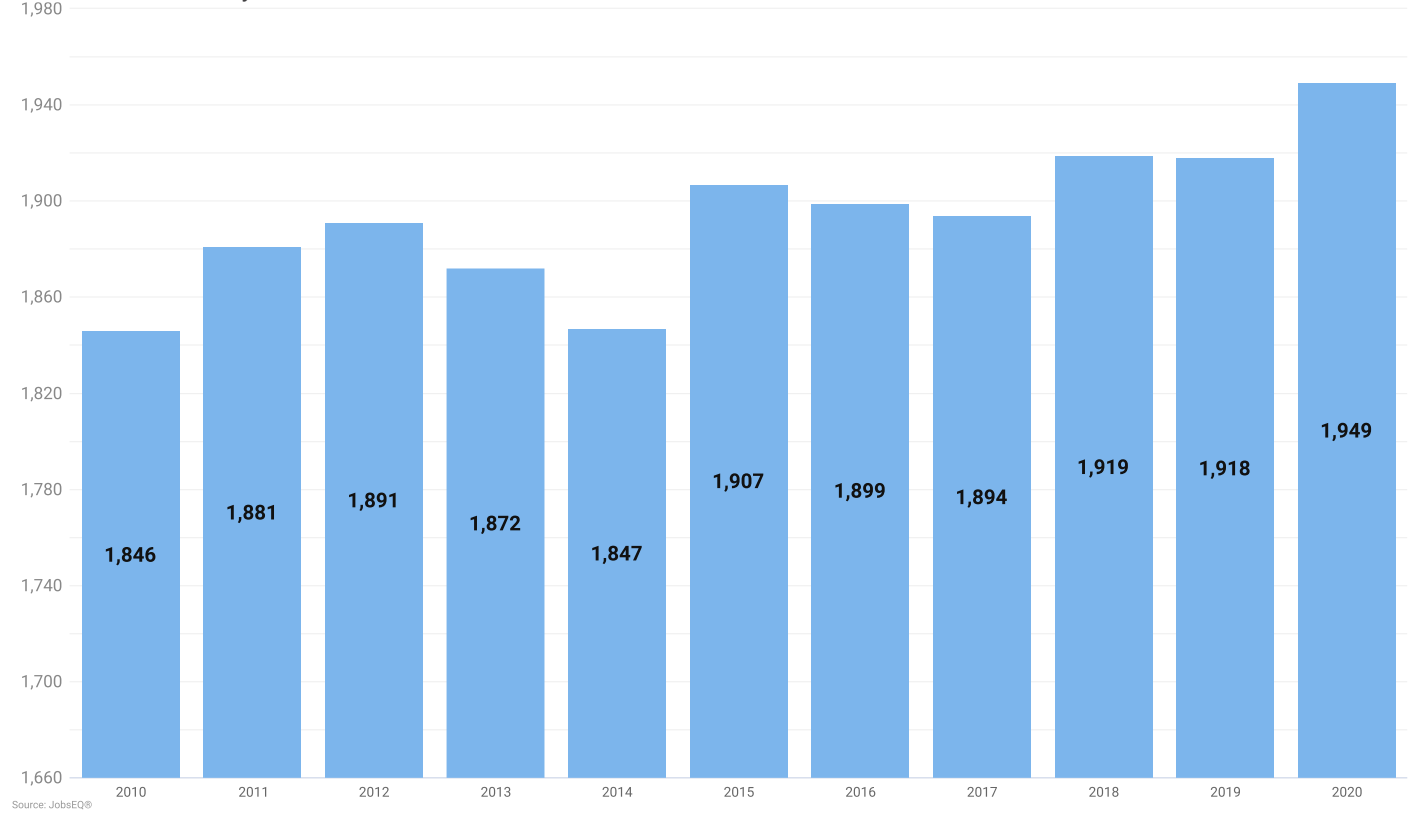
Source: JobsEQ®




Strong entrepreneurial activity is indicative of growing industries. Using self-employment as a proxy for entrepreneurs, a higher share of self-employed individuals within a regional industry points to future growth.

Establishments

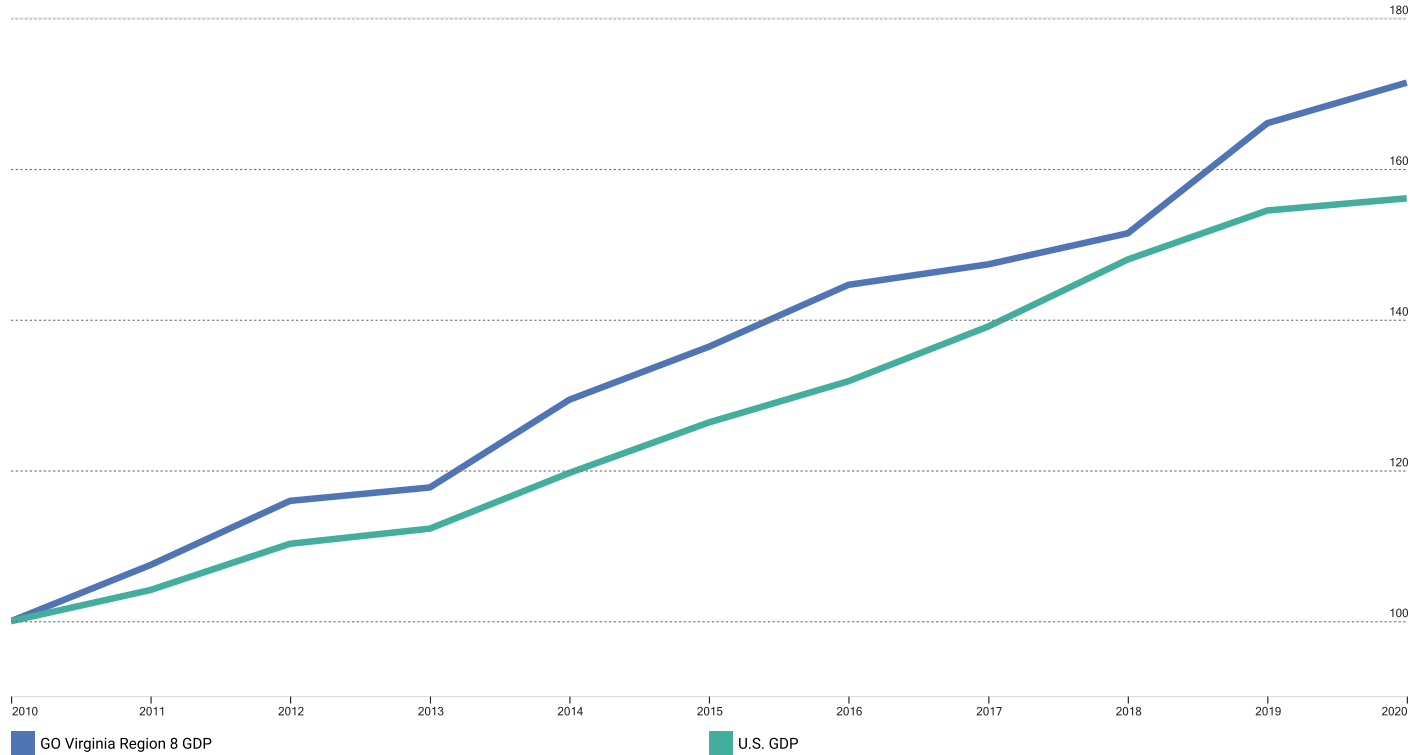
In 2020, there were 1,949 GO Virginia - Proposed Professional Services establishments in the GO Virginia Region 8 (per covered employment establishment counts), an increase from 1,846 establishments ten years earlier in 2010.



 New business formations are an important source of job creation in a regional economy, spurring innovation and competition, and driving productivity growth. Establishment data can provide an indicator of growth in businesses by counting each single location (such as a factory or a store) where business activity takes place, and with at least one employee.

GDP & Productivity

In 2020, GO Virginia - Proposed Professional Services produced \$3.6 billion in GDP for the GO Virginia Region 8.
 GDP: Indexed 2010 = 100



13.9 %

Industry Share of Total GDP /
25.8 % in the nation



5.5 % ↑

Avg Ann % Change Last 10
Yrs /
4.6 % in the nation



\$235k

Output per Worker /
\$324k in the nation



💡 Gross domestic product (GDP) is the most comprehensive measure of regional economic activity, and an industry's contribution to GDP is an important indicator of regional industry strength. It is a measure of total value-added to a regional economy in the form of labor income, proprietor's income, and business profits, among others.

💡 Growth in productivity (output per worker) leads to increases in wealth and higher average standards of living in a region.

Supply Chain: Top Suppliers

As of 2021Q2, GO Virginia - Proposed Professional Services in the GO Virginia Region 8 are estimated to make \$2.0 billion in annual purchases from suppliers in the United States with about 51% or \$1.0 billion of these purchases being made from businesses located in the GO Virginia Region 8.

4-digit Supplier Industries	Purchases from In-Region (\$M)	Purchases from Out-of-Region (\$M)
Activities Related to Real Estate	\$99.3	\$52.0
Depository Credit Intermediation	\$56.9	\$35.7
Electric Power Generation, Transmission and Distribution	\$43.2	\$48.6
Offices of Real Estate Agents and Brokers	\$56.8	\$15.7
Insurance Carriers	\$13.9	\$53.4
Remaining Supplier Industries	\$773.6	\$781.0
Total	\$1,043.7	\$986.4



Supplier-buyer networks can indicate local linkages between industries, regional capacity to support growth in an industry, and potential leakage of sales out of the region.

Postsecondary Programs Linked to GO Virginia - Proposed Professional Services

Program	Awards
Blue Ridge Community College	
Business Administration, Management and Operations, Other	55
Veterinary/Animal Health Technology/Technician and Veterinary Assistant	108
James Madison University	
Accounting	157
Advanced Legal Research/Studies, General	74
Community Health Services/Liaison/Counseling	469
Finance, General	152
Speech Communication and Rhetoric	468
Lord Fairfax Community College	
Allied Health Diagnostic, Intervention, and Treatment Professions, Other	282
Virginia Military Institute	
Civil Engineering, General	50
Washington and Lee University	
Law	154

Source: [JobsEQ®](#)



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



Among postsecondary programs at schools located in the GO Virginia Region 8, the sampling above identifies those most linked to occupations relevant to GO Virginia - Proposed Professional Services. For a complete list see JobsEQ®, <http://www.chmuraecon.com/jobseq>

Industry Definition

GO Virginia - Proposed Professional Services is defined as the following NAICS industries:

Code	Description
5191	Other Information Services
5211	Monetary Authorities-Central Bank
5221	Depository Credit Intermediation
5222	Nondepository Credit Intermediation
5223	Activities Related to Credit Intermediation
5231	Securities and Commodity Contracts Intermediation and Brokerage
5232	Securities and Commodity Exchanges
5239	Other Financial Investment Activities
5241	Insurance Carriers
5242	Agencies, Brokerages, and Other Insurance Related Activities
5251	Insurance and Employee Benefit Funds
5259	Other Investment Pools and Funds
5311	Lessors of Real Estate
5313	Activities Related to Real Estate
5331	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)
5411	Legal Services
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services
5413	Architectural, Engineering, and Related Services
5414	Specialized Design Services
5417	Scientific Research and Development Services
5418	Advertising, Public Relations, and Related Services
5419	Other Professional, Scientific, and Technical Services
5511	Management of Companies and Enterprises
5612	Facilities Support Services
5613	Employment Services
5614	Business Support Services

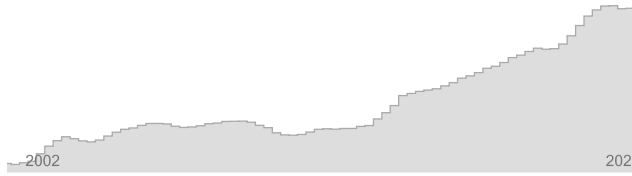
GO Virginia - Proposed Professional Services in GO Virginia Region 8, 2021Q2¹

NAICS	Industry	Current			2-Year History		Total Demand	5-Year Forecast			Ann % Growth
		Empl	Avg Ann Wages	LQ	Empl Change	Ann %		Exits	Transfers	Empl Growth	
5221	Depository Credit Intermediation	3,729	\$59,938	1.37	26	0.3%	1,909	691	1,127	91	0.5%
5511	Management of Companies and Enterprises	3,521	\$114,106	0.98	719	12.1%	1,705	593	1,013	99	0.6%
5613	Employment Services	2,114	\$31,923	0.41	-146	-3.3%	1,275	499	733	43	0.4%
5419	Other Professional, Scientific, and Technical Services	1,608	\$42,825	0.94	49	1.6%	835	317	438	81	1.0%
5413	Architectural, Engineering, and Related Services	1,560	\$73,171	0.61	-147	-4.4%	642	231	412	0	0.0%
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	1,027	\$47,547	0.57	-48	-2.2%	474	198	286	-11	-0.2%
5313	Activities Related to Real Estate	975	\$48,088	0.70	55	3.0%	480	227	254	-2	0.0%
5411	Legal Services	941	\$63,122	0.49	-48	-2.5%	338	157	206	-24	-0.5%
5242	Agencies, Brokerages, and Other Insurance Related Activities	929	\$60,323	0.44	-24	-1.3%	459	182	265	13	0.3%
5311	Lessors of Real Estate	562	\$35,166	0.57	-4	-0.3%	285	131	154	1	0.0%
5222	Nondepository Credit Intermediation	475	\$123,057	0.49	55	6.3%	271	86	146	39	1.6%
5191	Other Information Services	471	\$46,743	0.59	-63	-6.1%	239	77	141	21	0.9%
5241	Insurance Carriers	362	\$65,531	0.19	-14	-1.9%	147	60	99	-13	-0.7%
5614	Business Support Services	300	\$29,465	0.21	-79	-11.0%	178	69	104	5	0.3%

	Securities and Commodity Contracts Intermediation and Brokerage	264	\$153,427	0.38	-7	-1.4%	116	40	76	0	0.0%
5231	Scientific Research and Development Services	263	\$155,678	0.20	-2	-0.4%	115	37	73	5	0.4%
5417	Other Financial Investment Activities	192	\$97,177	0.22	-14	-3.4%	79	28	55	-4	-0.4%
5239	Advertising, Public Relations, and Related Services	178	\$42,098	0.24	-93	-18.9%	82	34	55	-7	-0.8%
5418	Specialized Design Services	132	\$30,258	0.40	-41	-12.6%	52	25	35	-8	-1.2%
5414	Activities Related to Credit Intermediation	126	\$109,811	0.25	2	0.7%	56	23	37	-3	-0.6%
5223	Facilities Support Services	122	\$37,082	0.46	-66	-19.4%	69	30	37	1	0.2%
5612	Other Investment Pools and Funds	5	\$123,869	0.30	1	8.9%	3	1	2	0	0.1%
5259	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	4	\$82,768	0.12	-3	-25.9%	1	1	1	-1	-3.0%
5331	Insurance and Employee Benefit Funds	0	n/a	0.00	-5	n/a	0	0	0	0	0.0%
5251	GO Virginia - Proposed Professional Services	19,862	\$68,009	0.59	104	0.3%	9,817	3,735	5,750	332	0.3%
8388	Total - All Industries	235,622	\$46,410	1.00	-7,043	-1.5%	133,795	55,290	74,072	4,434	0.4%

Transportation and Logistics GO Virginia Region 8 – 2021Q2

EMPLOYMENT



16,543

Regional employment / 7,632,506 in the nation

WAGES



\$50,048

Avg Wages per Worker / \$63,869 in the nation

4.0%

Avg Ann % Change Last 10 Years / +2.8% in the U.S.



7.0%

% of Total Employment / 5.0% in the U.S.



2.0%

Avg Ann % Change Last 10 Years / +1.8% in the U.S.



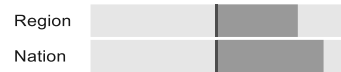
Top Occupation Groups



Top Industries

Avg Ann % Change in Employment, Last 10 Years

7.9% ↑



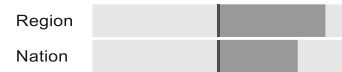
General Warehousing and Storage

-2.4% ↓







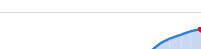
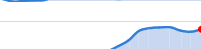
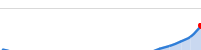

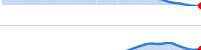

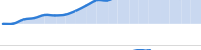
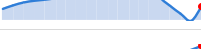
General Freight Trucking, Long-Distance, Truckload



8.5% ↑



Couriers and Express Delivery Services

Industry Snapshot


6-Digit Industry	Empl	Avg Ann Wages	LQ	5yr History	Annual Demand	Forecast Ann Growth
General Warehousing and Storage	7,270	\$42,113	3.18		981	1.6%
General Freight Trucking, Long-Distance, Truckload	1,683	\$54,694	1.80		183	0.3%
Couriers and Express Delivery Services	1,474	\$38,934	1.01		192	1.3%
Specialized Freight (except Used Goods) Trucking, Local	582	\$52,525	1.64		65	0.5%
Refrigerated Warehousing and Storage	557	\$48,913	5.34		73	1.2%
General Freight Trucking, Local	531	\$48,980	1.03		58	0.3%
Farm Supplies Merchant Wholesalers	498	\$48,114	2.71		50	-0.9%
General Freight Trucking, Long-Distance, Less Than Truckload	487	\$68,053	1.18		55	0.7%
Other Nonscheduled Air Transportation	476	\$84,234	39.94		49	1.2%
Farm and Garden Machinery and Equipment Merchant Wholesalers	399	\$51,434	2.46		41	0.0%
Remaining Component Industries	2,585	\$47,326	0.60		269	-0.1%
GO Virginia Transportation, Distribution, and Warehousing	16,543	\$50,048	1.39		2,022	1.0%

-  Employment is one of the broadest and most timely measures of a region's economy. Fluctuations in the number of jobs shed light on the health of an industry. A growing employment base creates more opportunities for regional residents and helps a region grow its population.
-  Since wages and salaries generally compose the majority of a household's income, the annual average wages of a region affect its average household income, housing market, quality of life, and other socioeconomic indicators.

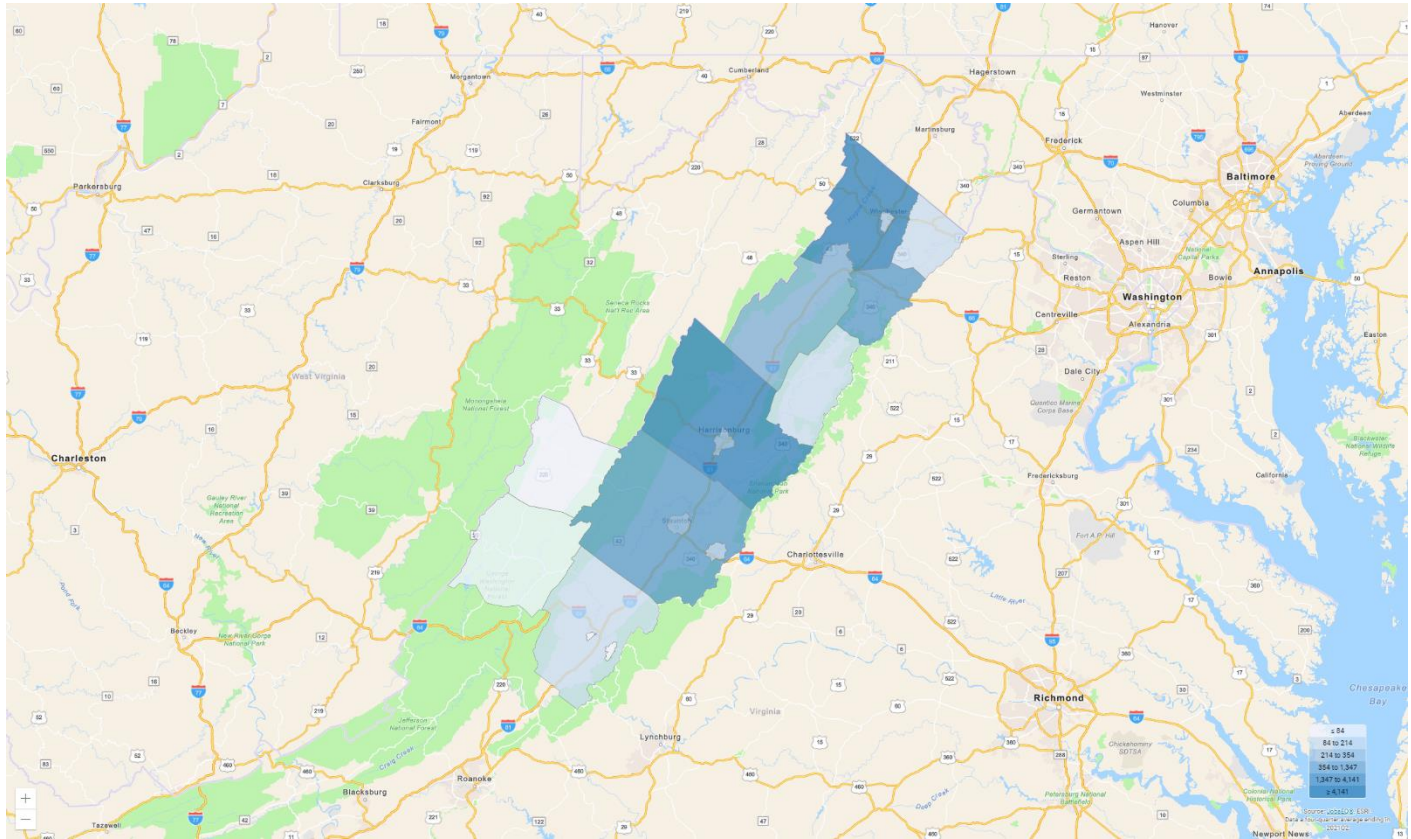
Staffing Pattern



6-digit Occupation	Empl	Avg Ann Wages	Annual Demand
Heavy and Tractor-Trailer Truck Drivers	2,896	\$45,700	357
Laborers and Freight, Stock, and Material Movers, Hand	2,525	\$32,600	416
Stockers and Order Fillers	1,827	\$30,100	272
Industrial Truck and Tractor Operators	1,327	\$38,600	170
Light Truck Drivers	754	\$45,300	101
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	511	\$56,400	65
Shipping, Receiving, and Inventory Clerks	461	\$36,800	45
Packers and Packagers, Hand	300	\$33,200	41
Office Clerks, General	297	\$32,200	35
Customer Service Representatives	292	\$35,700	40
Remaining Component Occupations	5,313	\$56,500	611
Total	16,502		

 The mix of occupations points to the ability of a region to support an industry and its flexibility to adapt to future demand. Industry wages are a component of the cost of labor for regional employers.

Geographic Distribution



Region	Empl	Region	Empl
Frederick County, Virginia	4,883	Harrisonburg City, Virginia	669
Rockingham County, Virginia	4,142	Staunton City, Virginia	355
Augusta County, Virginia	3,464	Winchester City, Virginia	343
Warren County, Virginia	1,347	Waynesboro City, Virginia	214
Shenandoah County, Virginia	688	Page County, Virginia	122
		All Others	314

Source: JobsEQ®

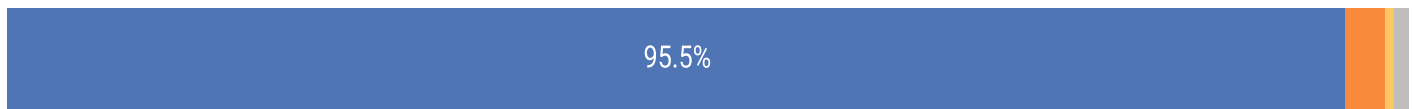


A geographic concentration of firms in related fields of business may reduce production costs, attract more suppliers and customers, and increase supply and demand for specialized labor, but may also increase competitive pressure and drive down prices.

Employment Distribution by Type

The table below shows the employment mix by ownership type for GO Virginia Transportation, Distribution, and Warehousing for the GO Virginia Region 8. Four of these ownership types — federal, state, and local government and the private sector — together constitute “Covered Employment” (employment covered by the Unemployment Insurance programs of the United States and reported via the Quarterly Census of Employment and Wages).

“Self-Employment” refers to unincorporated self-employment and represents workers whose primary job is self-employment (that is, these data do not include workers whose primary job is a wage-and-salary position that is supplemented with self-employment).



	Empl	%
Private	15,796	95.5%
Self-Employment	476	2.9%
Local Government	105	0.6%
Other Non-Covered	165	1.0%

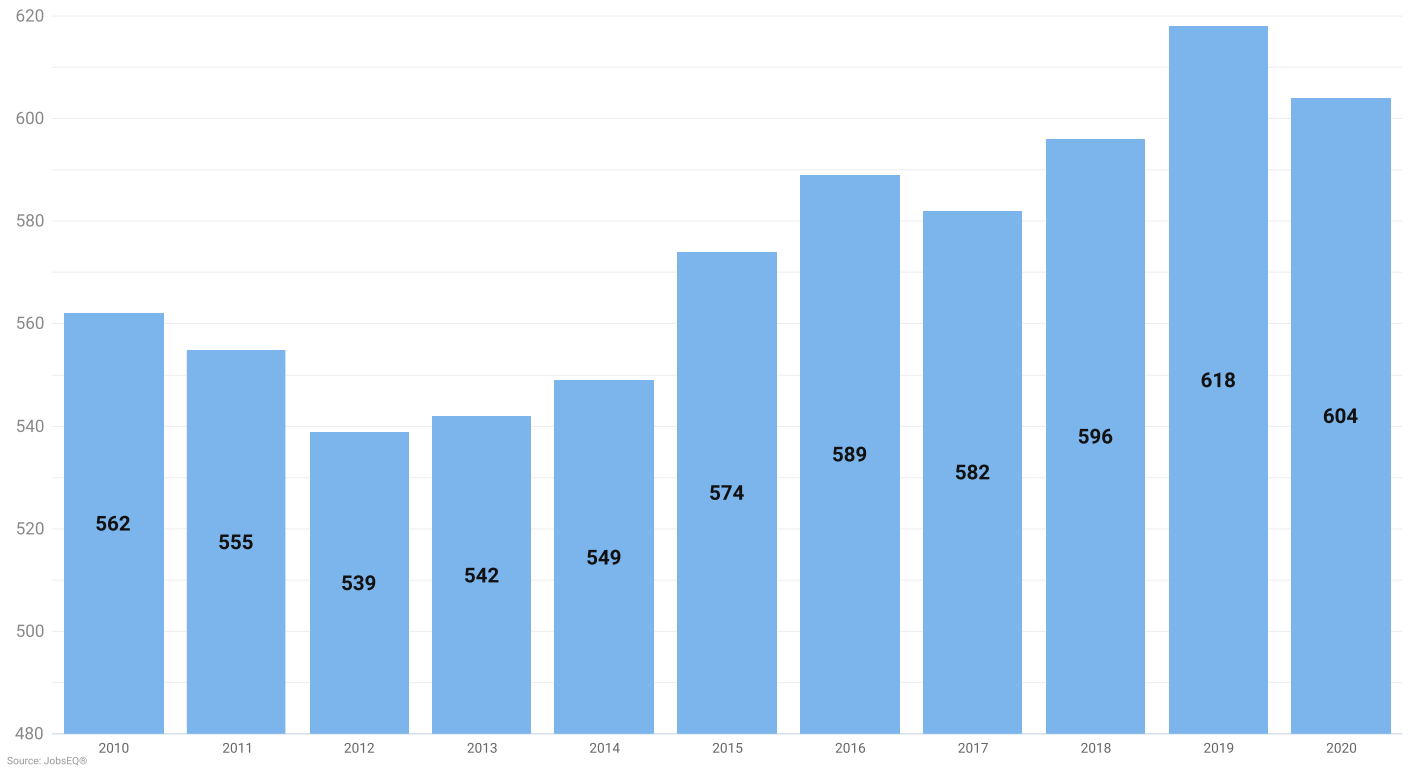
Source: JobsEQ®



Strong entrepreneurial activity is indicative of growing industries. Using self-employment as a proxy for entrepreneurs, a higher share of self-employed individuals within a regional industry points to future growth.

Establishments

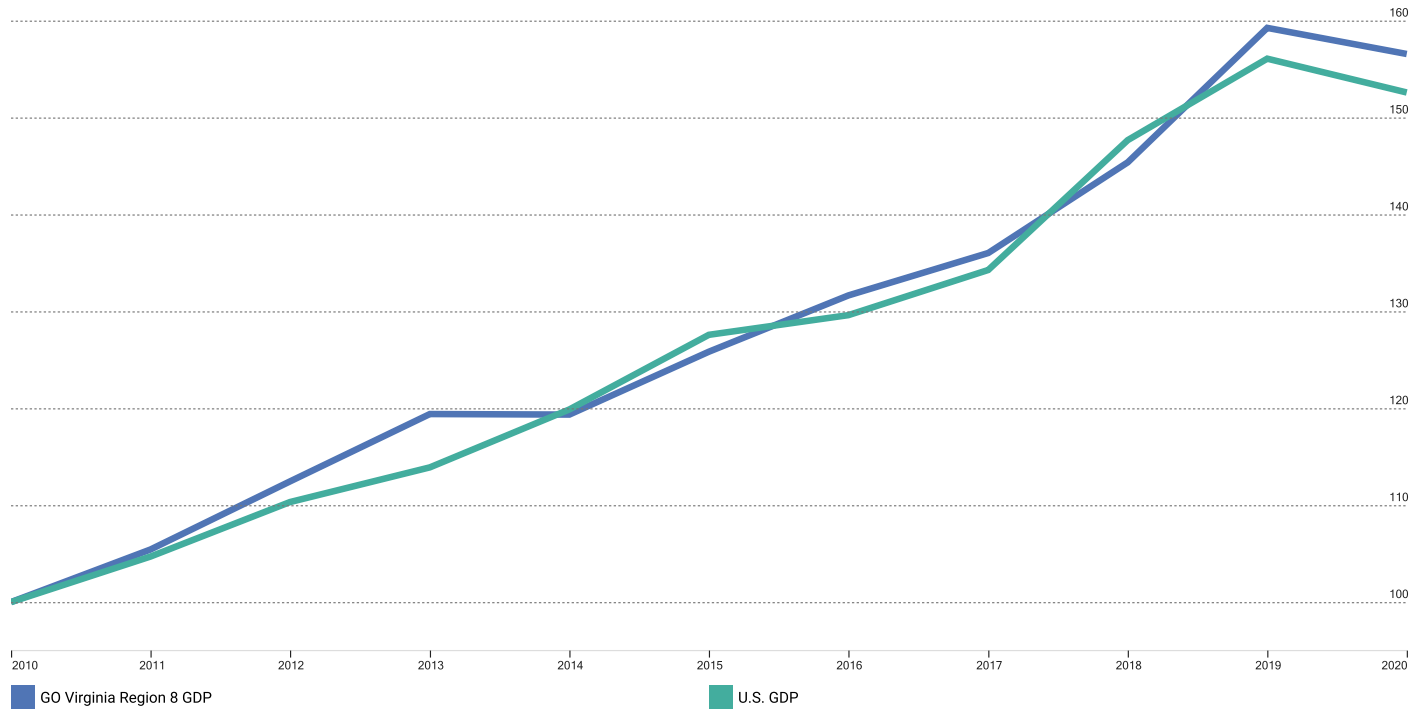
In 2020, there were 604 GO Virginia Transportation, Distribution, and Warehousing establishments in the GO Virginia Region 8 (per covered employment establishment counts), an increase from 562 establishments ten years earlier in 2010.



New business formations are an important source of job creation in a regional economy, spurring innovation and competition, and driving productivity growth. Establishment data can provide an indicator of growth in businesses by counting each single location (such as a factory or a store) where business activity takes place, and with at least one employee.

GDP & Productivity

In 2020, GO Virginia Transportation, Distribution, and Warehousing produced \$1.4 billion in GDP for the GO Virginia Region 8.
 GDP: Indexed 2010 = 100



5.4 %

Industry Share of Total GDP /
4.8 % in the nation



4.6 % ↑

Avg Ann % Change Last 10
Yrs /
4.3 % in the nation



\$146k

Output per Worker /
\$207k in the nation



💡 Gross domestic product (GDP) is the most comprehensive measure of regional economic activity, and an industry's contribution to GDP is an important indicator of regional industry strength. It is a measure of total value-added to a regional economy in the form of labor income, proprietor's income, and business profits, among others.

💡 Growth in productivity (output per worker) leads to increases in wealth and higher average standards of living in a region.

Supply Chain: Top Suppliers

As of 2021Q2, GO Virginia Transportation, Distribution, and Warehousing in the GO Virginia Region 8 are estimated to make \$1.2 billion in annual purchases from suppliers in the United States with about 29% or \$0.3 billion of these purchases being made from businesses located in the GO Virginia Region 8.

6-digit Supplier Industries	Purchases from In-Region (\$M)	Purchases from Out-of-Region (\$M)
Petroleum Refineries	<\$0.1	\$140.5
Couriers and Express Delivery Services	\$36.1	\$13.7
General Warehousing and Storage	\$42.3	\$3.7
Residential Property Managers	\$11.6	\$32.9
Offices of Real Estate Agents and Brokers	\$10.5	\$24.0
Remaining Supplier Industries	\$245.8	\$636.9
Total	\$346.3	\$851.6



Supplier-buyer networks can indicate local linkages between industries, regional capacity to support growth in an industry, and potential leakage of sales out of the region.

Postsecondary Programs Linked to GO Virginia Transportation, Distribution, and Warehousing

Program	Awards
Blue Ridge Community College	
Aircraft Powerplant Technology/Technician.	10
Airframe Mechanics and Aircraft Maintenance Technology/Technician.	19
James Madison University	
Accounting.	157
Business Administration and Management, General.	188
Computer and Information Sciences, General.	127
Finance, General.	152
Hospitality Administration/Management, General.	179
Information Science/Studies.	168
Marketing/Marketing Management, General.	174
Speech Communication and Rhetoric.	468

Source: [JobsEQ®](#)



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



Among postsecondary programs at schools located in the GO Virginia Region 8, the sampling above identifies those most linked to occupations relevant to GO Virginia Transportation, Distribution, and Warehousing. For a complete list see JobsEQ®, <http://www.chmuraecon.com/jobseq>

Industry Definition

GO Virginia Transportation, Distribution, and Warehousing is defined as the following NAICS industries:

Code	Description
423410	Photographic Equipment and Supplies Merchant Wholesalers
423420	Office Equipment Merchant Wholesalers
423430	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers
423440	Other Commercial Equipment Merchant Wholesalers
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers
423460	Ophthalmic Goods Merchant Wholesalers
423490	Other Professional Equipment and Supplies Merchant Wholesalers
423810	Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers
423820	Farm and Garden Machinery and Equipment Merchant Wholesalers
423830	Industrial Machinery and Equipment Merchant Wholesalers
423840	Industrial Supplies Merchant Wholesalers
423850	Service Establishment Equipment and Supplies Merchant Wholesalers
423860	Transportation Equipment and Supplies (except Motor Vehicle) Merchant Wholesalers
424910	Farm Supplies Merchant Wholesalers
424920	Book, Periodical, and Newspaper Merchant Wholesalers
424930	Flower, Nursery Stock, and Florists' Supplies Merchant Wholesalers
424940	Tobacco and Tobacco Product Merchant Wholesalers
424950	Paint, Varnish, and Supplies Merchant Wholesalers
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers
481111	Scheduled Passenger Air Transportation
481112	Scheduled Freight Air Transportation
481211	Nonscheduled Chartered Passenger Air Transportation
481212	Nonscheduled Chartered Freight Air Transportation
481219	Other Nonscheduled Air Transportation
482110	Rail Transportation (non-covered)
482111	Line-Haul Railroads
482112	Short Line Railroads
484110	General Freight Trucking, Local
484121	General Freight Trucking, Long-Distance, Truckload
484122	General Freight Trucking, Long-Distance, Less Than Truckload
484210	Used Household and Office Goods Moving
484220	Specialized Freight (except Used Goods) Trucking, Local
484230	Specialized Freight (except Used Goods) Trucking, Long-Distance
485510	Charter Bus Industry
485991	Special Needs Transportation
485999	All Other Transit and Ground Passenger Transportation
486210	Pipeline Transportation of Natural Gas
487110	Scenic and Sightseeing Transportation, Land
487210	Scenic and Sightseeing Transportation, Water
488111	Air Traffic Control
488119	Other Airport Operations
488190	Other Support Activities for Air Transportation
488210	Support Activities for Rail Transportation
488310	Port and Harbor Operations

GO Virginia Transportation, Distribution, and Warehousing is defined as the following NAICS industries:

Code	Description
488320	Marine Cargo Handling
488330	Navigational Services to Shipping
488390	Other Support Activities for Water Transportation
488410	Motor Vehicle Towing
488490	Other Support Activities for Road Transportation
488510	Freight Transportation Arrangement
488991	Packing and Crating
488999	All Other Support Activities for Transportation
492110	Couriers and Express Delivery Services
493110	General Warehousing and Storage
493120	Refrigerated Warehousing and Storage
493130	Farm Product Warehousing and Storage
493190	Other Warehousing and Storage
541614	Process, Physical Distribution, and Logistics Consulting Services

GO Virginia Transportation, Distribution, and Warehousing in GO Virginia Region 8, 2021Q2¹

NAICS	Industry	Current			2-Year History		5-Year Forecast				
		Empl	Avg Ann Wages	LQ	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
493110	General Warehousing and Storage	7,270	\$42,113	3.18	1,191	9.4%	5,059	1,706	2,765	588	1.6%
484121	General Freight Trucking, Long-Distance, Truckload	1,683	\$54,694	1.80	-539	-13.0%	919	353	542	24	0.3%
492110	Couriers and Express Delivery Services	1,474	\$38,934	1.01	437	19.2%	983	336	550	97	1.3%
484220	Specialized Freight (except Used Goods) Trucking, Local	582	\$52,525	1.64	-11	-1.0%	327	123	189	15	0.5%
493120	Refrigerated Warehousing and Storage	557	\$48,913	5.34	140	15.5%	375	130	210	35	1.2%
484110	General Freight Trucking, Local	531	\$48,980	1.03	39	3.9%	292	111	171	9	0.3%
424910	Farm Supplies Merchant Wholesalers	498	\$48,114	2.71	70	7.9%	247	102	166	-21	-0.9%
484122	General Freight Trucking, Long-Distance, Less Than Truckload	487	\$68,053	1.18	-119	-10.3%	280	103	159	18	0.7%
481219	Other Nonscheduled Air Transportation	476	\$84,234	39.94	22	2.4%	251	82	140	28	1.2%
423820	Farm and Garden Machinery and Equipment Merchant Wholesalers	399	\$51,434	2.46	11	1.5%	206	76	130	0	0.0%
423830	Industrial Machinery and Equipment Merchant Wholesalers	385	\$62,032	0.80	1	0.1%	191	72	122	-3	-0.2%
488490	Other Support Activities for Road Transportation	199	\$39,949	2.16	26	7.4%	119	45	65	9	0.9%
541614	Process, Physical Distribution, and Logistics Consulting Services	171	\$63,308	0.74	-73	-16.4%	102	30	52	20	2.2%
482110	Rail Transportation (non-covered)	165	\$91,253	0.73	-43	-11.0%	72	26	50	-5	-0.6%
488410	Motor Vehicle Towing	163	\$33,649	1.37	16	5.4%	102	38	53	11	1.3%

423810	Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers	157	\$61,271	1.10	-39	-10.6%	78	29	50	-1	-0.1%
484230	Specialized Freight (except Used Goods) Trucking, Long-Distance	157	\$54,704	0.75	-9	-2.7%	86	33	51	3	0.3%
484210	Used Household and Office Goods Moving	137	\$40,744	0.89	-11	-3.8%	73	29	44	1	0.1%
423430	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers	87	\$90,613	0.25	22	15.8%	36	15	26	-4	-1.0%
488991	Packing and Crating	77	\$37,499	2.22	10	6.8%	35	18	26	-9	-2.5%
485510	Charter Bus Industry	76	\$33,510	3.32	-38	-18.2%	44	25	19	0	0.0%
488510	Freight Transportation Arrangement	72	\$39,072	0.18	-45	-21.6%	34	13	22	-1	-0.4%
424930	Flower, Nursery Stock, and Florists' Supplies Merchant Wholesalers	68	\$30,621	0.93	-9	-6.1%	34	14	22	-3	-0.8%
488119	Other Airport Operations	68	\$53,451	0.41	-9	-5.8%	38	14	21	3	0.8%
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	62	\$33,141	0.44	1	0.9%	28	12	20	-5	-1.6%
423850	Service Establishment Equipment and Supplies Merchant Wholesalers	56	\$32,522	0.67	7	6.5%	26	10	18	-2	-0.6%
485991	Special Needs Transportation	56	\$24,307	0.45	-15	-11.0%	38	18	15	6	2.0%
423440	Other Commercial Equipment Merchant Wholesalers	46	\$78,702	0.58	-2	-1.6%	25	8	14	2	1.0%
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	44	\$65,437	0.10	14	21.7%	19	8	13	-1	-0.7%
488111	Air Traffic Control	42	\$59,798	1.45	5	6.7%	28	9	14	5	2.2%
423840	Industrial Supplies Merchant Wholesalers	32	\$60,868	0.21	-6	-8.7%	16	6	10	0	-0.2%
488999	All Other Support Activities for Transportation	30	\$55,708	1.23	-2	-3.6%	14	7	10	-3	-2.3%

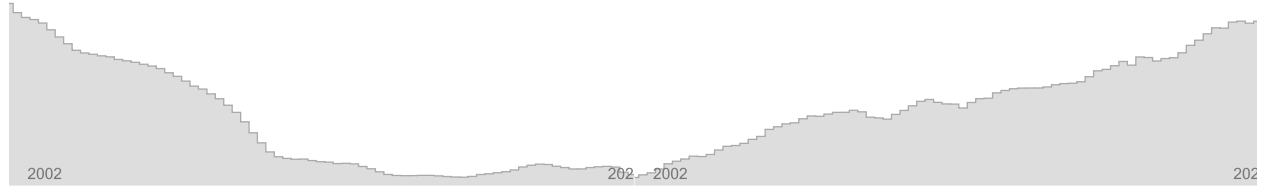
485999	All Other Transit and Ground Passenger Transportation	28	\$32,253	0.45	1	2.8%	20	9	8	3	2.3%
423490	Other Professional Equipment and Supplies Merchant Wholesalers	27	\$58,841	0.53	13	37.4%	13	5	8	0	-0.3%
486210	Pipeline Transportation of Natural Gas	27	\$116,924	0.56	-22	-25.6%	11	4	8	-1	-1.1%
423860	Transportation Equipment and Supplies (except Motor Vehicle) Merchant Wholesalers	24	\$74,431	0.48	-5	-8.5%	12	4	8	0	-0.3%
493190	Other Warehousing and Storage	21	\$41,539	0.26	-11	-19.1%	13	5	8	0	0.5%
424920	Book, Periodical, and Newspaper Merchant Wholesalers	19	\$32,547	0.38	-13	-23.0%	10	4	6	-1	-0.8%
423420	Office Equipment Merchant Wholesalers	18	\$45,075	0.16	-4	-9.0%	8	3	5	-1	-0.9%
424950	Paint, Varnish, and Supplies Merchant Wholesalers	14	\$43,065	0.40	-6	-16.6%	6	3	5	-1	-1.6%
488190	Other Support Activities for Air Transportation	13	\$36,671	0.07	2	7.5%	7	3	4	0	0.4%
481211	Nonscheduled Chartered Passenger Air Transportation	12	\$69,126	0.24	-6	-17.8%	7	2	4	1	1.8%
487210	Scenic and Sightseeing Transportation, Water	7	\$20,789	0.38	3	26.6%	4	2	2	0	-0.2%
423410	Photographic Equipment and Supplies Merchant Wholesalers	5	\$65,022	0.28	-1	-6.8%	3	1	2	0	-0.1%
488210	Support Activities for Rail Transportation	5	\$35,576	0.10	0	1.5%	3	1	2	0	-0.5%
424940	Tobacco and Tobacco Product Merchant Wholesalers	3	\$43,751	0.09	-3	-29.5%	1	1	1	0	-1.7%
481111	Scheduled Passenger Air Transportation	3	\$46,207	0.01	-3	-24.3%	2	1	1	0	-0.6%
487110	Scenic and Sightseeing Transportation, Land	3	\$24,864	0.29	1	16.1%	2	1	1	0	1.1%
488310	Port and Harbor Operations	2	\$54,287	0.13	-2	-25.3%	1	0	1	0	0.5%

488330	Navigational Services to Shipping Scheduled Freight Air	2	\$19,101	0.06	0	0.2%	1	0	1	0	-2.0%
481112	Transportation	1	\$13,675	0.05	0	-0.3%	0	0	0	0	-1.3%
488390	Other Support Activities for Water Transportation	1	\$19,101	0.09	0	0.1%	1	0	0	0	-2.0%
423460	Ophthalmic Goods Merchant Wholesalers	0	n/a	0.00	-3	n/a	0	0	0	0	-1.3%
481212	Nonscheduled Chartered Freight Air Transportation	0	n/a	0.00	0	n/a	0	0	0	0	2.0%
8387	GO Virginia Transportation, Distribution, and Warehousing	16,543	\$50,048	1.39	985	3.1%	10,310	3,650	5,833	827	1.0%
	Total - All Industries	235,622	\$46,410	1.00	-7,043	-1.5%	133,795	55,290	74,072	4,434	0.4%

Manufacturing - Materials, Parts and Machinery GO Virginia Region 8 – 2021Q2

EMPLOYMENT

WAGES



16,081

Regional employment / 7,265,141 in the nation

\$50,092

Avg Wages per Worker / \$75,058 in the nation

-0.5% ↓

Avg Ann % Change Last 10 Years / +0.1% in the U.S.



6.8%

% of Total Employment / 4.8% in the U.S.

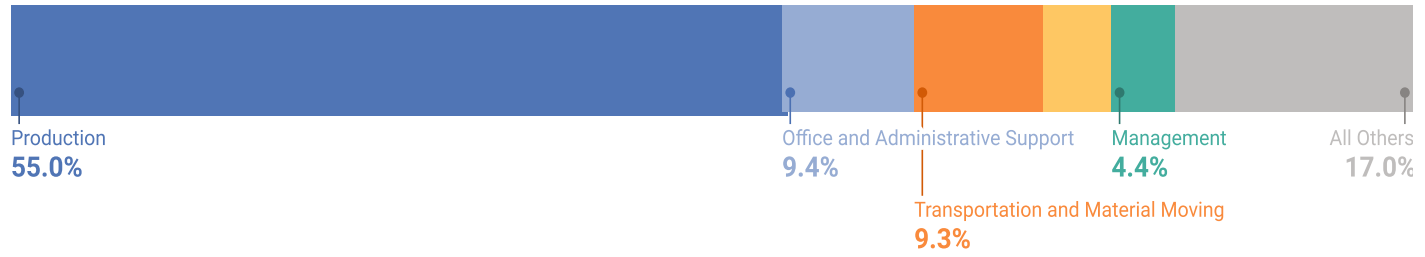


2.8% ↑

Avg Ann % Change Last 10 Years / +2.5% in the U.S.



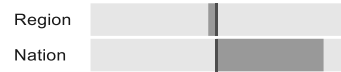
Top Occupation Groups



TOP INDUSTRIES

Avg Ann % Change in Employment, Last 10 Years

-0.1% ↓



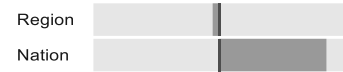
Plastics Product Manufacturing

-2.8% ↓



Printing and Related Support Activities

-0.1% ↓



Other Wood Product Manufacturing

Industry Snapshot

4-Digit Industry	Empl	Avg Ann Wages	LQ	5yr History	Annual Demand	Forecast Ann Growth
Plastics Product Manufacturing	3,734	\$65,046	4.14		396	-0.1%
Printing and Related Support Activities	2,395	\$40,172	3.96		214	-1.9%
Other Wood Product Manufacturing	1,293	\$36,608	3.38		125	-1.2%
Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	1,090	\$53,756	5.20		105	-0.3%
Motor Vehicle Parts Manufacturing	911	\$39,719	1.09		92	-0.3%
Converted Paper Product Manufacturing	885	\$48,634	2.19		87	-0.9%
Architectural and Structural Metals Manufacturing	860	\$49,605	1.43		97	0.8%
Household and Institutional Furniture and Kitchen Cabinet Manufacturing	819	\$39,623	2.15		78	-0.9%
Cement and Concrete Product Manufacturing	674	\$57,517	2.23		65	-0.8%
Sawmills and Wood Preservation	456	\$41,365	3.12		45	-1.4%
Remaining Component Industries	2,963	\$50,447	0.69		293	-0.6%
Proposed 2021- GO Virginia Manufacturing - Materials, Parts and Machinery	16,081	\$50,092	1.42		1,602	-0.6%

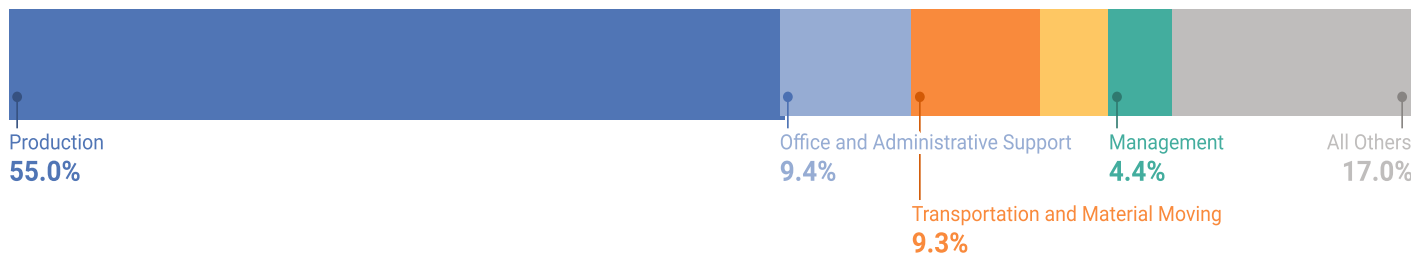


Employment is one of the broadest and most timely measures of a region's economy. Fluctuations in the number of jobs shed light on the health of an industry. A growing employment base creates more opportunities for regional residents and helps a region grow its population.



Since wages and salaries generally compose the majority of a household's income, the annual average wages of a region affect its average household income, housing market, quality of life, and other socioeconomic indicators.

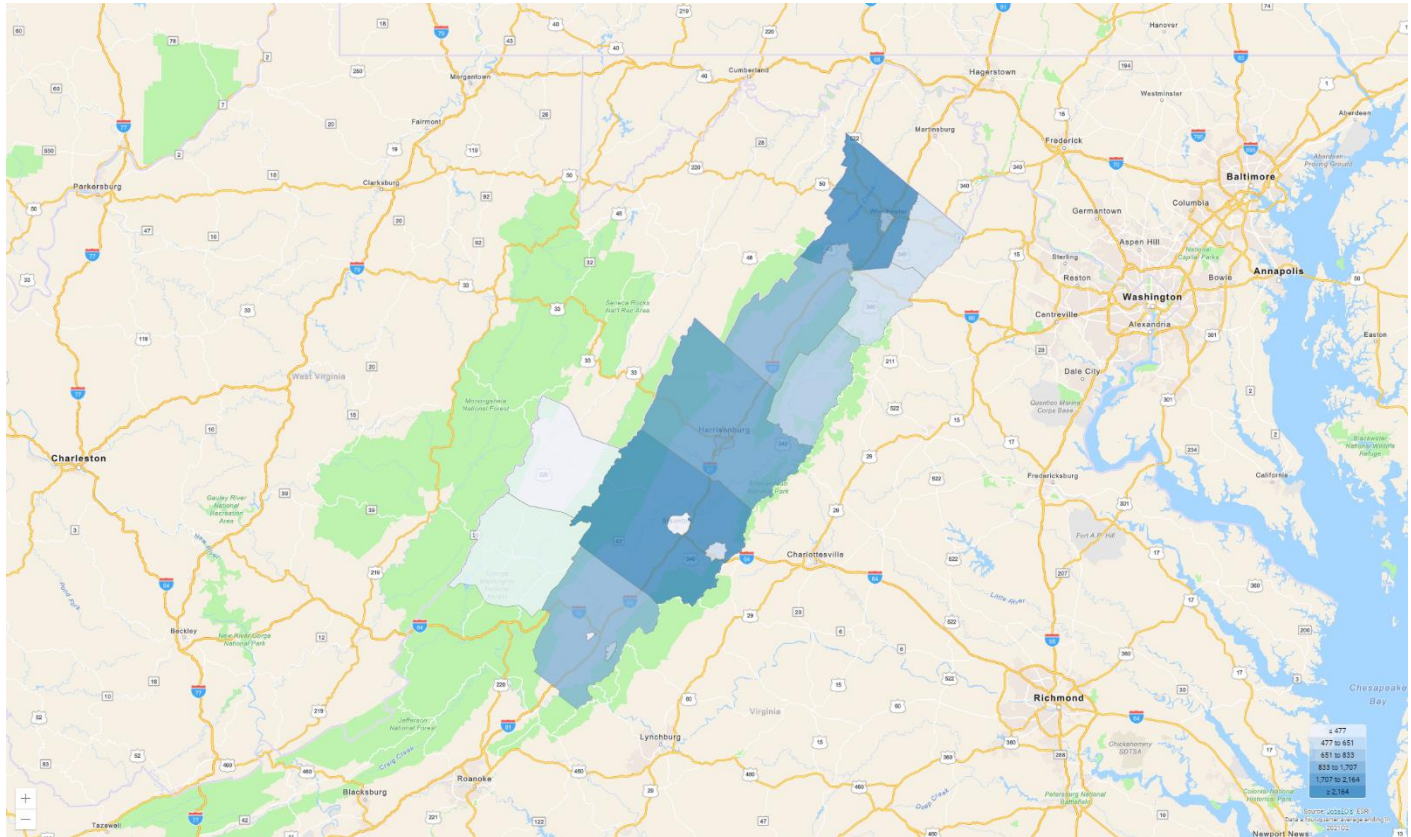
Staffing Pattern



6-digit Occupation	Empl	Avg Ann Wages	Annual Demand
Team Assemblers	1,272	\$32,400	115
Printing Press Operators	691	\$43,600	61
First-Line Supervisors of Production and Operating Workers	646	\$65,600	64
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	538	\$37,900	54
Laborers and Freight, Stock, and Material Movers, Hand	447	\$32,200	60
Inspectors, Testers, Sorters, Samplers, and Weighers	387	\$42,500	37
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	333	\$72,400	33
Shipping, Receiving, and Inventory Clerks	314	\$36,100	26
Industrial Machinery Mechanics	307	\$53,100	36
Machinists	306	\$50,500	34
Remaining Component Occupations	10,817	\$55,300	1,101
Total	16,057		

 The mix of occupations points to the ability of a region to support an industry and its flexibility to adapt to future demand. Industry wages are a component of the cost of labor for regional employers.

Geographic Distribution



Region	Empl
Frederick County, Virginia	3,690
Augusta County, Virginia	2,164
Rockingham County, Virginia	1,755
Harrisonburg City, Virginia	1,708
Shenandoah County, Virginia	1,344

Region	Empl
Winchester City, Virginia	1,066
Rockbridge County, Virginia	834
Buena Vista City, Virginia	693
Page County, Virginia	651
Waynesboro City, Virginia	635
All Others	1,540

Source: JobsEQ®

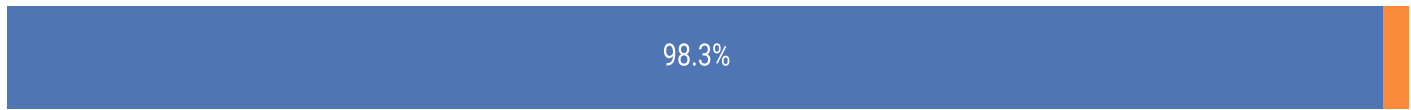


A geographic concentration of firms in related fields of business may reduce production costs, attract more suppliers and customers, and increase supply and demand for specialized labor, but may also increase competitive pressure and drive down prices.

Employment Distribution by Type

The table below shows the employment mix by ownership type for Proposed 2021- GO Virginia Manufacturing - Materials, Parts and Machinery for the GO Virginia Region 8. Four of these ownership types — federal, state, and local government and the private sector — together constitute “Covered Employment” (employment covered by the Unemployment Insurance programs of the United States and reported via the Quarterly Census of Employment and Wages).

“Self-Employment” refers to unincorporated self-employment and represents workers whose primary job is self-employment (that is, these data do not include workers whose primary job is a wage-and-salary position that is supplemented with self-employment).



	Empl	%
Private	15,802	98.3%
Self-Employment	279	1.7%

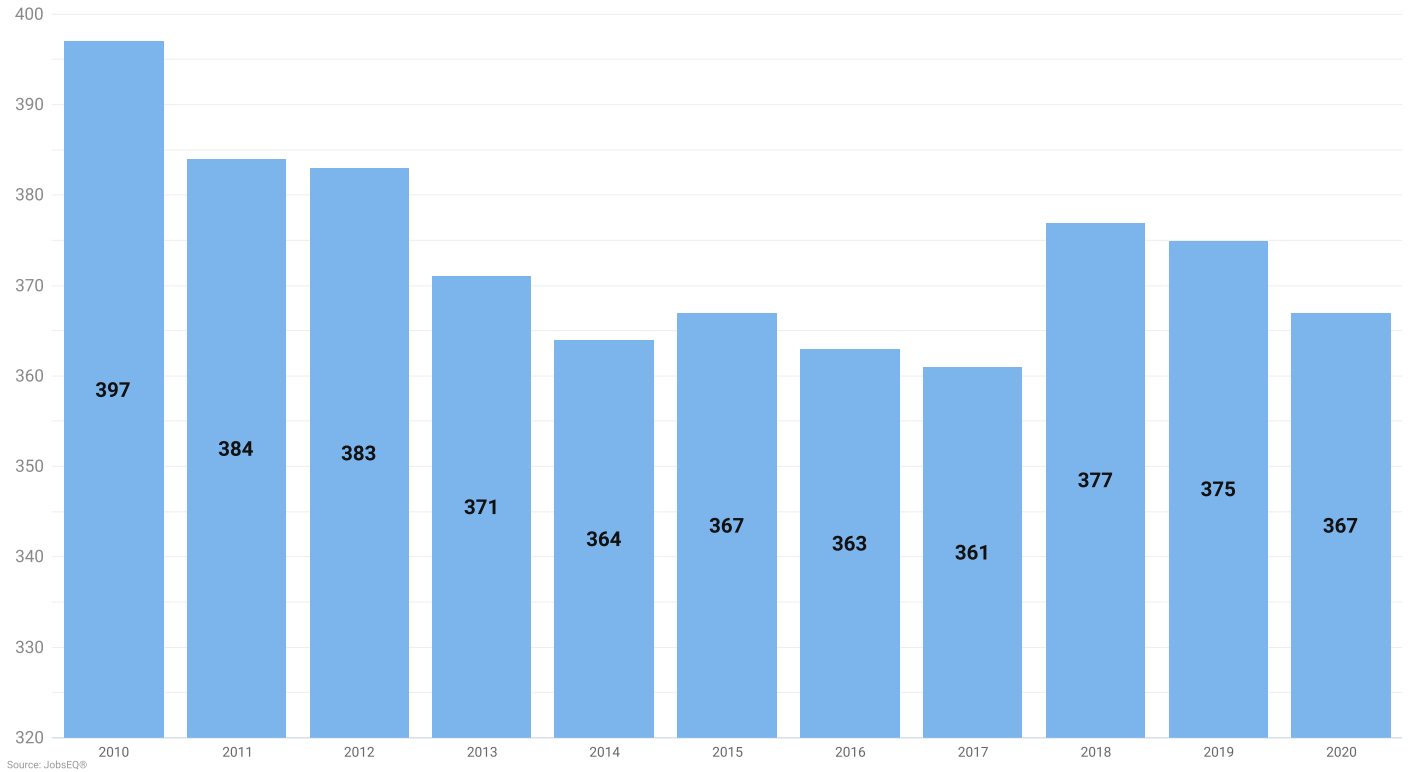
Source: JobsEQ®



Strong entrepreneurial activity is indicative of growing industries. Using self-employment as a proxy for entrepreneurs, a higher share of self-employed individuals within a regional industry points to future growth.

Establishments

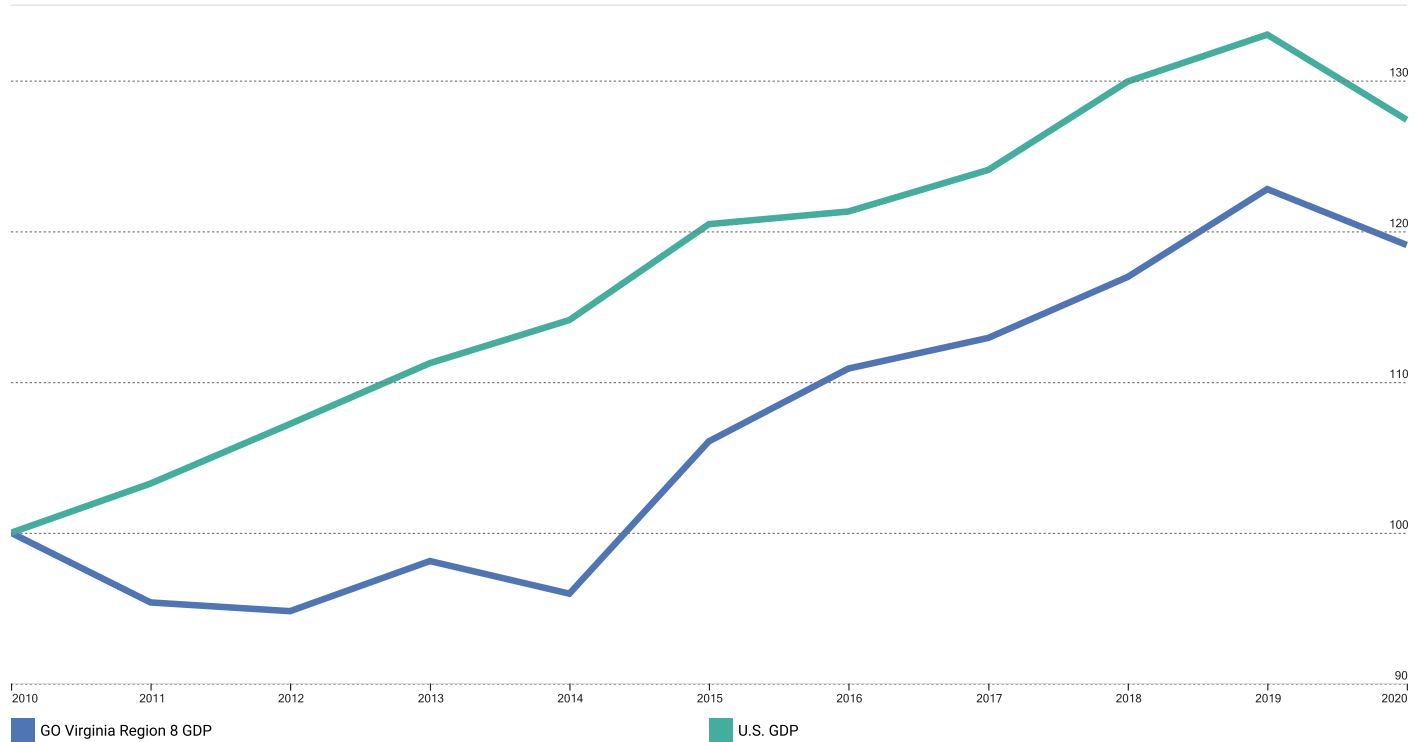
In 2020, there were 367 Proposed 2021- GO Virginia Manufacturing - Materials, Parts and Machinery establishments in the GO Virginia Region 8 (per covered employment establishment counts), a decrease from 397 establishments ten years earlier in 2010.



New business formations are an important source of job creation in a regional economy, spurring innovation and competition, and driving productivity growth. Establishment data can provide an indicator of growth in businesses by counting each single location (such as a factory or a store) where business activity takes place, and with at least one employee.

GDP & Productivity

In 2020, Proposed 2021- GO Virginia Manufacturing - Materials, Parts and Machinery produced \$1.8 billion in GDP for the GO Virginia Region 8.
 GDP: Indexed 2010 = 100



7.1 %

Industry Share of Total GDP /
5.5 % in the nation



1.8 % ↑

Avg Ann % Change Last 10
Yrs /
2.5 % in the nation



\$255k

Output per Worker /
\$368k in the nation



💡 Gross domestic product (GDP) is the most comprehensive measure of regional economic activity, and an industry's contribution to GDP is an important indicator of regional industry strength. It is a measure of total value-added to a regional economy in the form of labor income, proprietor's income, and business profits, among others.

💡 Growth in productivity (output per worker) leads to increases in wealth and higher average standards of living in a region.

Supply Chain: Top Suppliers

As of 2021Q2, Proposed 2021- GO Virginia Manufacturing - Materials, Parts and Machinery in the GO Virginia Region 8 are estimated to make \$2.8 billion in annual purchases from suppliers in the United States with about 23% or \$0.7 billion of these purchases being made from businesses located in the GO Virginia Region 8.

4-digit Supplier Industries	Purchases from In-Region (\$M)	Purchases from Out-of-Region (\$M)
Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	\$31.8	\$159.7
Basic Chemical Manufacturing	\$4.7	\$158.1
Management of Companies and Enterprises	\$60.1	\$64.3
Plastics Product Manufacturing	\$64.3	\$37.5
Pulp, Paper, and Paperboard Mills	\$1.4	\$94.4
Remaining Supplier Industries	\$489.3	\$1,681.5
Total	\$651.5	\$2,195.5





Supplier-buyer networks can indicate local linkages between industries, regional capacity to support growth in an industry, and potential leakage of sales out of the region.

Postsecondary Programs Linked to Proposed 2021- GO Virginia Manufacturing - Materials, Parts and Machinery

Program	Awards
Blue Ridge Community College	
Industrial Technology/Technician	3
Manufacturing Engineering Technology/Technician	7
Mechanical Engineering Related Technologies/Technicians, Other	4
James Madison University	
Accounting	157
Business Administration and Management, General	188
Engineering, General	78
Marketing/Marketing Management, General	174
Lord Fairfax Community College	
Industrial Production Technologies/Technicians, Other	9
Virginia Military Institute	
Civil Engineering, General	50
Mechanical Engineering	23

Source: JobsEQ®

-  The number of graduates from postsecondary programs in the region identifies the pipeline of future workers as well as the training capacity to support industry demand.
-  Among postsecondary programs at schools located in the GO Virginia Region 8, the sampling above identifies those most linked to occupations relevant to Proposed 2021- GO Virginia Manufacturing - Materials, Parts and Machinery. For a complete list see JobsEQ®, <http://www.chmuraecon.com/jobseq>

Industry Definition

Proposed 2021- GO Virginia Manufacturing - Materials, Parts and Machinery is defined as the following NAICS industries:

Code	Description
3133	Textile and Fabric Finishing and Fabric Coating Mills
3141	Textile Furnishings Mills
3149	Other Textile Product Mills
3152	Cut and Sew Apparel Manufacturing
3211	Sawmills and Wood Preservation
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
3219	Other Wood Product Manufacturing
3221	Pulp, Paper, and Paperboard Mills
3222	Converted Paper Product Manufacturing
3231	Printing and Related Support Activities
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing
3259	Other Chemical Product and Preparation Manufacturing
3261	Plastics Product Manufacturing
3271	Clay Product and Refractory Manufacturing
3272	Glass and Glass Product Manufacturing
3273	Cement and Concrete Product Manufacturing
3312	Steel Product Manufacturing from Purchased Steel
3315	Foundries
3322	Cutlery and Handtool Manufacturing
3323	Architectural and Structural Metals Manufacturing
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing
3329	Other Fabricated Metal Product Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3332	Industrial Machinery Manufacturing
3333	Commercial and Service Industry Machinery Manufacturing
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
3341	Computer and Peripheral Equipment Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3353	Electrical Equipment Manufacturing
3359	Other Electrical Equipment and Component Manufacturing
3363	Motor Vehicle Parts Manufacturing
3364	Aerospace Product and Parts Manufacturing
3366	Ship and Boat Building
3369	Other Transportation Equipment Manufacturing
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing
3372	Office Furniture (including Fixtures) Manufacturing
3379	Other Furniture Related Product Manufacturing
3399	Other Miscellaneous Manufacturing

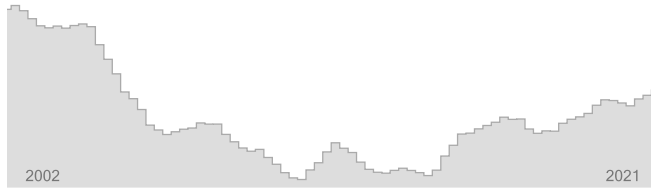
Proposed 2021- GO Virginia Manufacturing - Materials, Parts and Machinery in GO Virginia Region 8, 2021Q2¹

NAICS	Industry	Current			2-Year History		5-Year Forecast				
		Empl	Avg Ann Wages	LQ	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
3261	Plastics Product Manufacturing	3,734	\$65,046	4.14	19	0.3%	1,977	714	1,282	-19	-0.1%
3231	Printing and Related Support Activities	2,395	\$40,172	3.96	-441	-8.1%	1,030	502	742	-214	-1.9%
3219	Other Wood Product Manufacturing	1,293	\$36,608	3.38	54	2.1%	609	260	422	-74	-1.2%
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	1,090	\$53,756	5.20	108	5.3%	521	189	349	-17	-0.3%
3363	Motor Vehicle Parts Manufacturing	911	\$39,719	1.09	118	7.2%	456	167	303	-14	-0.3%
3222	Converted Paper Product Manufacturing	885	\$48,634	2.19	63	3.8%	427	171	293	-38	-0.9%
3323	Architectural and Structural Metals Manufacturing	860	\$49,605	1.43	18	1.1%	490	155	302	33	0.8%
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	819	\$39,623	2.15	51	3.3%	384	170	250	-36	-0.9%
3273	Cement and Concrete Product Manufacturing	674	\$57,517	2.23	-103	-6.9%	322	129	219	-27	-0.8%
3211	Sawmills and Wood Preservation	456	\$41,365	3.12	14	1.6%	219	89	160	-30	-1.4%
3141	Textile Furnishings Mills	445	\$26,497	6.35	-99	-9.5%	210	106	131	-27	-1.2%
3344	Semiconductor and Other Electronic Component Manufacturing	411	\$64,138	0.72	106	16.1%	190	70	121	0	0.0%
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	379	\$46,781	0.72	-17	-2.2%	222	69	129	24	1.2%
3399	Other Miscellaneous Manufacturing	303	\$37,092	0.60	-36	-5.5%	147	59	95	-7	-0.5%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	202	\$71,733	0.31	-23	-5.3%	93	32	58	2	0.2%
3322	Cutlery and Handtool Manufacturing	187	\$71,881	3.37	-87	-17.3%	84	33	61	-10	-1.1%
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	146	\$45,949	1.16	39	16.6%	96	31	52	13	1.7%

3329	Other Fabricated Metal Product Manufacturing	146	\$54,346	0.35	12	4.3%	71	26	48	-4	-0.5%
3359	Other Electrical Equipment and Component Manufacturing	121	\$51,915	0.55	32	16.3%	64	23	39	2	0.3%
3332	Industrial Machinery Manufacturing	100	\$52,196	0.55	-16	-7.2%	48	17	32	-2	-0.4%
3364	Aerospace Product and Parts Manufacturing	91	\$97,793	0.12	70	108.4%	41	14	26	1	0.3%
3372	Office Furniture (including Fixtures) Manufacturing	74	\$35,467	0.48	0	-0.1%	34	15	23	-4	-1.1%
3379	Other Furniture Related Product Manufacturing	69	\$45,624	1.26	0	0.0%	32	15	22	-4	-1.3%
3152	Cut and Sew Apparel Manufacturing	55	\$20,040	0.41	-61	-30.9%	18	13	14	-9	-3.6%
3312	Steel Product Manufacturing from Purchased Steel	45	\$61,895	0.54	3	3.0%	24	8	15	1	0.4%
3149	Other Textile Product Mills	32	\$31,050	0.35	7	13.9%	16	8	9	-1	-0.7%
3272	Glass and Glass Product Manufacturing	32	\$32,816	0.25	-23	-23.8%	13	6	10	-3	-1.8%
3133	Textile and Fabric Finishing and Fabric Coating Mills	31	\$43,638	0.74	-6	-8.2%	13	6	10	-3	-2.1%
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	31	\$59,224	0.53	-5	-7.7%	15	5	10	0	0.0%
3259	Other Chemical Product and Preparation Manufacturing	27	\$64,683	0.21	-22	-25.8%	14	4	9	1	0.5%
3271	Clay Product and Refractory Manufacturing	9	\$20,993	0.17	2	12.1%	5	2	3	0	0.7%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	7	\$65,894	0.02	-5	-23.7%	3	1	2	0	-0.3%
3221	Pulp, Paper, and Paperboard Mills	6	\$39,999	0.04	-122	-79.1%	2	1	2	0	-1.8%
3341	Computer and Peripheral Equipment Manufacturing	5	\$107,637	0.02	-27	-60.6%	2	1	1	0	1.5%
3353	Electrical Equipment Manufacturing	4	\$40,078	0.02	0	5.4%	2	1	1	0	-1.0%
3369	Other Transportation Equipment Manufacturing	2	\$51,577	0.03	0	-5.7%	1	0	1	0	-0.8%
3315	Foundries	1	\$36,751	0.01	0	-2.1%	0	0	0	0	-2.4%

	Commercial and Service Industry										
3333	Machinery Manufacturing	1	\$36,520	0.01	0	0.5%	0	0	0	0	-1.5%
3366	Ship and Boat Building	1	\$48,757	0.00	0	-0.4%	1	0	0	0	-1.8%
	Proposed 2021- GO Virginia Manufacturing										
8384	- Materials, Parts and Machinery	16,081	\$50,092	1.42	-379	-1.2%	7,908	3,114	5,247	-453	-0.6%
	Total - All Industries	235,622	\$46,410	1.00	-7,043	-1.5%	133,795	55,290	74,072	4,434	0.4%

**Agriculture and Value Added Food
GO Virginia Region 8 – 2021Q2
EMPLOYMENT**

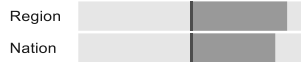


15,844

Regional employment / 3,417,334 in the nation

0.8%

Avg Ann % Change Last 10 Years / +0.7% in the U.S.

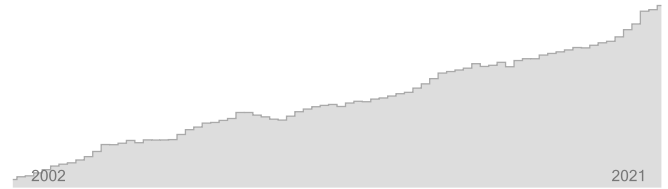


6.7%

% of Total Employment / 2.3% in the U.S.



WAGES



\$46,003

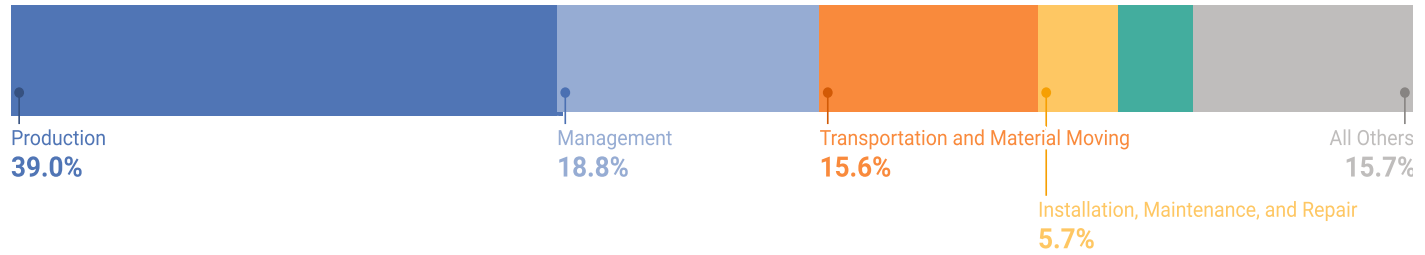
Avg Wages per Worker / \$50,933 in the nation

3.2%

Avg Ann % Change Last 10 Years / +2.7% in the U.S.

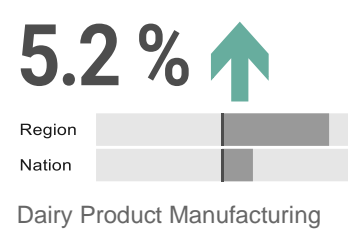
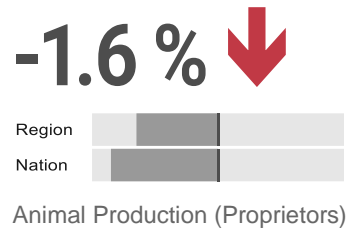
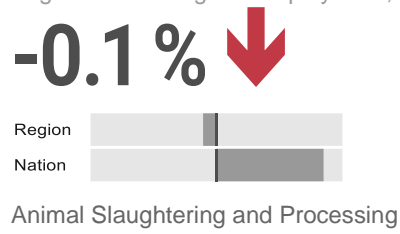


Top Occupation Groups



TOP INDUSTRIES

Avg Ann % Change in Employment, Last 10 Years



Industry Snapshot

4-Digit Industry	Empl	Avg Ann Wages	LQ	5yr History	Annual Demand	Forecast Ann Growth
Animal Slaughtering and Processing	5,414	\$45,559	6.57		665	0.4%
Animal Production (Proprietors)	1,800	\$38,638	2.64		106	-1.4%
Dairy Product Manufacturing	1,409	\$63,563	5.90		180	1.3%
Sugar and Confectionery Product Manufacturing	1,282	\$38,515	10.90		133	-1.5%
Other Food Manufacturing	1,224	\$48,761	3.28		161	1.4%
Crop Production (Proprietors)	932	\$37,701	1.90		67	-0.6%
Beverage Manufacturing	899	\$40,040	2.11		114	0.7%
Fruit and Vegetable Preserving and Specialty Food Manufacturing	841	\$54,558	3.07		92	-0.6%
Bakeries and Tortilla Manufacturing	679	\$44,710	1.40		90	0.0%
Miscellaneous Nondurable Goods Merchant Wholesalers	664	\$43,345	1.27		66	-0.9%
Remaining Component Industries	699	\$62,949	1.11		92	0.0%
GO Virginia Value Added Food - Proposed Agriculture and Value Added Food	15,844	\$46,003	2.98		1,773	0.1%

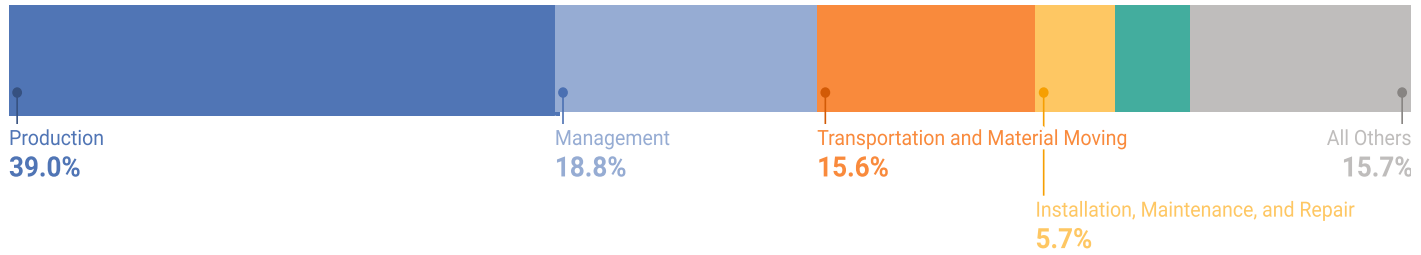


Employment is one of the broadest and most timely measures of a region's economy. Fluctuations in the number of jobs shed light on the health of an industry. A growing employment base creates more opportunities for regional residents and helps a region grow its population.

Since wages and salaries generally compose the majority of a household's income, the annual average wages of a region affect its average household income, housing market, quality of life, and other socioeconomic indicators.



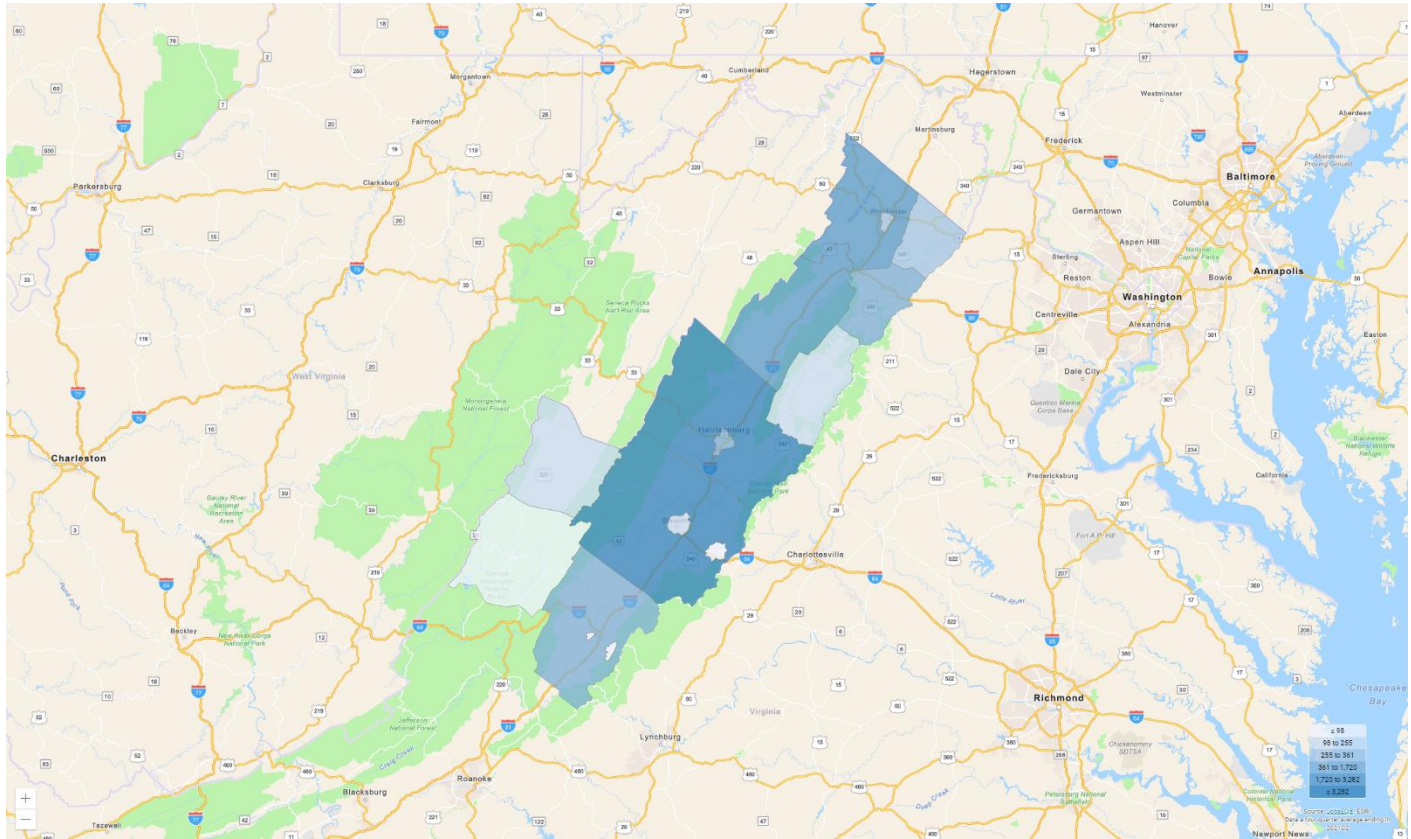
Staffing Pattern



6-digit Occupation	Empl	Avg Ann Wages	Annual Demand
Farmers, Ranchers, and Other Agricultural Managers	2,445	\$57,400	200
Packaging and Filling Machine Operators and Tenders	1,150	\$41,800	140
Meat, Poultry, and Fish Cutters and Trimmers	1,118	\$29,800	146
Laborers and Freight, Stock, and Material Movers, Hand	837	\$32,200	121
Food Batchmakers	825	\$33,600	125
Slaughterers and Meat Packers	475	\$29,800	62
First-Line Supervisors of Production and Operating Workers	443	\$63,900	47
Helpers--Production Workers	388	\$34,000	58
Industrial Machinery Mechanics	365	\$54,900	45
Industrial Truck and Tractor Operators	333	\$39,600	41
Remaining Component Occupations	7,442	\$53,700	903
Total	15,821		

 The mix of occupations points to the ability of a region to support an industry and its flexibility to adapt to future demand. Industry wages are a component of the cost of labor for regional employers.

Geographic Distribution



Region	Empl	Region	Empl
Rockingham County, Virginia	5,399	Warren County, Virginia	410
Augusta County, Virginia	3,283	Rockbridge County, Virginia	361
Shenandoah County, Virginia	2,036	Winchester City, Virginia	300
Frederick County, Virginia	1,721	Clarke County, Virginia	255
Harrisonburg City, Virginia	1,525	Page County, Virginia	211
		All Others	343

Source: JobsEQ®



A geographic concentration of firms in related fields of business may reduce production costs, attract more suppliers and customers, and increase supply and demand for specialized labor, but may also increase competitive pressure and drive down prices.

Employment Distribution by Type

The table below shows the employment mix by ownership type for GO Virginia Value Added Food - Proposed Agriculture and Value Added Food for the GO Virginia Region 8. Four of these ownership types — federal, state, and local government and the private sector — together constitute “Covered Employment” (employment covered by the Unemployment Insurance programs of the United States and reported via the Quarterly Census of Employment and Wages).

“Self-Employment” refers to unincorporated self-employment and represents workers whose primary job is self-employment (that is, these data do not include workers whose primary job is a wage-and-salary position that is supplemented with self-employment).



	Empl	%
Private	12,940	81.7%
Self-Employment	2,903	18.3%

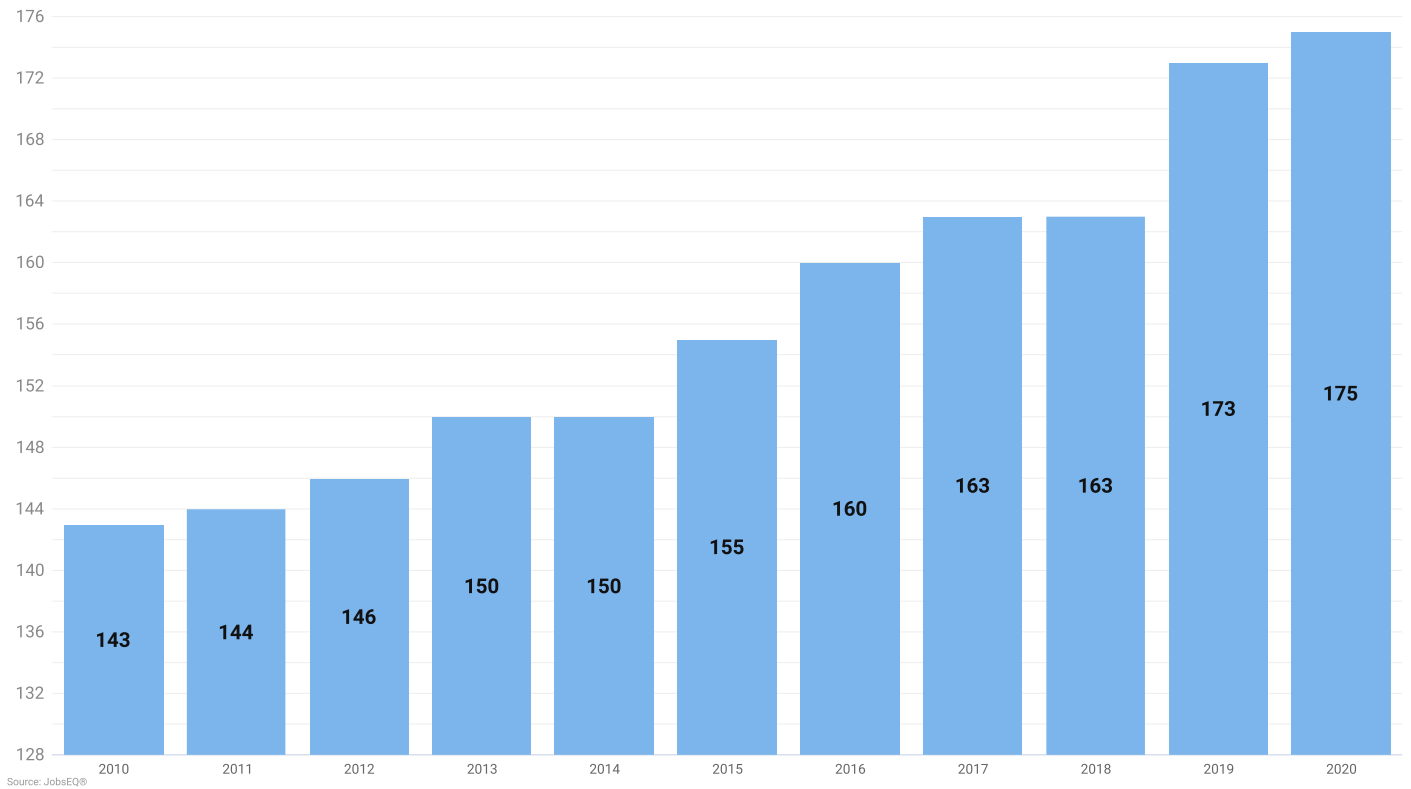
Source: JobsEQ®



Strong entrepreneurial activity is indicative of growing industries. Using self-employment as a proxy for entrepreneurs, a higher share of self-employed individuals within a regional industry points to future growth.

Establishments

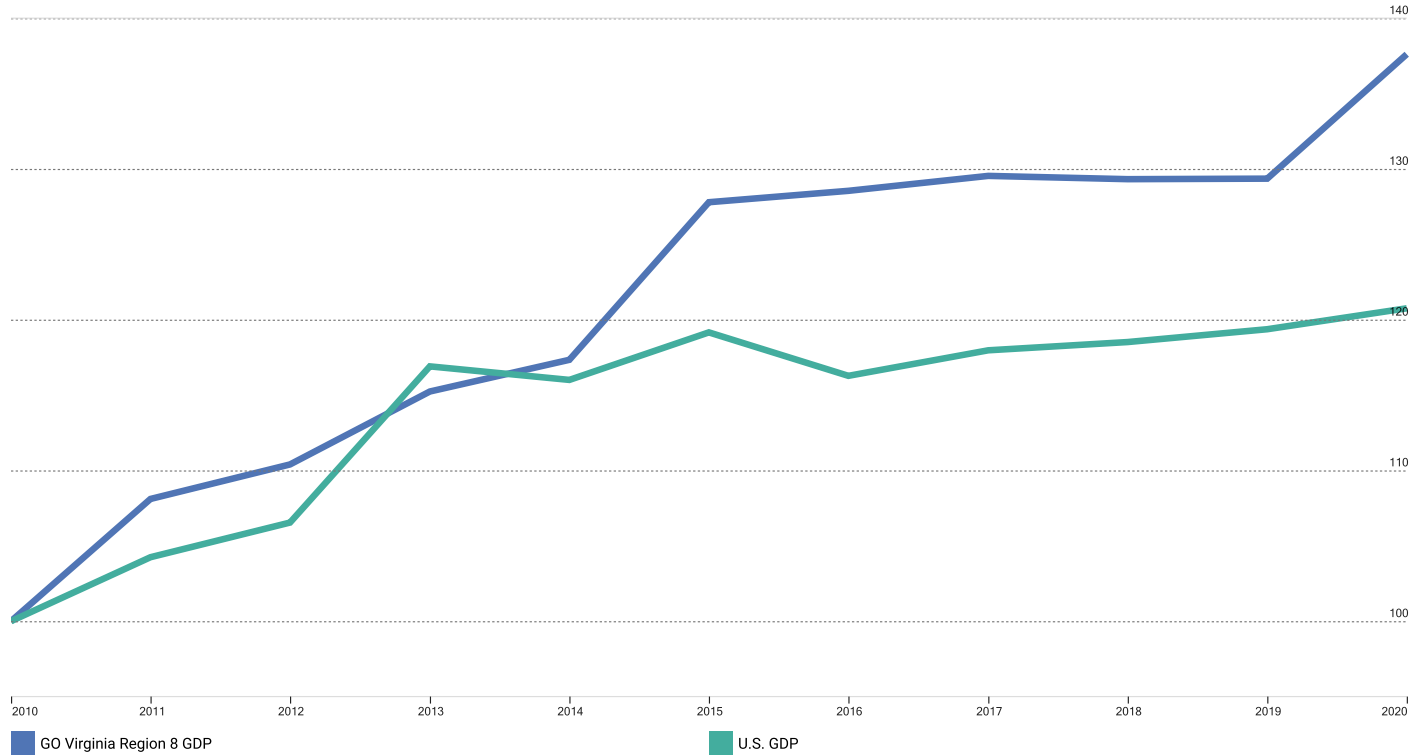
In 2020, there were 175 GO Virginia Value Added Food - Proposed Agriculture and Value Added Food establishments in the GO Virginia Region 8 (per covered employment establishment counts), an increase from 143 establishments ten years earlier in 2010.



New business formations are an important source of job creation in a regional economy, spurring innovation and competition, and driving productivity growth. Establishment data can provide an indicator of growth in businesses by counting each single location (such as a factory or a store) where business activity takes place, and with at least one employee.

GDP & Productivity

In 2020, GO Virginia Value Added Food - Proposed Agriculture and Value Added Food produced \$5.3 billion in GDP for the GO Virginia Region 8.
 GDP: Indexed 2010 = 100



20.4 %

Industry Share of Total GDP /
2.0 % in the nation



3.2 % ↑

Avg Ann % Change Last 10
Yrs /
1.9 % in the nation



\$517k

Output per Worker /
\$433k in the nation



💡 Gross domestic product (GDP) is the most comprehensive measure of regional economic activity, and an industry's contribution to GDP is an important indicator of regional industry strength. It is a measure of total value-added to a regional economy in the form of labor income, proprietor's income, and business profits, among others.

💡 Growth in productivity (output per worker) leads to increases in wealth and higher average standards of living in a region.

Supply Chain: Top Suppliers

As of 2021Q2, GO Virginia Value Added Food - Proposed Agriculture and Value Added Food in the GO Virginia Region 8 are estimated to make \$6.3 billion in annual purchases from suppliers in the United States with about 30% or \$1.9 billion of these purchases being made from businesses located in the GO Virginia Region 8.

4-digit Supplier Industries	Purchases from In-Region (\$M)	Purchases from Out-of-Region (\$M)
Animal Slaughtering and Processing	\$366.4	\$110.2
Animal Production (Proprietors)	\$139.7	\$203.0
Animal Food Manufacturing	\$156.3	\$88.4
General Freight Trucking	\$79.2	\$147.4
Management of Companies and Enterprises	\$94.4	\$113.8
Remaining Supplier Industries	\$1,048.7	\$3,711.4
Total	\$1,884.6	\$4,374.3



Supplier-buyer networks can indicate local linkages between industries, regional capacity to support growth in an industry, and potential leakage of sales out of the region.

Postsecondary Programs Linked to GO Virginia Value Added Food - Proposed Agriculture and Value Added Food

Program	Awards
Blue Ridge Community College	
Manufacturing Engineering Technology/Technician.	7
James Madison University	
Accounting.	157
Biology/Biological Sciences, General.	210
Business Administration and Management, General.	188
Chemistry, General.	31
Finance, General.	152
Hospitality Administration/Management, General.	179
Marketing/Marketing Management, General.	174
Speech Communication and Rhetoric.	468
Lord Fairfax Community College	
Industrial Production Technologies/Technicians, Other.	9

Source: [JobsEQ®](#)

-  The number of graduates from postsecondary programs in the region identifies the pipeline of future workers as well as the training capacity to support industry demand.
-  Among postsecondary programs at schools located in the GO Virginia Region 8, the sampling above identifies those most linked to occupations relevant to GO Virginia Value Added Food - Proposed Agriculture and Value Added Food. For a complete list see JobsEQ®, <http://www.chmuraecon.com/jobseq>

Industry Definition

GO Virginia Value Added Food - Proposed Agriculture and Value Added Food is defined as the following NAICS industries:

Code	Description
1110	Crop Production (Proprietors)
1120	Animal Production (Proprietors)
1151	Support Activities for Crop Production
3111	Animal Food Manufacturing
3112	Grain and Oilseed Milling
3113	Sugar and Confectionery Product Manufacturing
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
3115	Dairy Product Manufacturing
3116	Animal Slaughtering and Processing
3118	Bakeries and Tortilla Manufacturing
3119	Other Food Manufacturing
3121	Beverage Manufacturing
3122	Tobacco Manufacturing
4245	Farm Product Raw Material Merchant Wholesalers
4249	Miscellaneous Nondurable Goods Merchant Wholesalers

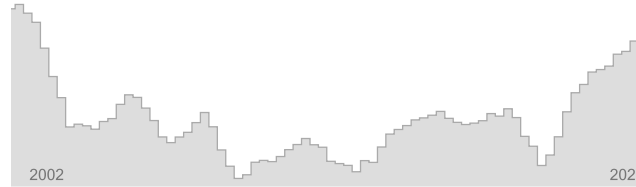
GO Virginia Value Added Food - Proposed Agriculture and Value Added Food in GO Virginia Region 8, 2021Q2¹

NAICS	Industry	Current			5-Year History				5-Year Forecast				
		Empl	Avg Ann Wages	LQ	Empl Change	Ann %	Ann % - Virginia	Ann % - USA	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
3116	Animal Slaughtering and Processing	5,414	\$45,559	6.57	71	0.3%	-0.4%	1.5%	3,351	1,233	2,020	98	0.4%
1120	Animal Production (Proprietors)	1,800	\$38,638	2.64	-606	-5.6%	-5.0%	-4.1%	516	497	139	-120	-1.4%
3115	Dairy Product Manufacturing	1,409	\$63,563	5.90	188	2.9%	5.9%	1.9%	921	317	511	92	1.3%
3113	Sugar and Confectionery Product Manufacturing	1,282	\$38,515	10.90	320	5.9%	3.2%	0.1%	647	294	447	-94	-1.5%
3119	Other Food Manufacturing	1,224	\$48,761	3.28	-37	-0.6%	1.9%	2.5%	828	291	452	85	1.4%
1110	Crop Production (Proprietors)	932	\$37,701	1.90	181	4.4%	0.7%	0.2%	333	238	121	-27	-0.6%
3121	Beverage Manufacturing	899	\$40,040	2.11	207	5.4%	6.3%	4.1%	579	211	335	33	0.7%
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	841	\$54,558	3.07	-65	-1.5%	2.0%	0.1%	456	185	297	-26	-0.6%
3118	Bakeries and Tortilla Manufacturing	679	\$44,710	1.40	204	7.4%	-0.8%	-0.4%	450	193	255	1	0.0%
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	664	\$43,345	1.27	4	0.1%	-1.3%	-0.8%	323	134	220	-31	-0.9%
3111	Animal Food Manufacturing	348	\$68,164	3.30	88	6.0%	2.6%	2.9%	241	76	126	39	2.1%
1151	Support Activities for Crop Production	149	\$26,168	0.27	-20	-2.5%	1.6%	0.4%	109	30	75	4	0.5%

	Farm Product Raw Material Merchant												
4245	Wholesalers	137	\$29,268	1.27	13	2.0%	0.1%	-1.8%	77	29	52	-4	-0.6%
	Grain and Oilseed												
3112	Milling	64	\$96,164	0.65	6	2.1%	-0.7%	0.9%	39	13	23	3	0.9%
	Tobacco												
3122	Manufacturing	1	\$94,979	0.04	1	n/a	-0.6%	-4.4%	0	0	0	0	-2.7%
	GO Virginia Value Added Food - Proposed Agriculture and Value Added												
8385	Food	15,844	\$46,003	2.98	556	0.7%	0.2%	0.1%	8,888	3,743	5,073	72	0.1%
	Total - All Industries	235,622	\$46,410	1.00	1,623	0.1%	0.0%	-0.1%	133,795	55,290	74,072	4,434	0.4%

Life Sciences and Specialized Healthcare
GO Virginia Region 8 – 2021Q2

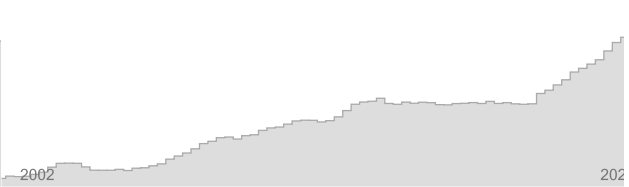
EMPLOYMENT



5,332

Regional employment / 3,569,953 in the nation

WAGES



\$70,574

Avg Wages per Worker / \$85,499 in the nation

1.5%

Avg Ann % Change Last 10 Years / +0.0% in the U.S.



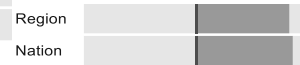
2.3%

% of Total Employment / 2.4% in the U.S.

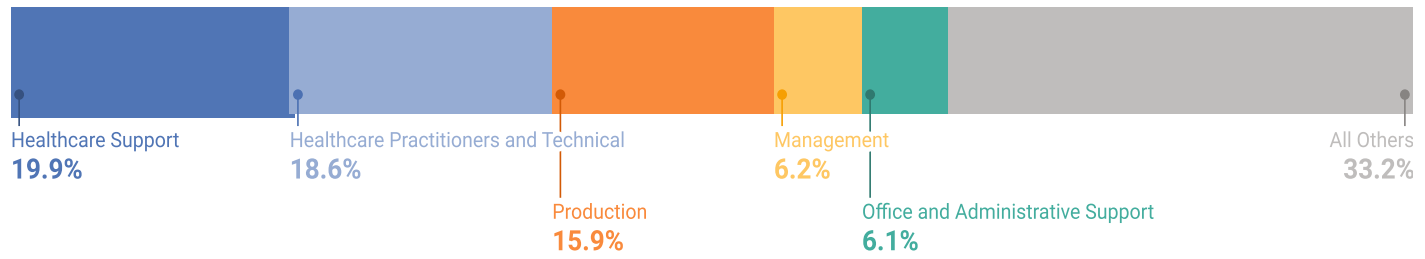


4.3%

Avg Ann % Change Last 10 Years / +4.5% in the U.S.



Top Occupation Groups



Top Industries

Avg Ann % Change in Employment, Last 10 Years

-0.6% ↓



Nursing Care Facilities (Skilled Nursing Facilities)

43.7% ↑



Pharmaceutical Preparation Manufacturing

1.1% ↑



Psychiatric and Substance Abuse Hospitals

Industry Snapshot

6-Digit Industry	Empl	Avg Ann Wages	LQ	5yr History	Annual Demand	Forecast Ann Growth
Nursing Care Facilities (Skilled Nursing Facilities)	1,888	\$37,129	0.82		183	-0.6%
Pharmaceutical Preparation Manufacturing	1,008	\$118,898	2.99		106	0.9%
Psychiatric and Substance Abuse Hospitals	875	\$47,611	2.31		74	-0.4%
Surgical Appliance and Supplies Manufacturing	572	\$66,621	3.53		59	0.2%
In-Vitro Diagnostic Substance Manufacturing	401	\$115,592	8.33		47	2.0%
Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	226	\$85,181	0.30		20	0.5%
Specialty (except Psychiatric and Substance Abuse) Hospitals	154	\$60,118	0.37		17	2.9%
Surgical and Medical Instrument Manufacturing	93	\$49,297	0.44		9	-0.5%
Research and Development in Biotechnology (except Nanobiotechnology)	32	\$100,551	0.08		2	-0.4%
Ophthalmic Goods Manufacturing	24	\$48,169	0.66		2	-0.2%
Remaining Component Industries	58	\$59,871	0.15		5	-0.1%
GO Virginia Life Sciences - Proposed Biomedical/Biotechnical and Specialized Healthcare	5,332	\$70,574	0.96		527	0.2%

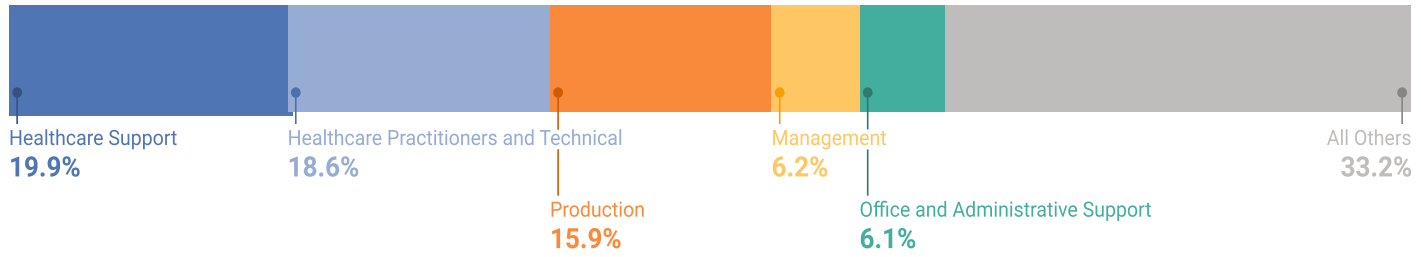


Employment is one of the broadest and most timely measures of a region's economy. Fluctuations in the number of jobs shed light on the health of an industry. A growing employment base creates more opportunities for regional residents and helps a region grow its population.



Since wages and salaries generally compose the majority of a household's income, the annual average wages of a region affect its average household income, housing market, quality of life, and other socioeconomic indicators.

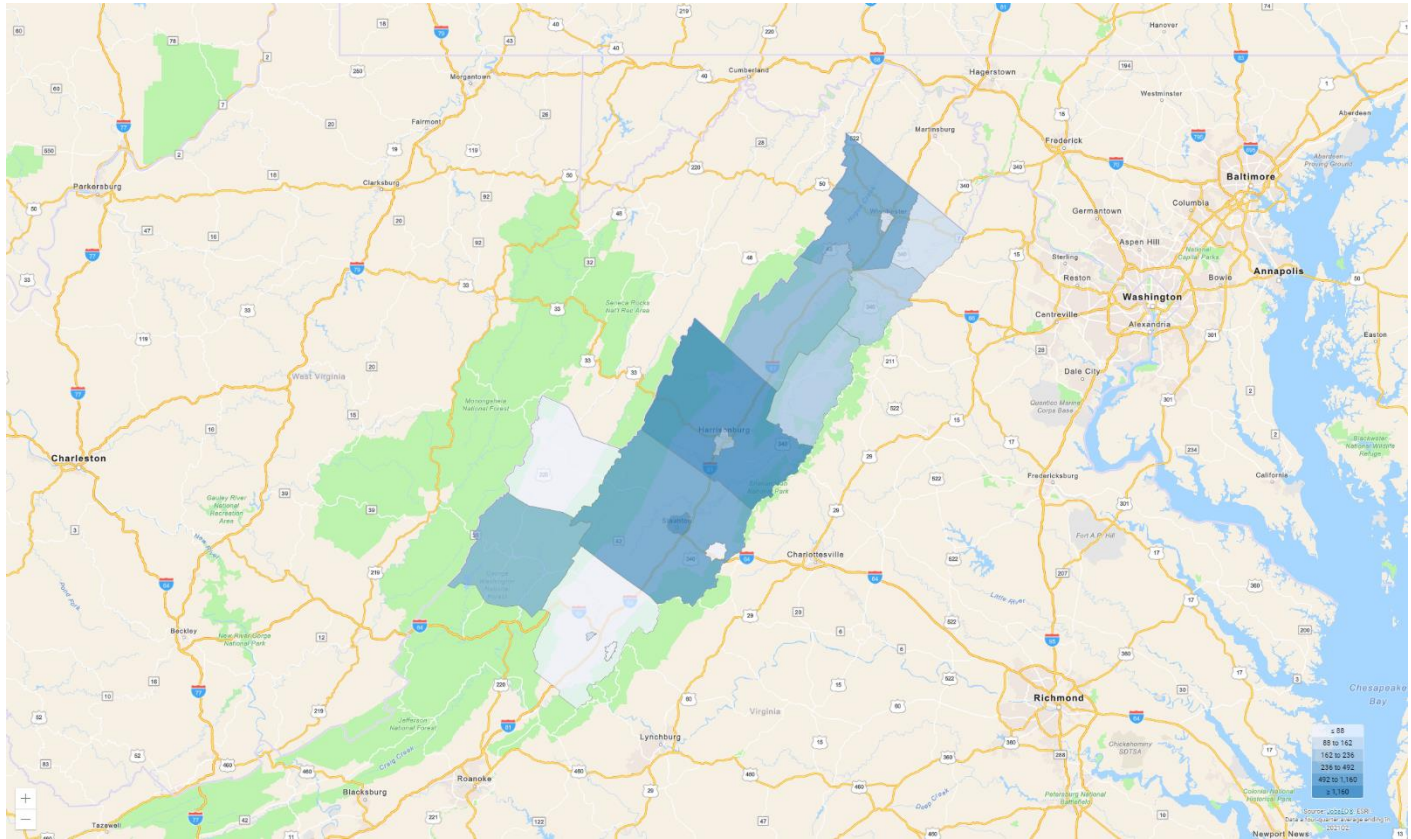
Staffing Pattern



6-digit Occupation	Empl	Avg Ann Wages	Annual Demand
Nursing Assistants	792	\$29,100	82
Licensed Practical and Licensed Vocational Nurses	312	\$47,000	21
Registered Nurses	295	\$66,900	16
Psychiatric Technicians	174	\$31,900	13
Packaging and Filling Machine Operators and Tenders	159	\$45,000	21
Psychiatric Aides	112	\$33,400	12
Inspectors, Testers, Sorters, Samplers, and Weighers	90	\$49,500	10
Maid and Housekeeping Cleaners	87	\$21,800	11
Team Assemblers	84	\$35,200	8
Dental Laboratory Technicians	80	\$53,500	11
Remaining Component Occupations	3,109	\$64,100	339
Total	5,294		

 The mix of occupations points to the ability of a region to support an industry and its flexibility to adapt to future demand. Industry wages are a component of the cost of labor for regional employers.

Geographic Distribution



Region	Empl
Rockingham County, Virginia	1,352
Staunton City, Virginia	1,161
Augusta County, Virginia	708
Frederick County, Virginia	492
Harrisonburg City, Virginia	307

Region	Empl
Shenandoah County, Virginia	278
Bath County, Virginia	236
Warren County, Virginia	184
Page County, Virginia	162
Winchester City, Virginia	111
All Others	340

Source: JobsEQ®



A geographic concentration of firms in related fields of business may reduce production costs, attract more suppliers and customers, and increase supply and demand for specialized labor, but may also increase competitive pressure and drive down prices.

Employment Distribution by Type

The table below shows the employment mix by ownership type for GO Virginia Life Sciences - Proposed Biomedical/Biotechnical and Specialized Healthcare for the GO Virginia Region 8. Four of these ownership types — federal, state, and local government and the private sector — together constitute “Covered Employment” (employment covered by the Unemployment Insurance programs of the United States and reported via the Quarterly Census of Employment and Wages).

“Self-Employment” refers to unincorporated self-employment and represents workers whose primary job is self-employment (that is, these data do not include workers whose primary job is a wage-and-salary position that is supplemented with self-employment).



	Empl	%
Private	4,433	83.1%
Self-Employment	24	0.4%
State Government	875	16.4%

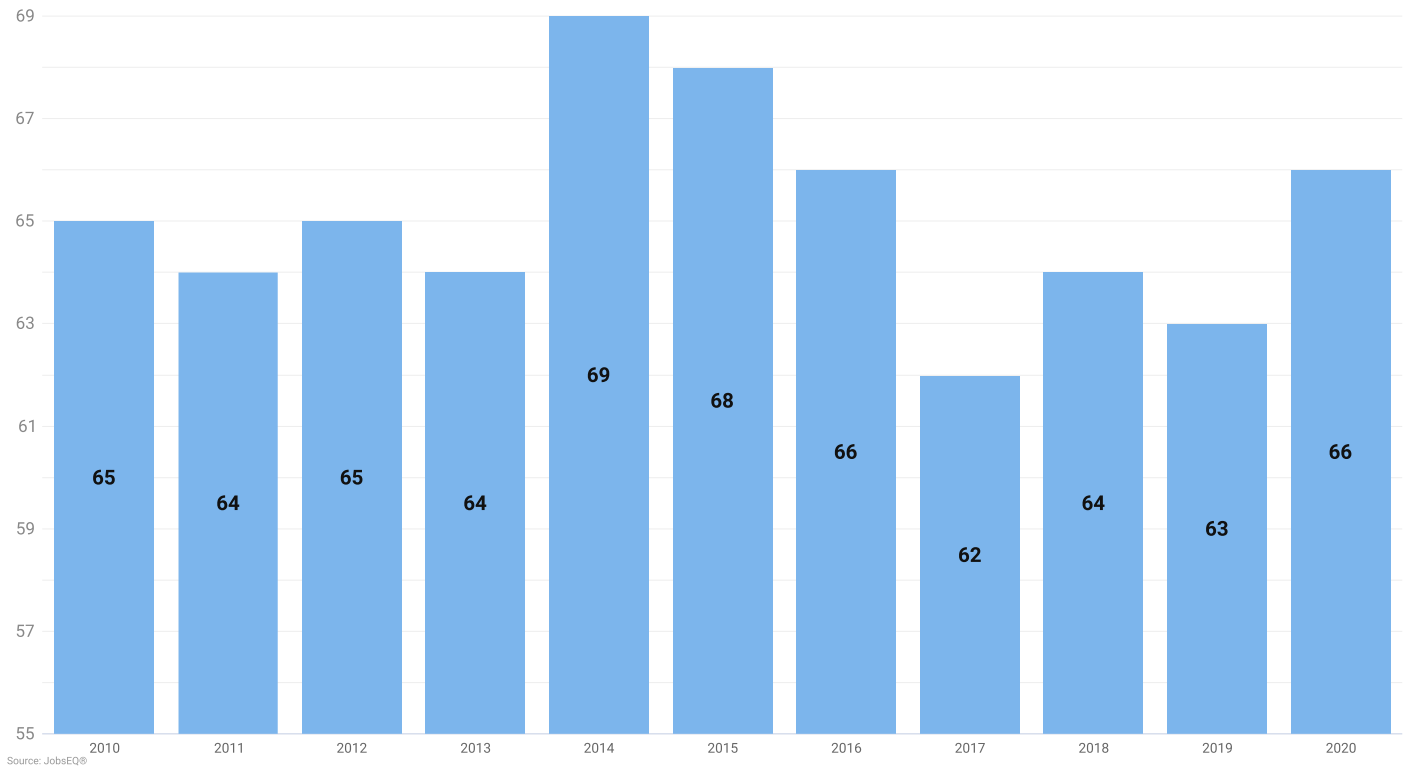
Source: JobsEQ®



Strong entrepreneurial activity is indicative of growing industries. Using self-employment as a proxy for entrepreneurs, a higher share of self-employed individuals within a regional industry points to future growth.

Establishments

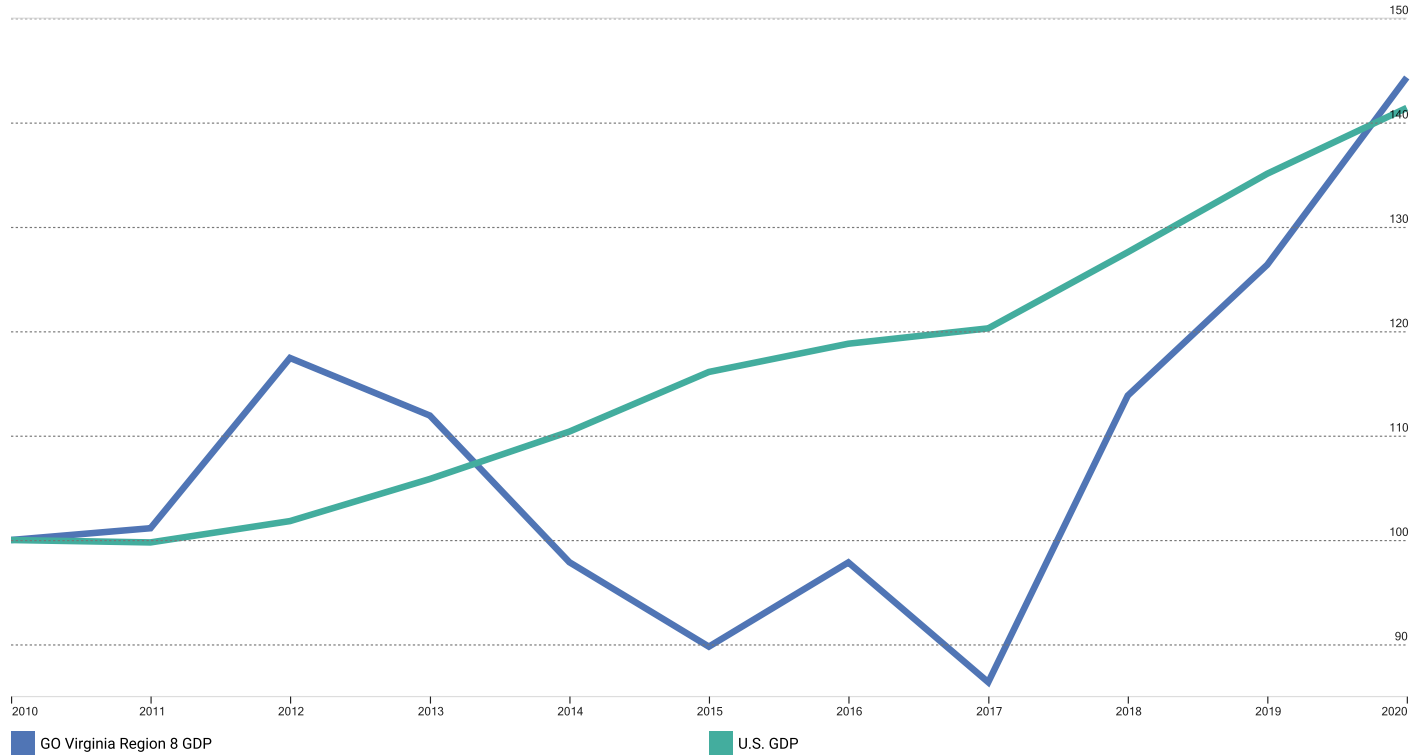
In 2020, there were 66 GO Virginia Life Sciences - Proposed Biomedical/Biotechnical and Specialized Healthcare establishments in the GO Virginia Region 8 (per covered employment establishment counts), an increase from 65 establishments ten years earlier in 2010.



New business formations are an important source of job creation in a regional economy, spurring innovation and competition, and driving productivity growth. Establishment data can provide an indicator of growth in businesses by counting each single location (such as a factory or a store) where business activity takes place, and with at least one employee.

GDP & Productivity

In 2020, GO Virginia Life Sciences - Proposed Biomedical/Biotechnical and Specialized Healthcare produced \$0.8 billion in GDP for the GO Virginia Region 8.
 GDP: Indexed 2010 = 100



2.9 %

Industry Share of Total GDP /
2.8 % in the nation



3.7 % ↑

Avg Ann % Change Last 10
Yrs /
3.5 % in the nation



\$240k

Output per Worker /
\$233k in the nation



💡 Gross domestic product (GDP) is the most comprehensive measure of regional economic activity, and an industry's contribution to GDP is an important indicator of regional industry strength. It is a measure of total value-added to a regional economy in the form of labor income, proprietor's income, and business profits, among others.

💡 Growth in productivity (output per worker) leads to increases in wealth and higher average standards of living in a region.

Supply Chain: Top Suppliers

As of 2021Q2, GO Virginia Life Sciences - Proposed Biomedical/Biotechnical and Specialized Healthcare in the GO Virginia Region 8 are estimated to make \$641.9 million in annual purchases from suppliers in the United States with about 27% or \$173.5 million of these purchases being made from businesses located in the GO Virginia Region 8.

6-digit Supplier Industries	Purchases from In-Region (\$M)	Purchases from Out-of-Region (\$M)
Corporate, Subsidiary, and Regional Managing Offices	\$33.0	\$29.7
Biological Product (except Diagnostic) Manufacturing	<\$0.1	\$43.7
Medicinal and Botanical Manufacturing	\$1.5	\$32.8
Residential Property Managers	\$7.5	\$7.7
Offices of Lawyers	\$3.9	\$9.5
Remaining Supplier Industries	\$127.6	\$345.0
Total	\$173.5	\$468.4





Supplier-buyer networks can indicate local linkages between industries, regional capacity to support growth in an industry, and potential leakage of sales out of the region.

Postsecondary Programs Linked to GO Virginia Life Sciences - Proposed Biomedical/Biotechnical and Specialized Healthcare

Program	Awards
Eastern Mennonite University	
Registered Nursing/Registered Nurse	135
James Madison University	
Community Health Services/Liaison/Counseling	469
Health/Health Care Administration/Management	82
Registered Nursing/Registered Nurse	252
Lord Fairfax Community College	
Allied Health Diagnostic, Intervention, and Treatment Professions, Other	282
Biological and Physical Sciences	181
Licensed Practical/Vocational Nurse Training	17
Registered Nursing/Registered Nurse	120
Shenandoah University	
Pharmacy	120
Registered Nursing/Registered Nurse	109

Source: [JobsEQ®](#)

-  The number of graduates from postsecondary programs in the region identifies the pipeline of future workers as well as the training capacity to support industry demand.
-  Among postsecondary programs at schools located in the GO Virginia Region 8, the sampling above identifies those most linked to occupations relevant to GO Virginia Life Sciences - Proposed Biomedical/Biotechnical and Specialized Healthcare. For a complete list see JobsEQ®, <http://www.chmuraecon.com/jobseq>

Industry Definition

GO Virginia Life Sciences - Proposed Biomedical/Biotechnical and Specialized Healthcare is defined as the following NAICS industries:

Code	Description
325411	Medicinal and Botanical Manufacturing
325412	Pharmaceutical Preparation Manufacturing
325413	In-Vitro Diagnostic Substance Manufacturing
325414	Biological Product (except Diagnostic) Manufacturing
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing
339112	Surgical and Medical Instrument Manufacturing
339113	Surgical Appliance and Supplies Manufacturing
339114	Dental Equipment and Supplies Manufacturing
339115	Ophthalmic Goods Manufacturing
339116	Dental Laboratories
541713	Research and Development in Nanotechnology
541714	Research and Development in Biotechnology (except Nanobiotechnology)
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)
541720	Research and Development in the Social Sciences and Humanities
562211	Hazardous Waste Treatment and Disposal
622210	Psychiatric and Substance Abuse Hospitals
622310	Specialty (except Psychiatric and Substance Abuse) Hospitals
623110	Nursing Care Facilities (Skilled Nursing Facilities)

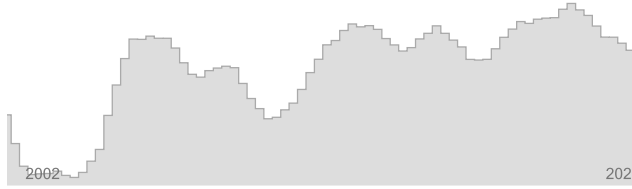
GO Virginia Life Sciences - Proposed Biomedical/Biotechnical and Specialized Healthcare in GO Virginia Region 8, 2021Q2¹

NAICS	Industry	Current			2-Year History		5-Year Forecast				
		Empl	Avg Ann Wages	LQ	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
325412	Pharmaceutical Preparation Manufacturing	1,008	\$118,898	2.99	248	15.1%	539	169	322	48	0.9%
622210	Psychiatric and Substance Abuse Hospitals	875	\$47,611	2.31	-28	-1.6%	367	178	207	-18	-0.4%
339113	Surgical Appliance and Supplies Manufacturing	572	\$66,621	3.53	16	1.5%	296	109	182	5	0.2%
325413	In-Vitro Diagnostic Substance Manufacturing	401	\$115,592	8.33	64	9.1%	243	69	132	42	2.0%
622310	Specialty (except Psychiatric and Substance Abuse) Hospitals	154	\$60,118	0.37	73	37.7%	88	31	34	24	2.9%
621991	Blood and Organ Banks	95	\$48,857	0.78	0	-0.1%	55	19	25	10	2.1%
339112	Surgical and Medical Instrument Manufacturing	93	\$49,297	0.44	11	6.3%	45	18	29	-2	-0.5%
621511	Medical Laboratories	86	\$64,856	0.25	14	9.0%	40	16	20	4	0.9%
621512	Diagnostic Imaging Centers	43	\$83,058	0.35	23	44.4%	25	8	11	6	2.5%
339115	Ophthalmic Goods Manufacturing	24	\$48,169	0.66	6	14.8%	12	5	8	0	-0.2%
339116	Dental Laboratories	22	\$34,067	0.32	5	14.4%	11	4	7	0	-0.4%
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	19	\$108,146	0.17	-12	-21.1%	10	3	6	1	1.4%
325411	Medicinal and Botanical Manufacturing	12	\$82,163	0.20	11	n/a	6	2	4	0	0.5%
8386	GO Virginia Life Sciences - Proposed Biomedical/Biotechnical and Specialized Healthcare	3,407	\$81,772	1.32	431	7.0%	1,741	632	986	124	0.7%
	Total - All Industries	235,622	\$46,410	1.00	-7,043	-1.5%	133,795	55,290	74,072	4,434	0.4%

Information and Emerging Technology

GO Virginia Region 8 – 2021Q2

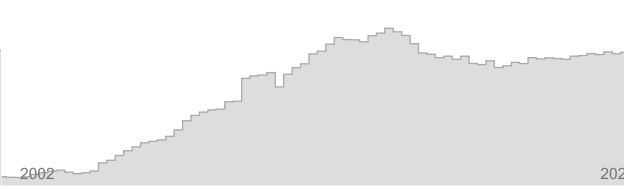
EMPLOYMENT



3,503

Regional employment / 5,777,030 in the nation

WAGES



\$85,148

Avg Wages per Worker / \$132,279 in the nation

0.0%

Avg Ann % Change Last 10 Years / +2.6% in the U.S.



1.5%

% of Total Employment / 3.8% in the U.S.

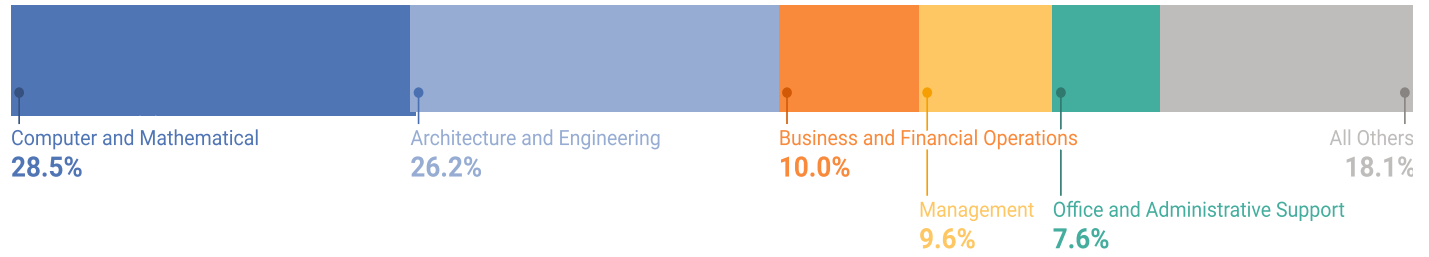


1.5%

Avg Ann % Change Last 10 Years / +3.8% in the U.S.

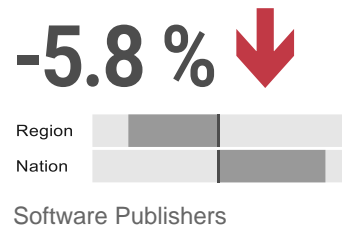
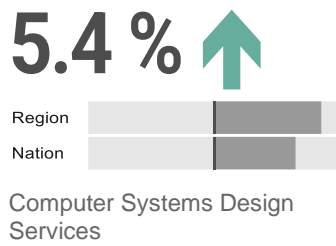
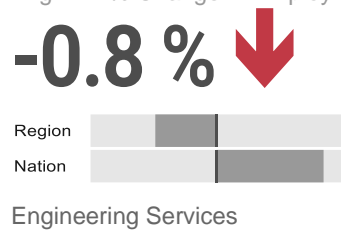


Top Occupation Groups



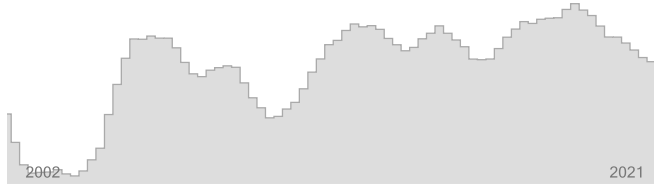
Top Industries

Avg Ann % Change in Employment, Last 10 Years

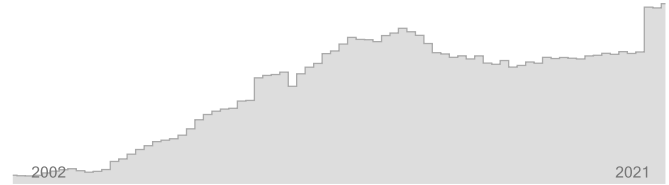


Industry Snapshot

EMPLOYMENT



WAGES

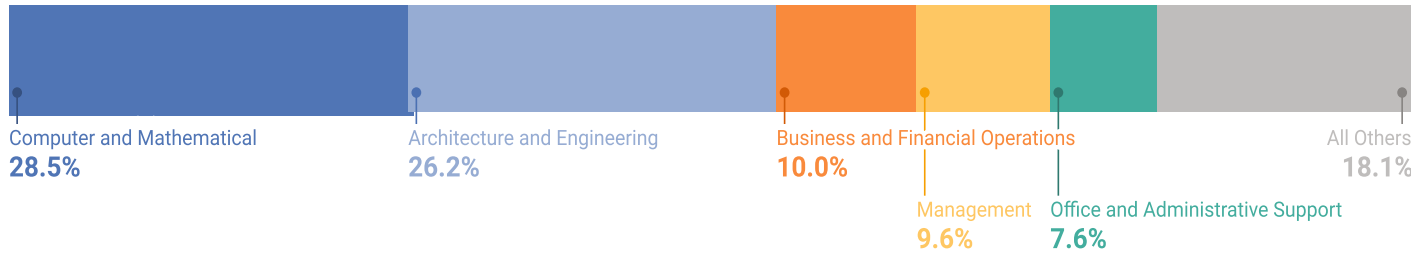


6-Digit Industry	Empl	Avg Ann Wages	LQ	5yr History	Annual Demand	Forecast Ann Growth
Engineering Services	1,160	\$79,574	0.68		94	0.1%
Computer Systems Design Services	500	\$80,991	0.29		48	2.0%
Software Publishers	431	\$160,325	0.52		39	1.2%
Custom Computer Programming Services	242	\$85,049	0.15		22	1.6%
Electronic Connector Manufacturing	230	\$60,445	6.78		21	-0.1%
Other Electronic Component Manufacturing	160	\$51,506	1.74		15	-0.1%
Surveying and Mapping (except Geophysical) Services	129	\$46,857	1.50		11	0.0%
Data Processing, Hosting, and Related Services	117	\$73,865	0.19		11	0.9%
Other Computer Related Services	116	\$61,365	0.58		12	2.4%
Architectural Services	102	\$56,267	0.32		8	-0.5%
Remaining Component Industries	318	\$79,364	0.31		26	-0.2%
GO Virginia Proposed IT and Emerging Tech	3,503	\$85,148	0.39		310	0.7%

Employment is one of the broadest and most timely measures of a region's economy. Fluctuations in the number of jobs shed light on the health of an industry. A growing employment base creates more opportunities for regional residents and helps a region grow its population.

Since wages and salaries generally compose the majority of a household's income, the annual average wages of a region affect its average household income, housing market, quality of life, and other socioeconomic indicators.

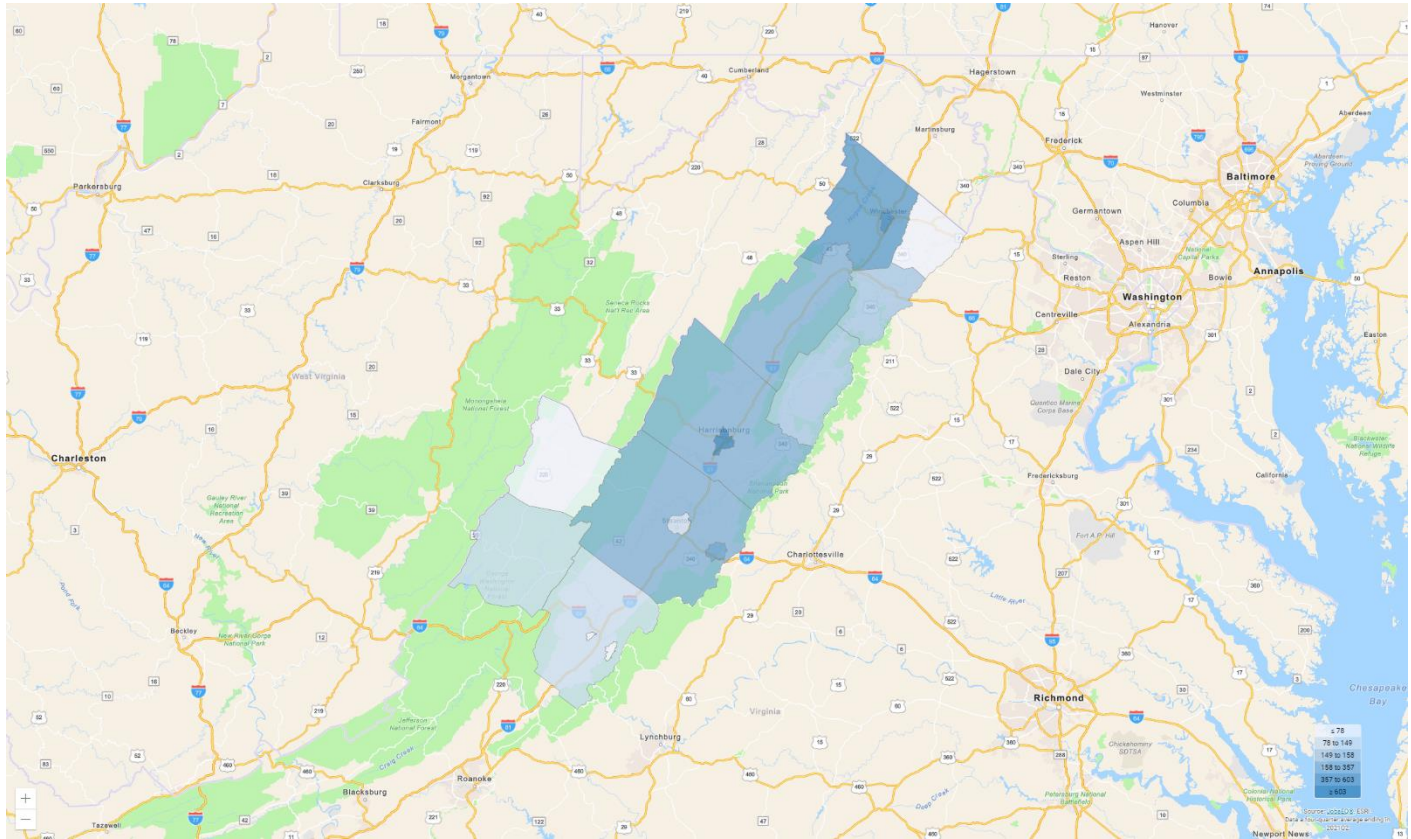
Staffing Pattern



6-digit Occupation	Empl	Avg Ann Wages	Annual Demand
Software Developers and Software Quality Assurance Analysts and Testers	435	\$95,300	42
Civil Engineers	189	\$90,700	14
Computer Systems Analysts	108	\$88,200	9
Architects, Except Landscape and Naval	103	\$78,400	8
Computer User Support Specialists	93	\$54,100	9
Project Management Specialists and Business Operations Specialists, All Other	90	\$93,000	10
Mechanical Engineers	72	\$91,700	5
General and Operations Managers	70	\$146,800	7
Computer and Information Systems Managers	67	\$140,100	6
Electrical Engineers	63	\$93,900	5
Remaining Component Occupations	2,174	\$70,000	218
Total	3,464		

 The mix of occupations points to the ability of a region to support an industry and its flexibility to adapt to future demand. Industry wages are a component of the cost of labor for regional employers.

Geographic Distribution



Region	Empl	Region	Empl
Harrisonburg City, Virginia	653	Shenandoah County, Virginia	200
Winchester City, Virginia	604	Augusta County, Virginia	159
Frederick County, Virginia	489	Warren County, Virginia	153
Waynesboro City, Virginia	358	Page County, Virginia	150
Rockingham County, Virginia	336	Rockbridge County, Virginia	105
		All Others	297

Source: JobsEQ®



A geographic concentration of firms in related fields of business may reduce production costs, attract more suppliers and customers, and increase supply and demand for specialized labor, but may also increase competitive pressure and drive down prices.

Employment Distribution by Type

The table below shows the employment mix by ownership type for GO Virginia Proposed IT and Emerging Tech for the GO Virginia Region 8. Four of these ownership types — federal, state, and local government and the private sector — together constitute “Covered Employment” (employment covered by the Unemployment Insurance programs of the United States and reported via the Quarterly Census of Employment and Wages).

“Self-Employment” refers to unincorporated self-employment and represents workers whose primary job is self-employment (that is, these data do not include workers whose primary job is a wage-and-salary position that is supplemented with self-employment).



	Empl	%
Private	2,656	75.8%
Self-Employment	235	6.7%
Local Government	198	5.7%
State Government	39	1.1%
Federal Government	375	10.7%

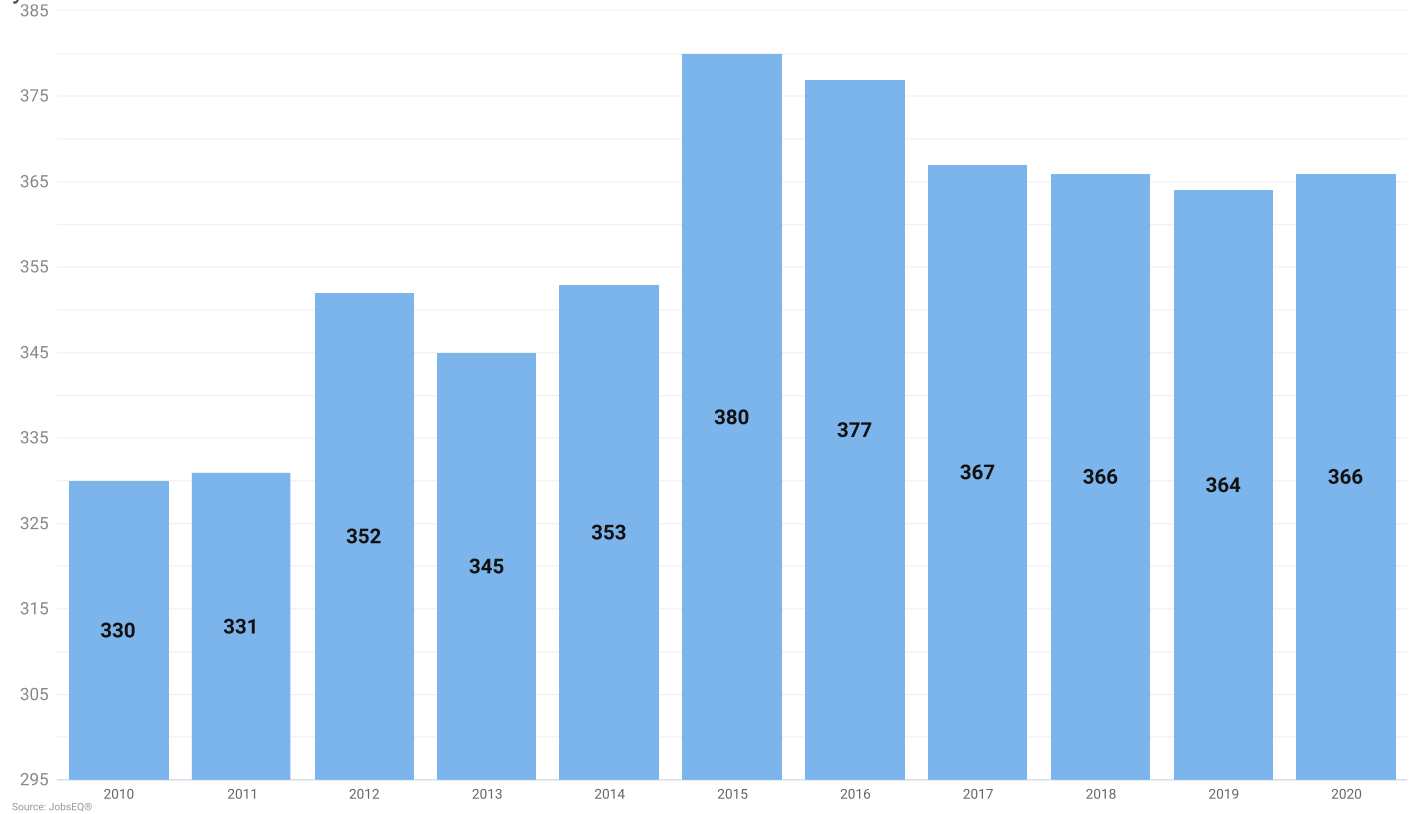
Source: JobsEQ®



Strong entrepreneurial activity is indicative of growing industries. Using self-employment as a proxy for entrepreneurs, a higher share of self-employed individuals within a regional industry points to future growth.

Establishments

In 2020, there were 366 GO Virginia Proposed IT and Emerging Tech establishments in the GO Virginia Region 8 (per covered employment establishment counts), an increase from 330 establishments ten years earlier in 2010.

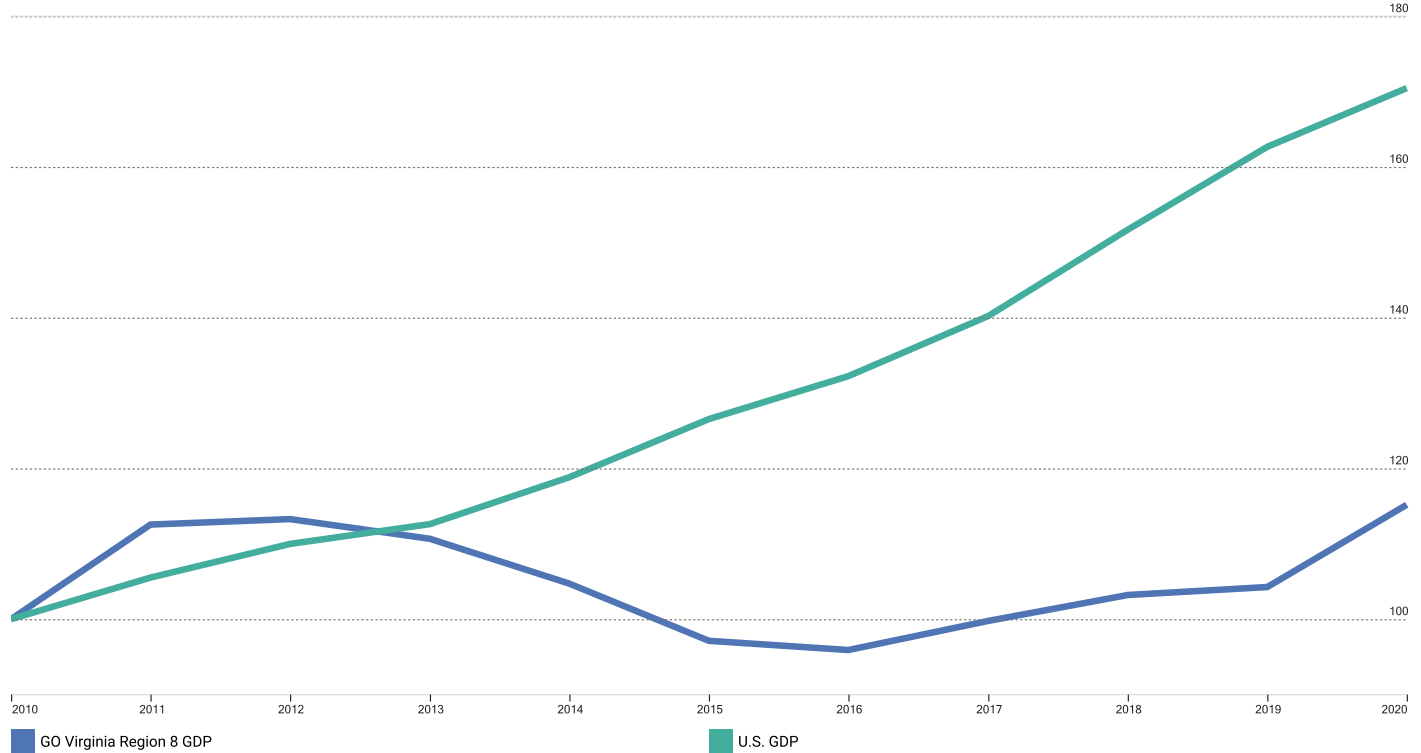


New business formations are an important source of job creation in a regional economy, spurring innovation and competition, and driving productivity growth. Establishment data can provide an indicator of growth in businesses by counting each single location (such as a factory or a store) where business activity takes place, and with at least one employee.

GDP & Productivity

In 2020, GO Virginia Proposed IT and Emerging Tech produced \$0.5 billion in GDP for the GO Virginia Region 8.

GDP: Indexed 2010 = 100



2.0 %

Industry Share of Total GDP /
6.1 % in the nation



1.4 % ↑

Avg Ann % Change Last 10
Yrs /
5.5 % in the nation



\$253k

Output per Worker /
\$312k in the nation



💡 Gross domestic product (GDP) is the most comprehensive measure of regional economic activity, and an industry's contribution to GDP is an important indicator of regional industry strength. It is a measure of total value-added to a regional economy in the form of labor income, proprietor's income, and business profits, among others.

💡 Growth in productivity (output per worker) leads to increases in wealth and higher average standards of living in a region.

Supply Chain: Top Suppliers

As of 2021Q2, GO Virginia Proposed IT and Emerging Tech in the GO Virginia Region 8 are estimated to make \$382.6 million in annual purchases from suppliers in the United States with about 49% or \$187.4 million of these purchases being made from businesses located in the GO Virginia Region 8.

6-digit Supplier Industries	Purchases from In-Region (\$M)	Purchases from Out-of-Region (\$M)
Software Publishers	\$29.9	\$50.1
Engineering Services	\$9.4	\$4.8
Corporate, Subsidiary, and Regional Managing Offices	\$7.6	\$0.7
Residential Property Managers	\$5.7	\$2.3
Administrative Management and General Management Consulting Services	\$3.6	\$4.2
Remaining Supplier Industries	\$131.2	\$133.1
Total	\$187.4	\$195.2



Supplier-buyer networks can indicate local linkages between industries, regional capacity to support growth in an industry, and potential leakage of sales out of the region.

Postsecondary Programs Linked to GO Virginia Proposed IT and Emerging Tech

Program	Awards
Blue Ridge Community College	
CAD/CADD Drafting and/or Design Technology/Technician	13
James Madison University	
Computer and Information Sciences, General	127
Engineering, General	78
Geography	59
Information Science/Studies	168
Marketing/Marketing Management, General	174
Lord Fairfax Community College	
Industrial Production Technologies/Technicians, Other	9
Virginia Military Institute	
Civil Engineering, General	50
Electrical and Electronics Engineering	12
Mechanical Engineering	23

Source: JobsEQ®



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



Among postsecondary programs at schools located in the GO Virginia Region 8, the sampling above identifies those most linked to occupations relevant to GO Virginia Proposed IT and Emerging Tech. For a complete list see JobsEQ®, <http://www.chmuraecon.com/jobseq>

Industry Definition

GO Virginia Proposed IT and Emerging Tech is defined as the following NAICS industries:

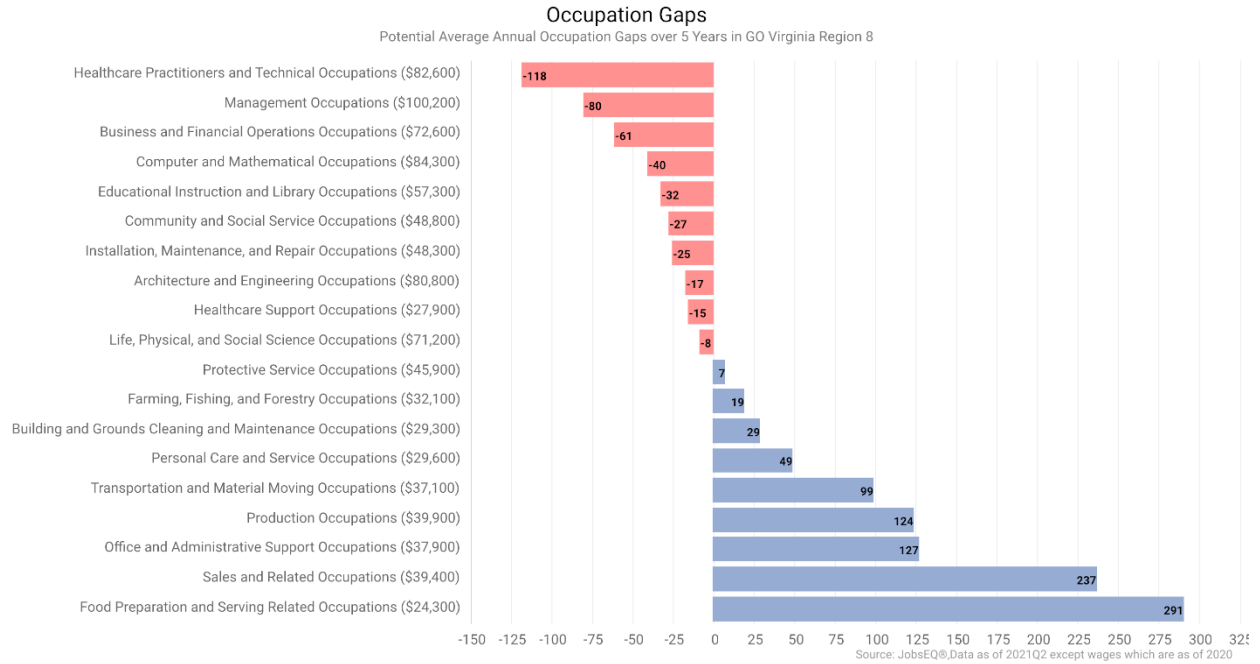
Code	Description
334111	Electronic Computer Manufacturing
334112	Computer Storage Device Manufacturing
334118	Computer Terminal and Other Computer Peripheral Equipment Manufacturing
334412	Bare Printed Circuit Board Manufacturing
334413	Semiconductor and Related Device Manufacturing
334416	Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing
334417	Electronic Connector Manufacturing
334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing
334419	Other Electronic Component Manufacturing
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing
423430	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers
511210	Software Publishers
518210	Data Processing, Hosting, and Related Services
541310	Architectural Services
541320	Landscape Architectural Services
541330	Engineering Services
541340	Drafting Services
541350	Building Inspection Services
541360	Geophysical Surveying and Mapping Services
541370	Surveying and Mapping (except Geophysical) Services
541380	Testing Laboratories
541511	Custom Computer Programming Services
541512	Computer Systems Design Services
541513	Computer Facilities Management Services
541519	Other Computer Related Services

GO Virginia Proposed IT and Emerging Tech in GO Virginia Region 8, 2021Q2¹

NAICS	Industry	Current			2-Year History		5-Year Forecast				
		Empl	Avg Ann Wages	LQ	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
54151	Computer Systems Design and Related Services	862	\$79,476	0.24	-135	-7.0%	427	104	238	85	1.9%
51791	Other Telecommunications	606	\$60,869	4.75	14	1.1%	227	91	187	-52	-1.8%
51121	Software Publishers	431	\$160,325	0.52	-35	-3.9%	201	54	121	27	1.2%
51731	Wired and Wireless Telecommunications Carriers	264	\$68,593	0.28	-106	-15.6%	104	40	82	-18	-1.4%
51821	Data Processing, Hosting, and Related Services	117	\$73,865	0.19	-15	-6.0%	56	17	34	6	0.9%
51913	Internet Publishing and Broadcasting and Web Search Portals	95	\$97,713	0.19	7	4.0%	48	16	29	4	0.9%
51741	Satellite Telecommunications	41	\$70,237	3.12	26	66.9%	15	6	13	-3	-1.8%
8419	GO Virginia Proposed IT and Emerging Tech	2,416	\$91,101	0.36	-245	-4.7%	1,087	328	703	56	0.5%
	Total - All Industries	235,622	\$46,410	1.00	-7,043	-1.5%	133,795	55,290	74,072	4,434	0.4%

Appendix B: Talent Pipeline Data

Skills Gap



Skill Gaps: GO Virginia Region 8

Skill	Candidates	Openings	Gap
	#	#	#
Retail Sales	684	920	-236
Calculators	314	513	-199
Manufacturing	601	771	-170
Hospitality	305	444	-138
Spanish	451	567	-115
Personal Computers (PC)	400	508	-107
Merchandising	336	428	-92
Food Service	223	306	-83
Cash Handling (Cashier)	1,065	1,147	-82
Teaching/Training, Job	410	479	-69
Teaching/Training, School	887	945	-58
Hearing Aids	2	58	-56
Caregiving	32	78	-47
Bilingual	183	229	-46
Change Management	83	127	-44
Warehouse Management Systems (WMS)	76	112	-36
Performance Management	84	118	-34
Spreadsheet Programs	25	59	-34
Occupational Safety and Health Administration Regulations (OSHA Regulations)	34	65	-32
Understanding of Generally Accepted Accounting Principles (GAAP)	56	87	-30

Manual Labor	36	65	-29
Presentation Software	12	41	-29
Mechanical	351	380	-29
Cash Registers	495	524	-29
Accounting	131	159	-28
Mathematics	550	577	-27
Microsoft Project	114	141	-27
Health/Wellness	277	304	-27
Telecommunications	85	109	-24
Hand Trucks	109	132	-23
Auditing	49	72	-23
End Loaders	36	58	-22
Banding Machines	9	31	-22
Nail Guns	16	36	-21
Staple Guns	7	27	-20
Hazardous Materials Safety & Handling	17	37	-20
Typing 31-40 wpm	13	32	-19
Lift Trucks	8	27	-19
Gauges	120	139	-19
Lean Six Sigma	63	82	-19
Welding	157	176	-18
Outside Sales	55	74	-18
Medical Terminology	113	132	-18
Bartending/Mixology	111	128	-17
Operations Management	58	76	-17
Automotive Maintenance/Repair	115	132	-17
Mental Health	6	23	-16
Team Leadership	36	52	-16
Typing 41-50 wpm	13	29	-16
Sit-down Forklifts	23	39	-16
Mainframe Computers	16	32	-15
Sales	615	630	-15
Skid Steers	37	52	-15
Electronic data interchange (EDI)	14	28	-15
Forecasting	24	39	-14
Quality Management	13	27	-14
Tankers	45	59	-14
Procurement	23	37	-14
User Acceptance Testing (UAT)	10	23	-13
Lathes	60	73	-13
Optical Character Recognition Software (OCR Software)	1	13	-12
Handcarts	2	14	-12

Hand Tools	205	216	-12
Manufacturing Resource Planning (MRP)	20	32	-12
Finance	238	249	-11
Calculus	7	18	-11
Microsoft Office 365	16	26	-10
Micrometers	44	55	-10
Molding Machines	3	13	-10
Aerial Lifts	20	31	-10
Heavy Equipment Operation	77	87	-10
Unity	24	34	-10
Project Management Software	11	21	-10
Graphic Design	44	54	-10
Tape Measures	160	170	-10
Long-Term Care	75	85	-10

Occupation Data

GO Virginia Region 8, 2021Q2 ¹														
SOC	Occupation	Current						5-Year History			5-Year Forecast			
		Empl	Mean Ann Wages ²	LQ	Unempl	Unempl Rate	Online Job Ads ³	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
43-0000	Office and Administrative Support Occupations	25,583	\$37,900	0.86	1,005	3.6%	1,177	-625	-0.5%	13,980	6,071	8,498	-589	-0.5%
53-0000	Transportation and Material Moving Occupations	25,569	\$37,100	1.26	1,467	5.2%	2,295	2,493	2.1%	17,418	6,003	10,607	809	0.6%
41-0000	Sales and Related Occupations	22,742	\$39,400	1.01	1,325	5.5%	2,064	-576	-0.5%	15,798	6,495	9,639	-336	-0.3%
51-0000	Production Occupations	20,519	\$39,900	1.50	925	4.3%	816	110	0.1%	11,661	4,114	7,839	-292	-0.3%
35-0000	Food Preparation and Serving Related Occupations	18,316	\$24,300	1.04	2,117	9.4%	1,824	-2,447	-2.5%	16,829	6,597	9,617	614	0.7%
11-0000	Management Occupations	14,592	\$100,200	0.92	266	1.9%	837	473	0.7%	6,421	2,256	3,993	172	0.2%
25-0000	Educational Instruction and Library Occupations	14,318	\$57,300	1.11	551	3.9%	769	-895	-1.2%	6,671	2,941	3,487	243	0.3%
29-0000	Healthcare Practitioners and Technical Occupations	12,956	\$82,700	0.93	208	1.6%	2,112	697	1.1%	4,233	1,740	2,042	452	0.7%
47-0000	Construction and Extraction Occupations	11,627	\$44,000	1.06	746	5.1%	309	561	1.0%	6,837	1,896	4,646	296	0.5%
13-0000	Business and Financial Operations Occupations	10,856	\$72,600	0.79	236	2.3%	606	1,301	2.6%	5,605	1,526	3,775	304	0.6%
31-0000	Healthcare Support Occupations	10,429	\$27,900	0.98	370	3.3%	704	293	0.6%	8,041	3,353	3,641	1,048	1.9%

49-0000	Installation, Maintenance, and Repair Occupations	10,207	\$48,300	1.13	423	3.4%	707	338	0.7%	5,325	1,636	3,430	258	0.5%
37-0000	Building and Grounds Cleaning and Maintenance Occupations	8,588	\$29,300	1.12	564	5.4%	651	-686	-1.5%	6,073	2,475	3,305	293	0.7%
39-0000	Personal Care and Service Occupations	5,348	\$29,600	0.89	571	8.4%	235	-448	-1.6%	4,454	1,852	2,365	237	0.9%
15-0000	Computer and Mathematical Occupations	4,582	\$84,300	0.62	79	1.6%	436	371	1.7%	1,929	394	1,344	192	0.8%
33-0000	Protective Service Occupations	4,339	\$45,900	0.86	185	3.9%	241	368	1.8%	2,324	965	1,303	57	0.3%
21-0000	Community and Social Service Occupations	4,212	\$48,800	1.00	52	1.4%	463	-36	-0.2%	2,655	805	1,576	275	1.3%
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	3,224	\$51,200	0.77	195	6.5%	201	-133	-0.8%	1,812	656	1,139	17	0.1%
17-0000	Architecture and Engineering Occupations	2,874	\$80,800	0.71	59	2.2%	207	315	2.3%	1,192	347	795	50	0.3%
19-0000	Life, Physical, and Social Science Occupations	1,745	\$71,200	0.81	41	2.7%	143	154	1.9%	866	182	643	41	0.5%
45-0000	Farming, Fishing, and Forestry Occupations	1,680	\$32,400	1.06	92	5.1%	32	-92	-1.1%	1,360	334	1,024	2	0.0%
23-0000	Legal Occupations	1,317	\$81,300	0.65	20	1.5%	29	86	1.4%	478	174	285	19	0.3%
00-0000	Total - All Occupations	235,622	\$48,400	1.00	11,495	4.5%	16,858	1,623	0.1%	142,085	52,810	84,991	4,284	0.4%

Industry/Occupation Mix

GO Virginia Region 8, 2021Q2 ¹														
SOC	Occupation	Empl	Mean Ann Wages ²	Current			5-Year History			5-Year Forecast				
				LQ	Unempl	Unempl Rate	Online Job Ads ³	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
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21-0000	Community and Social Service Occupations	4,212	\$48,800	1.00	52	1.4%	463	-36	-0.2%	2,655	805	1,576	275	1.3%
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	3,224	\$51,200	0.77	195	6.5%	201	-133	-0.8%	1,812	656	1,139	17	0.1%
17-0000	Architecture and Engineering Occupations	2,874	\$80,800	0.71	59	2.2%	207	315	2.3%	1,192	347	795	50	0.3%
19-0000	Life, Physical, and Social Science Occupations	1,745	\$71,200	0.81	41	2.7%	143	154	1.9%	866	182	643	41	0.5%
45-0000	Farming, Fishing, and Forestry Occupations	1,680	\$32,400	1.06	92	5.1%	32	-92	-1.1%	1,360	334	1,024	2	0.0%
23-0000	Legal Occupations	1,317	\$81,300	0.65	20	1.5%	29	86	1.4%	478	174	285	19	0.3%
00-0000	Total - All Occupations	235,622	\$48,400	1.00	11,495	4.5%	16,858	1,623	0.1%	142,085	52,810	84,991	4,284	0.4%

Community College Credential Summaries

Blue Ridge Community College

Blue Ridge Community College

FY20 Credential Summary July 1, 2019 - June 30, 2020		FY21 Credential Summary July 1, 2020 - June 30, 2021	
Credential Earned	Total	Credential Earned	Total
Certified Logistics Associate	5	Certified Medical Administrative Assistant (CMAA)	17
Certified Logistics Technician	5	Certified Nurse Aide (CNA)	24
Certified Nurse Aide (CNA)	18	Certified Phlebotomy Technician (NHA)	8
Certified Professional Coder (CPC)	26	Certified Professional Coder (CPC)	25
Certified Welder (CW)	1	Clinical Medical Assistant	57
Clinical Medical Assistant	41	Commercial Driver's License Class A Endorsement	70
Commercial Driver's License Class A Endorsement	65	Commercial Driver's License Class B Endorsement	16
Commercial Driver's License Class B Endorsement	12	CompTIA A+ Certification	1
CompTIA Network+ Certification	3	CompTIA Network+ Certification	8
Flux Core Arc Welding (FCAW)	39	CompTIA Security+ Certification	8
Gas Metal Arc Welding (GMAW)	4	EKG Technician	2
Gas Tungsten Arc Welding (GTAW)	6	Flux Core Arc Welding (FCAW)	50
Grinding Skills 1, Machining L	2	Gas Metal Arc Welding (GMAW)	5
Job Planning, Benchwork, and Layout	7	Manufacturing Specialist (MS)	2
Machining Level I: Drill Press Skills I	4	Measurement, Materials, and Safety	4
Manual Milling Skills 1, Machining	3	Medication Aide	5
Measurement, Materials, and Safety	13	Phlebotomy Technician (NOCT)	5
Medical Assistant	9	Registered Medical Assistant (RMA)	1
Microsoft Technology Associate (MTA) - HTML5 Application Development Fundamentals	8	Shielded Metal Arc Welding (SMAW)	9
Pharmacy Technician	24	Grand Total	317
Phlebotomy Technician (NOCT)	24		
Registered Medical Assistant (RMA)	2		
Remote Pilot Airman Certification	6		
Shielded Metal Arc Welding (SMAW)	6		
Grand Total	333		

Laurel Ridge (Lord Fairfax) Community College

FY20 Credential Summary

July 1, 2019 - June 30, 2020

Class	Total
Basic Life Support for Healthc	69
Certified Medical Administrative Assistant (CMAA)	6
Certified Nurse Aide (CNA)	16
Certified Personal Trainer (CPT)	4
Certified Phlebotomy Technician (NHA)	27
Clinical Medical Assistant	73
Commercial Driver's License Class A Endorsement	112
CompTIA A+ Certification	13
CompTIA IT Fundamentals	32
CompTIA Network+ Certification	9
CompTIA Security+ Certification	4
Construction Project Management	5
Contractor's License	1
Core - Introductory Craft Skills	166
Electrical - Level 1	66
Electrical - Level 2	40
Electrical - Level 3	38
Electrical - Level 4	32
Electrical Tradesman License Renewal	36
Gas Fitter Tradesman License R	8
Gas Metal Arc Welding (GMAW)	5
Heavy Equipment Operations - Level 1	26
HVAC - Level 1	32
HVAC - Level 2	20
HVAC - Level 3	17
HVAC - Level 4	15
HVAC EPA 608 Type I Certification	22
HVAC EPA 608 Type II Certification	19
HVAC EPA 608 Type III Certification	16
HVAC Tradesman License Renewal	10
Instructor Training Class (ICTP)	3
Manufacturing Specialist (MS)	3
Manufacturing Technician 1 (MT1)	2
OSHA 10 General Industry	22
OSHA 30 General Industry	3
Pharmacy Technician	4
Plumbing - Level 1	3
Plumbing - Level 2	8
Plumbing - Level 3	9
Plumbing - Level 4	10
Plumbing Tradesman License Renewal	15
Professional Administrative Certification of Excellence (PACE)	5
ServSafe Food Protection Manager	9
Shielded Metal Arc Welding (SMAW)	9
SHRM Certified Professional (S	3
(blank)	
Grand Total	1047

FY21 Credential Summary

July 1, 2020 - June 30, 2021

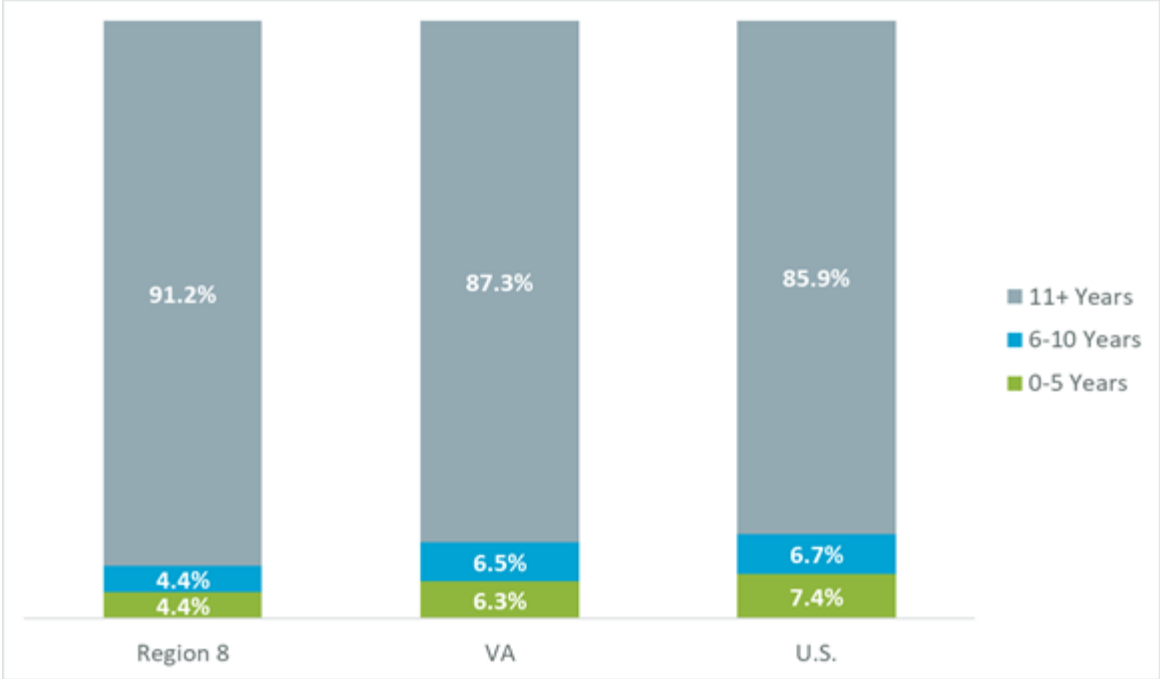
Class	Total
AC Electricity	11
Apprentice Medical Scribe Professional (AMSP)	3
Basic Life Support for Healthc	116
Carpentry Level 1	10
Certified Medical Administrative Assistant (CMAA)	22
Certified Phlebotomy Technician (NHA)	81
Clinical Medical Assistant	108
Commercial Driver's License Class A Endorsement	172
CompTIA A+ Certification	22
CompTIA IT Fundamentals	35
CompTIA Network+ Certification	5
CompTIA Security+ Certification	3
Construction Project Management	10
Core - Introductory Craft Skills	211
DC Electricity	12
Electrical - Level 1	51
Electrical - Level 2	57
Electrical - Level 3	33
Electrical - Level 4	22
Electrical Tradesman License Renewal	23
First Aid/CPR/AED	5
Gas Fitter Tradesman License R	12
Gas Metal Arc Welding (GMAW)	3
Gas Tungsten Arc Welding (GTAW)	2
Heartsaver CPR/AED	5
Heavy Equipment Operations - Level 1	88
HVAC - Level 1	48
HVAC - Level 2	31
HVAC - Level 3	27
HVAC - Level 4	23
HVAC EPA 608 Type I Certification	11
HVAC EPA 608 Type II Certification	10
HVAC EPA 608 Type III Certification	10
HVAC Tradesman License Renewal	11
Manufacturing Specialist (MS)	6
Manufacturing Technician 1 (MT1)	6
Microsoft Office Specialist (MOS) - Excel 2016	1
OSHA 10 General Industry	3
Pharmacy Technician	22
Plumbing - Level 1	19
Plumbing - Level 3	3
Plumbing - Level 4	11
Plumbing Tradesman License Renewal	26
Professional Administrative Certification of Excellence (PACE)	7
ServSafe Food Protection Manager	11
Shielded Metal Arc Welding (SMAW)	15
SHRM Certified Professional (S	3
(blank)	
Grand Total	1426

Dabney S. Lancaster Community College

July 1, 2019 – June 30, 2020		July 1, 2020 – June 30, 2021	
Class	Total	Class	Total
Basic Life Support (BLS) CPR (AHA)	25	Basic Life Support (BLS) CPR (AHA)	91
Certified Nurse Aide (CNA)	4	Certified Nurse Aide (CNA)	11
Certified Phlebotomy Technician	8	Certified Phlebotomy Technician	17
Clinical Medical Assistant (CMA)	13	Clinical Medical Assistant (CMA)	15
CDL-A	34	CDL-A	60
Core Curriculum	14	CDL-B	1
CPR/AED (National Safety Council)	47	Core Curriculum	12
Electrical – Level 1	6	CPR/AED (National Safety Council)	18
Emergency Medical Technician (EMT)	9	CPR/AED for Professional Rescuers	8
Flux Core Arc Welding (FCAW)	1	Electrical – Level 1	6
Gas Tungsten Arc Welding (GTAW)	3	Electrical – Level 2	9
HVAC – Level 1	4	Electrical – Level 3	5
HVAC – Level 3	7	Electrical – Level 4	5
IMM – Level 1	4	Emergency Medical Technician (EMT)	15
IMM – Level 2	2	Flux Core Arc Welding (FCAW)	17
OSHA 10 Construction	5	Gas Metal Arc Welding (GMAW)	13
OSHA 10 General Industry	10	Gas Tungsten Arc Welding (GTAW)	4
Pharmacy Technician	1	HVAC – Level 1	6
Practical Nurse	6	HVAC – Level 2	7
Registered Nurse	18	HVAC – Level 3	3
ServSafe Food Protection Manager	2	HVAC – Level 4	10
Shielded Metal Arc Welding (SMAW)	4	IMM – Level 2	1
Total	227	IMM – Level 3	2
		IMM – Level 4	2
		OSHA 10 Construction	5
		OSHA 10 General Industry	3
		Pharmacy Technician	2
		Practical Nurse	14
		Registered Nurse	38
		Professional Registered Nurse	5
		Shielded Metal Arc Welding (SMAW)	15
		Total	420

Appendix C: Entrepreneurial Ecosystem Data Provided by TEconomy

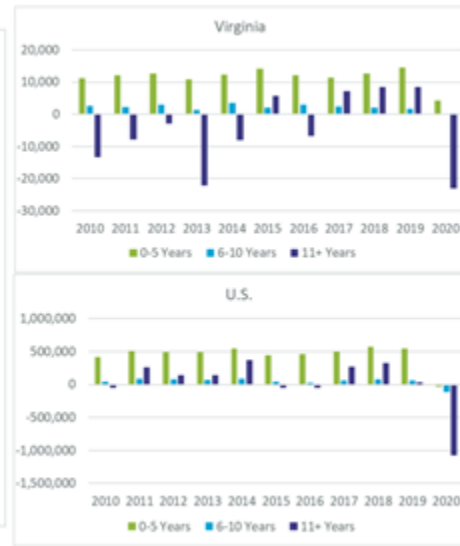
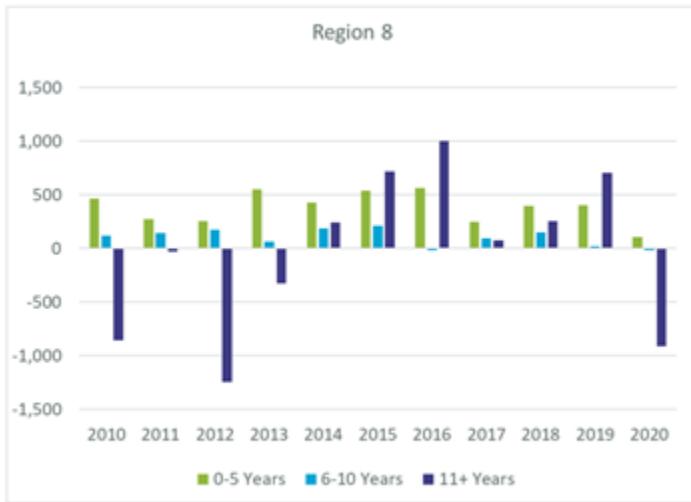
Traded Industry Employment Levels by Firm Age as a Percentage of Total Employment
 Note* Averaged 2010Q1 through 2020Q2



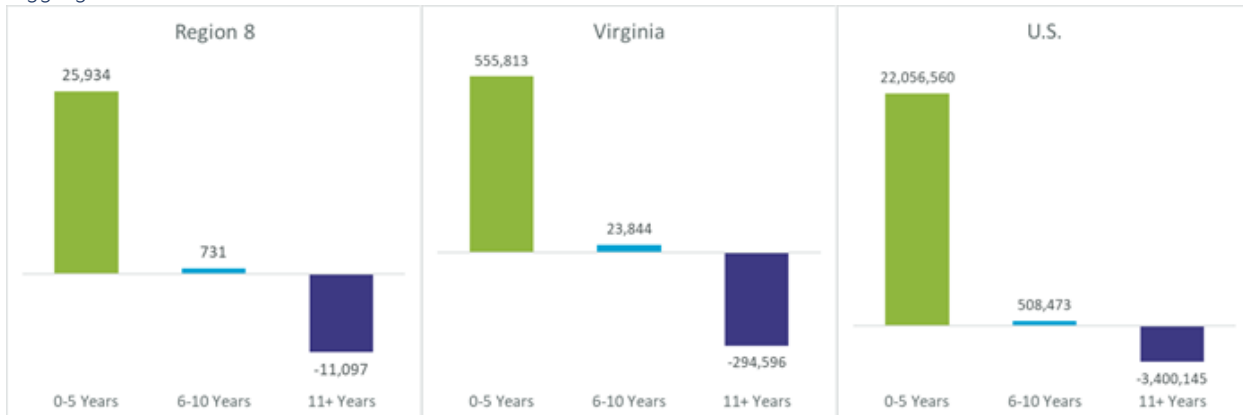
- **What is it?** A more “static” look at where current traded industry jobs are found by different firm ages across all traded industries
- **Why it matters?** Makes the point that job retention activities with existing firms are an important component of a region’s economic development strategy

Traded Industry Job Change by Firm Age 2010Q1-2020Q2
 Source: U.S. Census Bureau Quarterly Workforce Indicators dataset

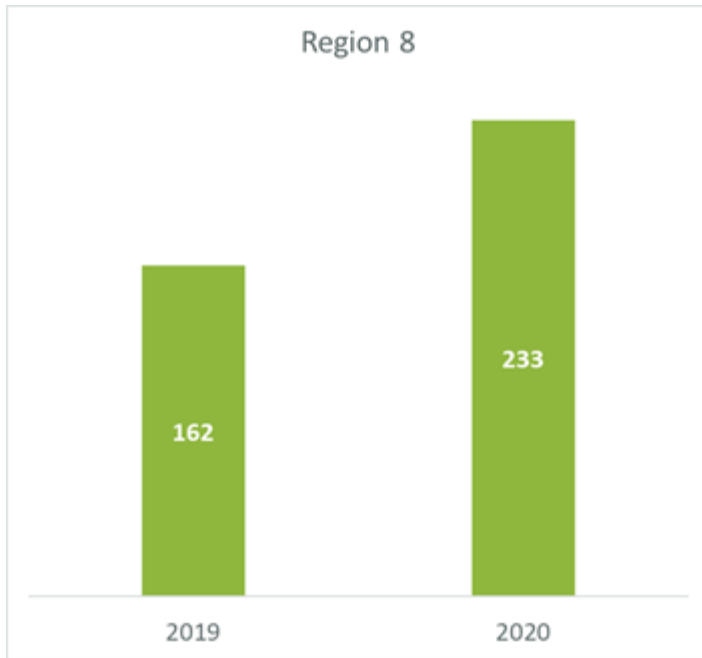
Annual Change



Aggregate



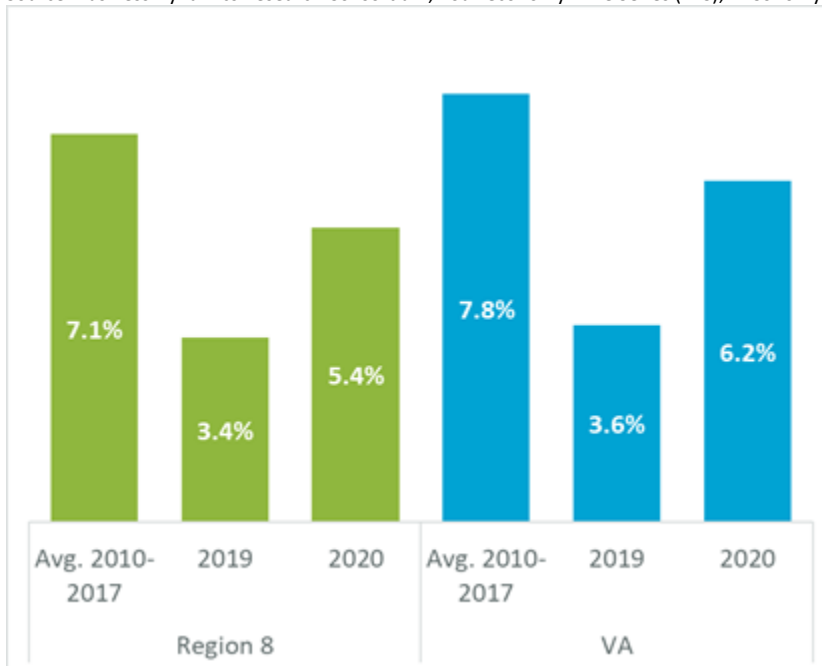
*New Business Formation Statistics
New Startups in Traded Industries, 2019 and 2020*



New Business Formation Rate in Traded Industries, 2010-2020

Note: 2018 excluded due to addition of a major source of firm data to underlying BDRC database that makes comparisons using 2018 not possible

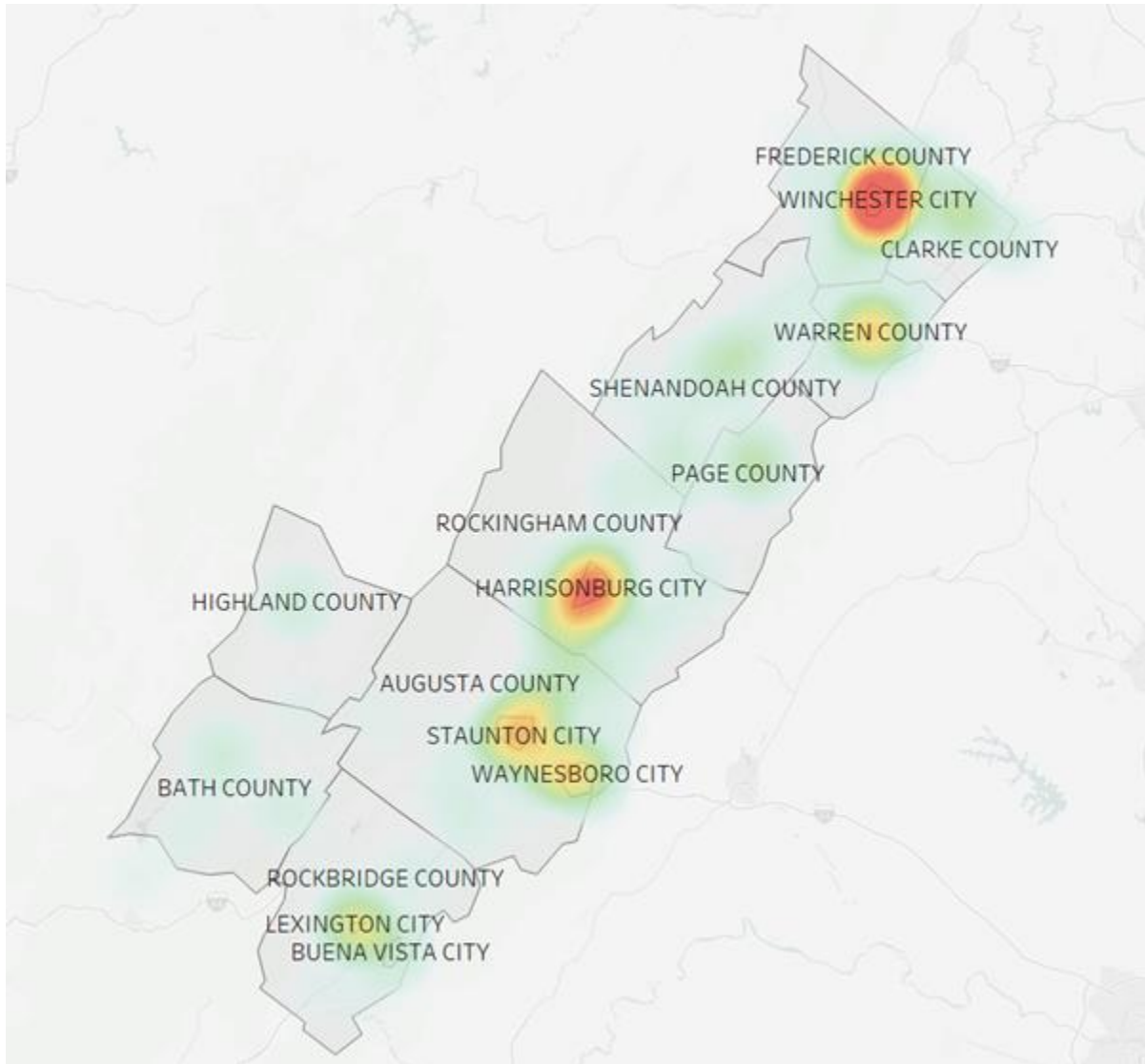
Source: Business Dynamics Research Consortium, Your-economy Time Series (YTS); TEconomy analysis.



Startup Density Across Region 8*

*Startup density is relative to overall regional startup rates

Source: Business Dynamics Research Consortium, Your-economy Time Series (YTS); TEconomy. Analysis



Note: This map is based on geocoordinates of individual establishments, not an aggregation of establishment counts to a prescribed geography such as census tracts. The mapping software plots a visualization of startup spread by analyzing the clustering of coordinates in a multi-dimensional spatial context relative to each region. It is not possible to provide a numeric estimate of density (i.e., establishments per square mile) since calculation of spread is multi-dimensional and not fixed to a prescribed geographic boundary.

Profile of Startup Activity within Key Regional Industry Clusters

Major Traded Industry Cluster***	Startups, 2019	New Business Formation Rate, 2019		Startups, 2020	New Business Formation Rate, 2020	
		Region	State		Region	State
		Agriculture & Food Processing	16		3.2%	4.1%
Business Services	41	3.4%	4.4%	83	7.8%	7.6%
Energy, Natural Resources, & Finished Products	4	1.9%	2.5%	5	2.5%	3.9%
Engineering, R&D, Testing & Technical Services	5	4.5%	4.2%	9	9.2%	7.4%

Financial & Insurance Services	11	2.8%	3.5%	12	2.7%	4.0%
Health Care Services	2	2.2%	4.2%	16	18.2%	15.8%
Information Technology & Communications Services	7	5.3%	3.6%	13	10.4%	8.0%
Life Sciences	3	3.8%	2.7%	5	6.8%	6.1%
Manufacturing	7	1.9%	2.1%	8	2.5%	3.7%
Ship Building, Aerospace, & Defense			1.1%			0.9%
Transportation, Distribution and Logistics	32	5.0%	2.9%	21	4.0%	4.6%
All Other Traded Industries	34	3.2%	3.3%	48	5.0%	5.9%
Traded Industry Total	162	3.4%	3.6%	233	5.4%	6.2%

Page Break Comparison of New Business Formation and Overall Economic Performance of Traded Industry Sectors

Major Traded Industry Cluster	Regional Position in New Business Formation Relative to State Average*	Summary of Economic Development Position in Region, 2018-2020	Measures of Regional Economic Performance for overall Traded Industry Cluster			
			2020 Employment	2020 Location Quotient	Regional 2018-20 Percentage Job Growth	U.S. 2018-20 Percentage Job Growth
Agriculture & Food Processing	Below	Large, Current Strength	14,494	3.02	1.4%	0.4%
Business Services	Mixed	Mid-sized, Emerging Strength	6,554	0.54	7.3%	0.3%
Energy, Natural Resources, & Finished Products	Below	Mid-sized, Declining Specialization	4,557	1.20	-6.3%	-3.3%
Engineering, R&D, Testing & Technical Services	Above	Small, Declining	1,053	0.37	-10.8%	3.8%
Financial & Insurance Services	Below	Small, Emerging Strength	1,365	0.28	3.6%	0.0%
Health Care Services	Mixed	Mid-sized, Emerging Strength	8,565	1.11	2.5%	0.8%
Information Technology & Communications Services	Above	Small, Declining	1,226	0.25	-9.1%	6.9%
Life Sciences	Above	Small, Emerging Strength	2,026	0.81	23.8%	4.6%
Manufacturing	Below	Large, Declining Specialization	15,533	1.33	-3.1%	-3.1%
Ship Building, Aerospace, & Defense	Below	Small, Declining	43	0.04	-8.4%	4.7%

Transportation, Distribution and Logistics	Mixed	Large, Current Strength	13,066	1.24	9.0%	2.1%
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Summary Assessment Typology Definitions

Summary Assessment Typology

Summary Assessment of Regional Position in New Business Formation

Summary Category	Comparison of Region to State Business Formation Rates for 2019 and 2020
Above	Region higher in business formation rate than state in both 2019 and 2020
On Par	Within 0.2 percentage points of state
Mixed	Region higher in business formation rate than state in one year and lower in another year
Below	Region lower in business formation rate than state

Summary Assessment of Regional Economic Performance in Traded Industry Cluster

Summary Category by Size of Firm	Size of Traded Industry Cluster Employment Compared to Total Traded Industry Employment		
	Under 5%	Between 5%-15%	Over 15%
Large			✓
Mid-Sized		✓	
Small	✓		

Summary Category by Performance	Regional Economic Measures		
	Location Quotient Above 1.2	Positive Job Growth	Higher Job Growth Compared to National Average
Current Strength	✓	✓	✓
Growing Specialization	✓	✓	
Declining Specialization	✓		
Emerging Strength		✓	✓
Emerging Opportunity		✓	
Declining			



11

Page Break

Research & Development

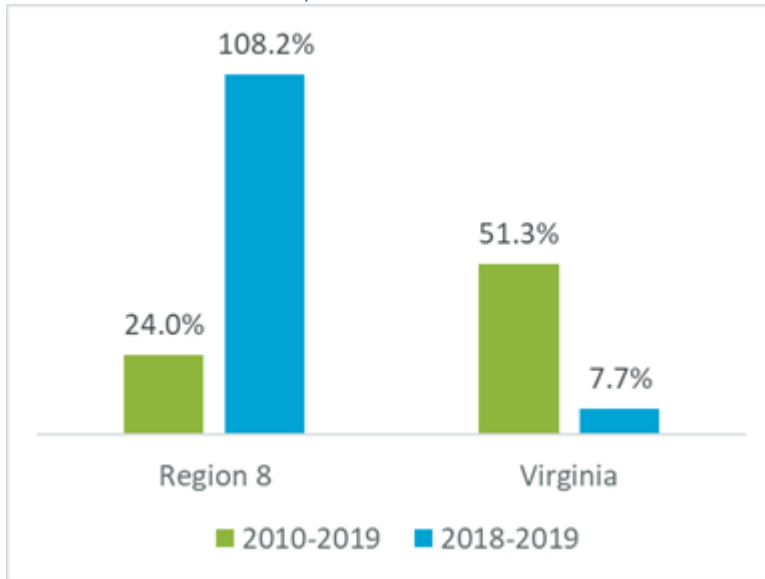
Academic R&D Expenditures (Millions)

Region 8	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
James Madison University	\$7.0	\$7.3	\$8.9	\$5.8	\$4.6	\$3.7	\$3.3	\$3.2	\$4.2	\$8.7	\$56.9

Academic R&D Expenditures, Top 5 Disciplines

Field	R&D Expenditures, 2010-19 (Mil)	% Of Total
Other Geosciences, Atmospheric Sciences, and Ocean Sciences	\$9.8	16.2%
Biological and Biomedical Sciences	\$7.1	14.1%
Chemistry	\$5.2	12.0%
Civil Engineering	\$4.5	11.7%
Geological and Earth Sciences	\$4.3	12.7%

Growth in Academic R&D Expenditures



Page Break

Patent Activity

Total Patents, 2010-2020

Region 8	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Patent Counts	94	98	60	78	98	77	81	105	81	92	79	943

Patents by Technology Class Area

Technology Class Area	Number of Patents, 2010-2020
diagnosis; surgery; identification	73
transmission of digital information, e.g., telegraphic communication	60
electrical digital data processing	33
transport or storage devices, e.g., conveyers for loading or tipping; shop conveyer systems; pneumatic tube conveyers	25
semiconductor devices; electric solid state devices not otherwise provided for	21
wireless communications networks	20
filters implantable into blood vessels; prostheses; devices providing patency to, or preventing collapsing of, tubular structures of the body	19
preparations for medical, dental, or toilet purposes	18
data processing systems or methods, specially adapted for administrative, commercial, financial, managerial, supervisory or forecasting purposes	17

domestic washing or cleaning	15
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Venture Capital Activity

Deal Counts and Investments

Region 8	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Deal Counts		2	1	3	4	3	3	4	2	4	2	28
Investment Totals (Millions)		\$11.9	\$0.2	\$1.1	\$0.5	\$20.4	\$7.7	\$0.2	\$5.5	\$20.1	\$66.3	\$133.8

Deal Counts and Investments by Stage

Region 8	Pre-Seed	Angel	Seed	Early Stage	Later Stage	Total
Deal Counts	6	10	4	2	6	28
Investment Totals (Mil)	\$0.2	\$10.5	\$1.7	\$5.7	\$115.7	\$133.8

Small Business Funding

Federal Small Business Innovation Research (SBIR) Awards

Region 8	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Award Counts	2			1		3	2	4	3	1	3	19
Award Amounts (Millions)	\$0.5			\$0.2		\$0.7	\$0.8	\$0.4	\$2.3	\$0.1	\$0.5	\$5.6

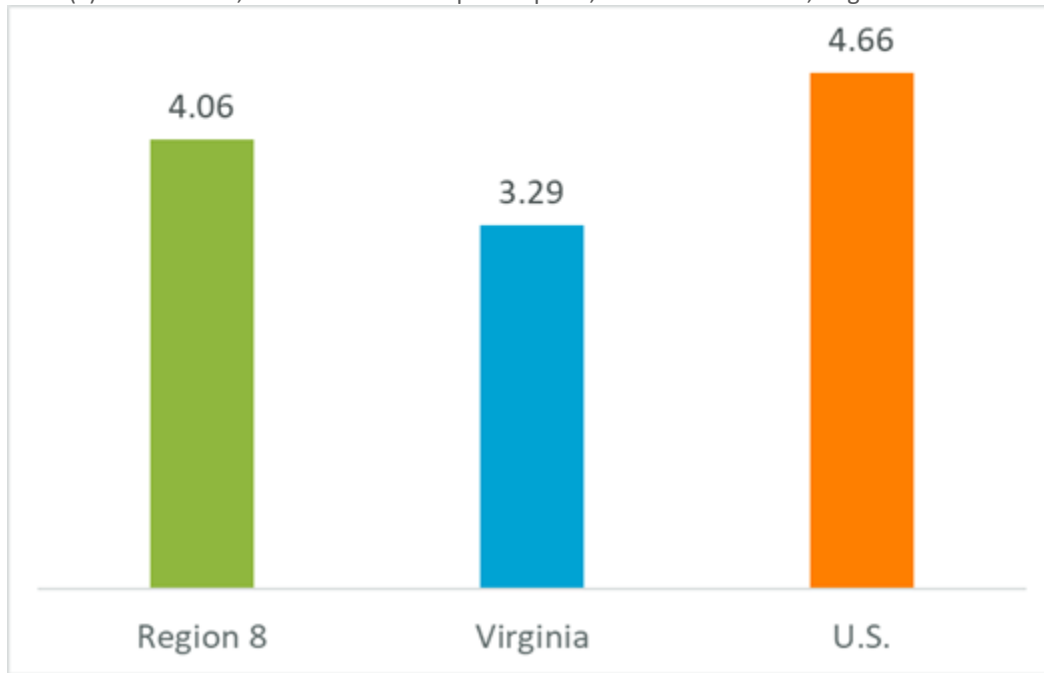
SBA 7(a) Loans, Cumulative Totals 2010-2020

Industry Clusters	Co's Receiving Loans	Total No. of Loans	Total Loan Amounts (\$ Millions)	% of Total Loan Amounts
Total, All Traded Sector Industries	113	138	\$72.2	100%
Agriculture & Food Processing	18	23	\$12.7	17.5%
Business Services	16	22	\$4.7	6.6%
Energy, Natural Resources, & Finished Products	7	10	\$1.0	1.4%
Engineering, R&D, Testing & Technical Services	2	2	\$0.1	0.2%
Financial & Insurance Services	3	3	\$0.7	1.0%
Information Technology & Communications Services	4	4	\$0.3	0.4%
Life Sciences	1	1	\$0.2	0.2%
Manufacturing	13	19	\$5.5	7.6%
Transportation, Distribution and Logistics	25	27	\$6.0	8.4%

All Other Traded Sectors	24	27	\$41.0	56.8%
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Use of SBA Loans vs. State and U.S. Totals

SBA 7(a) Loan Counts, Traded Sector Companies per 1,000 Establishments, Avg. 2018-2020



Appendix D: Site Development Data

Site Name	Locality	Ownership	Original G&D Plan Priority	VBRS Tier 2018	VBRS Tier 2021	Site Enhancement Project 2021	Tier after GOVA Funding
Martin Site	Augusta	Private	1	1	2	Y	4
Innovation Village at Rockingham Mill Place	Rockingham	Public	2	2	2	Y	4
Commerce Park	Augusta	Public	3	4	4		
Shenandoah Valley Industrial Park - South Campus	Rockingham	Private	4	2		Y	4
Acorn Westgate Town Center	Augusta	Private	5				
Argenbright Center	Augusta	Private	6				
MEG Site	Augusta	Private	7	2			
Blue Mountain	Augusta	Private	8	2			
Staunton Crossing	Staunton	Public	9	2	3	Y	3
Turkey Knob-Mt. Jackson	Shenandoah	Public	10	2			
Nature's Crossing	Waynesboro		11		3		
Stephens Industrial Park	Warren	Private	12				
Artillery Business Center	Frederick	Private	13			Y	4
Graystone Business Park	Frederick	Private	14	2	2	Y	4
Bath County Industrial Park	Bath	Public	15	4	4		
Northern Shenandoah Industrial Park	Shenandoah	Public/Private		2	2	Y	3
Green Hill Industry and Technology Center	Staunton			2		Y	3
Carroll Industrial Park	Frederick	Private		2	2		
Avtex	Warren	Public		2			
Crooked Run Center Phase 2	Warren	Private		2			
Happy Creek Technology Park	Warren			2			
Jett Farm	Warren	Private		2			
Mt. Jackson	Shenandoah	Public		2			

Outlet Village	Waynesboro	Private		2	2	Y	4
Greenville Property	Augusta	Private		2			
Waynesboro Commerce and Industry Park	Waynesboro	Public		2	2		
Waynesboro Town Center and Commercial Park	Waynesboro	Private		2	2		
Holland Property	Rockbridge	Private			2		
Rockbridge Regional Industrial Park	Buena Vista	Private		2			
Wilson Commerce Park	Augusta	Private		2			
Bluestone Industrial Park	Frederick	Private		2	4		