



GROW CAPITAL JOBS  
2023 GROWTH AND  
DIVERSIFICATION PLAN UPDATE



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## EXECUTIVE SUMMARY

- Region Four will retain its 4 priority clusters- Advanced Manufacturing, Information Technology, Logistics and Bioscience. The Council has voted to prioritize Pharmaceutical Manufacturing and information Technology in its upcoming Talent Pathways Initiative proposal. Since the 2021 Growth and Diversification Plan was produced, Controlled Facility Agriculture has emerged as a niche opportunity for the region.
- Logistics and Manufacturing have been the strongest performers of the 4 priority clusters since 2021. Between 2021 and 2023Q3 in Region 4 total employment in all industries grew by 3.6%. Logistics grew by 8.2% and Manufacturing by 3.9%. Average annual wages in all Region 4 industries increased by 6.4% to \$64,411. Wages in Logistics increased by 11.5% to \$64,884. Manufacturing wages increased by 6,2% to \$73,982. Employment percentage increases in the Crater area localities were greater in 3 of the 4 priority clusters than increases in the Richmond area localities.
- GO Virginia’s support for the Pharmaceutical Manufacturing cluster had a significant return on investment since 2021. The strategic plan that was developed with a \$100 thousand Enhanced Capacity Building grant became the core of a proposal that received \$52.9 million from the U.S. Economic Development Administration in a nationwide Build Back Better competition. The decision by companies such as Civica RX to locate facilities in Petersburg and Chesterfield demonstrates the extraordinary potential that the cluster has for the region.

In October 2023, the U.S. Economic Development Administration designated the Richmond MSA an Advanced Pharmaceutical Manufacturing Tech Hub. Led by the Commonwealth Center for Advanced Manufacturing (CCAM), the designation was granted to 31 regions out of nearly 400 applicants. program invests directly in burgeoning, high-potential U.S. regions and aims to transform them into globally competitive innovation centers. The designated Tech Hubs can apply to receive between \$40 million and \$70 million each for implementation funding,

- The Virginia Economic Development Partnership (VEDP) has specified Knowledge Work, Manufacturing and Logistics as its highest priority targets. Region 4’s priority clusters are well aligned with these. VEDP has noted that while Knowledge Work industries are forecasted to provide 51% of employment growth until 2030, Virginia’s growth in this cluster is lagging national averages. Since 2021, the same is true in Region 4. Information Technology employment has increased by only 1.7% and Bioscience by .7%, well below the all-industry 3.6% average. Traded sector Bioscience jobs have declined in absolute numbers.
- The Council is already taking proactive steps to increase the growth rates in the Knowledge Work sectors.
  - The Regional Entrepreneurial Initiative is developing concrete strategies for nurturing tech-based high growth scale ups, improving the ecosystem for commercializing

university-based intellectual property, and developing a regional identity and focus within the Information Technology sector.

- The Talent Pathways Initiative proposal is explicitly focused on addressing the skill gaps in Pharmaceutical Manufacturing and Information Technology and fostering stronger partnerships between the region's educational institutions and businesses within the two clusters.
  - The Regional Council will continue to work closely with the Alliance for Better Medicine in building out the Pharmaceutical Manufacturing Cluster.
  - RVA 757Connects has stood up the Global Internet Hub Council as an outgrowth of the Region 5/Region 4 Enhanced Capacity grant on becoming a Global Internet Hub. The GIH Council will position the region as a preferred site for data center expansion and promote strategic growth in the region's digital infrastructure.
- During the next two years, the Region will continue to utilize successful models to focus its project directions and sustain its success in Manufacturing and Logistics in the face of an uncertain economic environment. Examples are work-based learning programs such as FAME, Startup VA's Idea Factory, and the successful development of business-ready sites.

At the same time, the Council will need to be responsive to changing conditions and the challenges that VEDP has articulated, that are evident in regional data trends, and are seen in the challenges of utilizing office space to grow the Knowledge Work sectors.

Stakeholders interviewed in process of updating the plan across multiple industries have emphasized the crucial importance of partnerships: deeper and broader connections between business and **all** the colleges and universities in the region; ongoing collaborations with local and regional economic development officials; and partnering to develop a high functioning ecosystem for entrepreneurs.

The Council may also consider broader, statewide, and inter-regional partnerships. The collaborations between Region 4 and Region 5 on the Global Internet Hub and between Region 4 and Region 3, site development collaborations and with opportunities for VCU's Medicines for All to work collaboratively and UVA's Paul and Diane Manning Institute of Biotechnology and the Fralin Biomedical Research Institute at Virginia Tech.

## PRIORITY CLUSTERS

The Region 4 Council designated 4 priority clusters in its 2021 Growth and Diversification Plan, and these will continue to be the foundation of its work moving forward.

ADVANCED MANUFACTURING
INFORMATION TECHNOLOGY
LOGISTICS
BIOSCIENCE

These focus areas closely track the 3 traded sector industry clusters that the Virginia Economic Development Partnership (VEDP) has prioritized as critical to the future of employment growth in the Commonwealth:

- Knowledge Work (includes much of what Region 4 labels IT and Bioscience)
- Manufacturing
- Logistics

VEDP forecasts that 64% of traded sector growth until the year 2030 statewide will occur in these three sectors, with an absolute majority of jobs in the Knowledge Work sector. If the Commonwealth continues its forecasted path, it will have an overall ranking in the middle of the states with above average growth in Manufacturing and Logistics, but below average growth in Knowledge Work sectors.

Cluster	Employment (Thousands) 2022	Growth 2022=30	% of Tradeable Sector Growth	Virginia Projected Ranking (2022-30)
Knowledge Work	719.6	1.0	51.4	31
Manufacturing	108	1.3	9.7	13
Logistics	85.2	.5	3.1	17
Total Priority Sectors	912.8	-	64.2	24

The Region 4 Council voted to make two of its priority clusters, Advanced Manufacturing (with a pharmaceutical manufacturing emphasis) and Information Technology the focus areas for the Talent Pathways Initiative proposal that it will be submitting. The Council also recognizes that there may be what VEDP labels “niche opportunities” that may be fruitfully pursued such as Controlled Environment Agriculture which could elevate a sector such as food and beverage manufacturing in the future.

## ECONOMIC PERFORMANCE: 2021-2023

As of 2023Q1, the largest industry sectors in GO Virginia Region 4 are health care and social assistance, employing 95,906 workers, retail trade (67,196 workers) and educational services (53,347 workers). These are the same three sectors which employed the most workers in 2021Q1. The sectors in GO Virginia Region 4 with the highest average wages per worker are management of companies and enterprises (\$131,825), utilities (\$118,296), and finance and insurance (\$118,068). Each of these sectors pays annual average wages which are well above the region's average of \$64,411.

Regional industries with the greatest job growth over the last two years are accommodation and food services (+11,127 jobs), arts, entertainment, and recreation (+5,196), and administrative and support and waste management and remediation services (+4,276). In GO Virginia Region 4, finance and insurance suffered the largest decline in employment since 2021Q1, with a loss of 1,085 jobs.

Over the next two years, employment in GO Virginia Region 4 is projected to expand by a total of 6,486 jobs. This represents a 0.5% year-over-year rate of growth for the next two years. The fastest-growing sector in the region is expected to be arts, entertainment, and recreation with a 1.7% year-over-year rate of growth. The largest employment increases in the number of jobs over this period are expected for health care and social assistance (1,890 new jobs), accommodation and food services (+1,370), and educational services (+750). These changes do not include demand due to retirements and career changes. Manufacturing, for example, is expected to hire almost 6,850 workers even though the sector is forecast to shrink by 349 jobs over the next two years.

### GO Virginia Region 4 Industry Snapshot

NAICS Code	Industry	Employment		Average Annual Wages		Historical Empl Change	Forecast Empl Change
		2021 Q1	2023 Q1	2021 Q1	2023 Q1	2021Q1-2023Q1	2023Q1-2025Q1
11	Agriculture, Forestry, Fishing and Hunting	2,185	2,298	\$33,724	\$36,595	113	16
21	Mining, Quarrying, and Oil and Gas Extraction	375	407	\$69,242	\$83,883	31	6
22	Utilities	3,525	3,368	\$115,998	\$118,296	-157	-102
23	Construction	44,088	46,752	\$59,955	\$67,990	2,665	294
31	Manufacturing	31,216	33,140	\$68,087	\$73,928	1,924	-349
42	Wholesale Trade	22,605	23,011	\$72,771	\$82,928	406	101
44	Retail Trade	64,750	67,196	\$28,701	\$39,394	2,446	-428
48	Transportation and Warehousing	32,856	36,561	\$46,936	\$56,259	3,705	492
51	Information	7,026	7,311	\$71,321	\$79,210	285	122
52	Finance and Insurance	39,932	38,847	\$107,775	\$118,068	-1,085	361
53	Real Estate and Rental and Leasing	10,603	12,839	\$64,875	\$79,680	2,236	0
54	Professional, Scientific, and Technical Services	44,750	47,962	\$86,351	\$95,553	3,211	691
55	Management of Companies and Enterprises	21,653	22,227	\$128,164	\$131,825	574	98
56	Administrative and Support and Waste Management and	43,920	48,196	\$42,686	\$51,182	4,276	254

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NAICS Code	Industry	Employment		Average Annual Wages		Historical Empl Change	Forecast Empl Change
		2021 Q1	2023 Q1	2021 Q1	2023 Q1	2021Q1-2023Q1	2023Q1-2025Q1
	Remediation Services						
61	Educational Services	51,016	53,347	\$49,862	\$52,405	2,331	750
62	Health Care and Social Assistance	93,296	95,906	\$56,760	\$62,982	2,610	1,890
71	Arts, Entertainment, and Recreation	12,250	17,445	\$24,715	\$26,259	5,196	581
72	Accommodation and Food Services	40,212	51,339	\$20,130	\$24,973	11,127	1,370
81	Other Services (except Public Administration)	31,352	34,132	\$36,098	\$40,977	2,780	497
92	Public Administration	41,020	40,983	\$64,545	\$73,728	-37	-369
99	Unclassified	1,856	2,645	\$50,105	\$57,206	790	29
	<b>Total – All Industries</b>	<b>640,486</b>	<b>685,913</b>	<b>\$58,449</b>	<b>\$64,411</b>	<b>45,427</b>	<b>6,486</b>

Source: Chmura's [JobsEQ®](#)

NAICS Codes are the North American Industry Classification Codes assigned to classify companies according to their primary business activity.

Since 2021, ten firms in Region 4 have announced plans to add at least 100 jobs in target industry clusters. The largest announcements were for CoStar (nearly 2,000 jobs within the Information Technology and Communication cluster) and for Lego Group (more than 1,700 jobs within the Advanced Manufacturing cluster). Most of these announcements are in Manufacturing (five out of ten companies, as shown in the table below), followed by Logistics, Warehousing, and Distribution (Amazon and Lowe's) and Bioscience/Life Sciences (PPD and Aditxt). These announcements are expected to continue to increase occupation demand over the next few years.

### Ten Firms in Region 4 Announced at Least 100 New Jobs in Target Industry Clusters

Company Name	Locality	Description	Month Announced	New Jobs
CoStar	Richmond City	Provides real estate information, analytics, and online marketplaces	Dec 2021	1,984
Lego Group	Chesterfield	LEGO brand toys manufacturer	June 2022	1,761
Amazon	Henrico	Robotics fulfillment center	April 2021	1,000
PPD	Henrico	Bioanalytics R&D lab	March 2022	458
Aditxt	Richmond City	Immune cell reprogramming and monitoring	May 2021	347
Starplast USA LLC	Chesterfield	Manufactures and distributes home and office plastic containers to major retailers	Dec 2021	300
Grenova Inc.	Richmond City	Manufactures and supplies laboratory equipment	April 2021	250
Lutron Electronics Co., Inc.	Hanover	Manufactures light controls, automated shading solutions, and intelligent fixtures	Sept 2022	200
Weidmuller Group	Chesterfield	Manufactures electrical components for EV market	April 2023	140
Lowe's Companies, Inc.	Richmond City	Distribution center for Lowe's Home Improvement	Mar 2021	100

Source: VEDP Virginia Announcements Data, Chmura

### EMPLOYMENT in PRIORITY CLUSTERS: 2021-2023

Between 2021 and the first quarter of 2023, overall employment in Region 4 grew 3.6%, reaching 685,459 workers. In target industry clusters, Logistics, Warehousing, and Distribution experienced the fastest growth at 8.2% (to 41,439 workers). This was followed by Manufacturing, up 3.9% to 33,140 workers. Information technology and Communication saw more modest growth of 1.7% (to 47,534 workers) as did Bioscience/Life Sciences at 0.7% (to 67,377 workers).

Employment in GO Virginia Region 4 (Four-Quarter Moving Average)						2021 to 2023Q1	
	2019	2020	2021	2022	2023Q1	%	#
Manufacturing	32,997	33,165	31,902	33,027	33,140	3.9%	1,238
Logistics, Warehousing, and Distribution	34,268	33,753	38,305	40,674	41,439	8.2%	3,134
Information Technology and Communication	48,106	46,586	46,719	47,454	47,534	1.7%	814
Bioscience/Life Sciences	71,858	70,674	66,939	67,001	67,377	0.7%	439
<b>Total - All Industries</b>	<b>685,085</b>	<b>678,263</b>	<b>662,383</b>	<b>681,952</b>	<b>685,913</b>	<b>3.6%</b>	<b>23,530</b>

Source: Chmura's JobsEQ

The growth from 2021 can be partially attributed to recovery from COVID-19 pandemic job losses. As of the first quarter of 2023, overall employment in the region is 639,487, a 0.1% increase over average employment in 2019. Over the same period, Logistics, Warehousing, and Distribution increased 20.9%, adding 7,171 new jobs. Bioscience/Life sciences saw the largest decline, down 6.2% for a loss of 4,481 jobs, driven by declines in hospitals and nursing facilities. Looking ahead, however, Pharmaceutical Manufacturing continues to expand in Petersburg, and a bio-analytics R&D lab in Henrico announced in 2022 the addition of more than 450 new jobs. Manufacturing rose 0.4% (+143 jobs) over pre-pandemic levels, and Information technology and Communication is down 1.2% (-572) over this period.

### WAGES IN PRIORITY CLUSTERS: 2021-2023

Between 2021 and the first quarter of 2023, average annual wages in Region 4 grew 6.4%, reaching an annual average of \$64,411. Among the target industry clusters, wages in Logistics, Warehousing, and Distribution have moved from below-average to above-average—the cluster saw the fastest growth in wages over this period, up 11.5% to \$64,884. Average wages in Manufacturing grew 6.2% to \$73,928, wages in Bioscience/life Sciences grew 5.5% to \$64,869, and wages in Information Technology and Communication grew 5.1% to \$83,456.



### Average Annual Wages in GO Virginia Region 4

2021 to 2023Q1

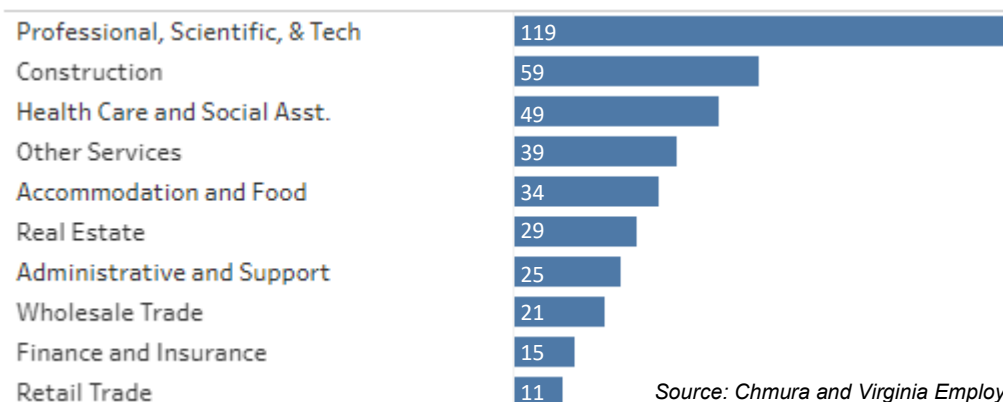
	2019	2020	2021	2022	2023Q1	%	#
Manufacturing	\$66,697	\$68,422	\$69,624	\$73,085	\$73,928	6.2%	\$4,304
Logistics, Warehousing, and Distribution	\$52,485	\$55,458	\$58,171	\$63,484	\$64,884	11.5%	\$6,713
Information Technology and Communication	\$74,460	\$75,823	\$79,396	\$82,488	\$83,456	5.1%	\$4,060
Bioscience/Life Sciences	\$56,352	\$58,088	\$61,461	\$64,102	\$64,869	5.5%	\$3,408
<b>Total-All Industries</b>	<b>\$53,752</b>	<b>\$57,939</b>	<b>\$60,541</b>	<b>\$63,771</b>	<b>\$64,411</b>	<b>6.4%</b>	<b>\$3,870</b>

Source: Chmura's JobsEQ

### ENTREPRENEURIAL ACTIVITY

Entrepreneurial activity is another important source of job creation and is a key indicator of innovative capacity in an economy. GO Virginia Region 4 had the third-largest number of new startups<sup>1</sup> in the state in 2022Q4. An encouraging trend in Region 4 is the formation of 119 new startups in the professional, scientific, and technological sector in 2022Q4—the largest of any sector in the region. Those new startups provided jobs for 180 people, or 20% of all new startup employment. The industry with the largest new startup employment in the region is accommodation and food services (198 employed among 34 new startups). As these small businesses contribute to overall community attractiveness and character, a thriving entrepreneurial system, including industries outside of the target clusters, is an important engine to support continued growth in high-wage jobs.

Number of New Startups by Industry in Region 4, 2022Q4



Source: Chmura and Virginia Employment Commission

<sup>1</sup> New startups are defined by Chmura and Virginia Innovation Partnership Corporation as businesses first appearing in quarterly data from the Virginia Employment Commission and having 20 or fewer employees. See the interactive dashboard at <https://www.virginiaipc.org/resources#WcrHKP>.

## SKILLS GAPS IN TARGETED CLUSTERS

This section details immediate and potential gaps in occupations and skills to support employment growth in GO Virginia Region 4. Current demand is based on Real-Time Intelligence (RTI) gathered and analyzed by Chmura from online job postings over the last 12 months. **Most of the in-demand occupations are in the Information technology and Communication cluster, with typical education requirements split between a bachelor’s degree and high school diploma.**

Job openings identify an immediate skills gap for employers and an opportunity for job seekers. Large numbers of job postings for individual occupations suggest that a specific skill is in high demand. The table below identifies demand for key occupations in the target industry clusters based on job ads over the past year. Specifically, these occupations account for a large share of employment in the cluster, or a substantial amount of total employment in the occupation is in that cluster. These occupations also typically pay above the regional average wage. For some occupations, pay range may depend on employment within the cluster—for example, computer user support specialists typically earn more in the bioscience/life sciences cluster than in other industries.

The greatest number of job ads over this period is for computer and information systems managers (6,421). This is followed by software developers (4,311) and sales representatives of services (4,158). Key occupations that cross multiple clusters include management analysts (3,394), business operations specialists (1,979), general and operations managers (1,254), and market research analysts and marketing specialists (704). Occupations with a high number of job postings that typically require only a high school diploma are sales representatives of services and first-line supervisors (across multiple industries).

### Job Postings for Key Cluster Occupations Paying Above-Average Wages

SOC Code	Occupation	Active Job Ads	Median Duration	Median Wage	Typical Education Required	Relevant Cluster			
						MFG	BIO	IT	LWD
11-3021	Computer and Information Systems Managers	6,421	34	\$109,588	Bachelor's			✓	
15-1252	Software Developers	4,311	32	\$112,180	Bachelor's		✓	✓	
41-3091	Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	4,158	40	\$60,000	High school diploma or equivalent			✓	✓
15-1232	Computer User Support Specialists	3,954	30	\$45,760	Some college		✓		
13-1111	Management Analysts	3,394	26	\$74,984	Bachelor's		✓	✓	✓
13-2011	Accountants and Auditors	2,394	31	\$61,400	Bachelor's		✓	✓	
11-9041	Architectural and Engineering Managers	2,372	34	\$86,311	Bachelor's	✓			
43-1011	First-Line Supervisors of Office and Administrative Support Workers	2,320	33	\$47,853	High school diploma or equivalent		✓		✓
15-1244	Network and Computer Systems	2,204	31	\$84,654	Bachelor's			✓	

## Job Postings for Key Cluster Occupations Paying Above-Average Wages

SOC Code	Occupation	Active Job Ads	Median Duration	Median Wage	Typical Education Required	Relevant Cluster			
						MFG	BIO	IT	LWD
	Administrators								
13-1199	Business Operations Specialists, All Other	1,979	32	\$53,186	Bachelor's	✓	✓	✓	
11-2021	Marketing Managers	1,935	32	\$79,380	Bachelor's			✓	
15-1299	Computer Systems Engineers/Architects	1,738	33	\$120,700	Bachelor's			✓	
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	1,425	38	\$57,507	High school diploma or equivalent			✓	
15-2031	Operations Research Analysts	1,318	31	\$63,228	Bachelor's			✓	
11-1021	General and Operations Managers	1,254	33	\$60,000	Bachelor's	✓	✓	✓	✓
15-1299	Information Technology Project Managers	1,151	25	\$106,465	Bachelor's			✓	
51-1011	First-Line Supervisors of Production and Operating Workers	1,082	32	\$42,272	High school diploma or equivalent	✓	✓		
15-1211	Computer Systems Analysts	1,033	31	\$82,495	Bachelor's			✓	
11-2022	Sales Managers	991	36	\$62,800	Bachelor's			✓	
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	818	48	\$73,559	High school diploma or equivalent			✓	
17-2071	Electrical Engineers	805	33	\$93,600	Bachelor's	✓			
13-1151	Training and Development Specialists	792	29	\$58,980	Bachelor's			✓	
15-1212	Information Security Analysts	753	31	\$97,140	Bachelor's			✓	
13-1161	Market Research Analysts and Marketing Specialists	704	35	\$41,800	Bachelor's		✓	✓	✓
19-1042	Medical Scientists, Except Epidemiologists	650	32	\$54,840	Doctoral or professional		✓		

Source: Chmura's JobsEQ.

RTI Data reflect online job postings for the 365-day period ending 9/19/2023.

SOC Code is the Standard Occupational Code assigned to classify workers into occupational categories.

MFG = Advanced Manufacturing. BIO = Bioscience/Life Sciences. IT = Information Technology and Communication. LWD = Logistics, Warehousing, and Distribution.

The average duration of activity across all job ads in the region is 35 days, so ads that stay active for longer indicate difficulty in filling those positions. The longest duration is a median of 48 days for first-line supervisors of construction trades and extraction workers, which support the information technology and communication cluster. Ads for sales representatives of services are staying active for 40 days on average, while first-line supervisors of mechanics, installers, and repairers are typically active for

38 days. Demand is strong even for jobs that close faster than average—information project manager ads are typically active 25 days, and management analyst ads are active for 26 days—but these jobs had over 1,100 and over 3,300 active ads posted, respectively.

The skills gaps for high wage employment evident in the job postings data are almost exclusively in what VEDP labels the Knowledge Work sectors. Our interviews with manufacturers provided feedback that the need for operators and technicians evident at the time 2021 Plan has lessened. At the same time, manufacturers reported that the challenge of retaining their most highly skilled employees remains and that high turnover among the workforce will be a continuing issue.

## **PRIORITY CLUSTERS: SITUATION ANALYSES**

### **ADVANCED MANUFACTURING**

#### *Overview*

Manufacturing experienced growth in both total employment and average wages since the 2021 Growth and Diversification Plan. Employment growth since 2021 (3.9%) in Manufacturing outpaced the Information Technology (1.7%) and Bioscience (.7%) clusters. It continues to be one of the principal target areas for state, regional and local economic development officials. Economic development initiatives in both parts of Region 4 remain focused on attracting and expanding manufacturing operations. The southern part of Region 4 has a lower concentration of businesses in VEDP's Knowledge Work category, and the continued growth of Manufacturing is important to sustaining high wage jobs in the sub-region.

#### *Strengths:*

The Region 4 Council has designated advanced Pharmaceutical Manufacturing one of the two clusters that will be the focus of its Talent Pathways Initiative proposal. Advanced Pharmaceutical Manufacturing is a cluster that links cutting-edge pharmaceutical engineering with innovative manufacturing techniques. It addresses both the urgent need to produce medicines in short supply and a vital national security interest with state-of-the-art manufacturing processes. It is a cluster in which the region can be an international leader in Knowledge Work and manufacturing processes.

The investment that the Council has made in Advanced Pharmaceutical Manufacturing has already catalyzed more than \$100 million in other investments in the sector. Civica RX is locating two of its facilities in Chesterfield and Petersburg. And The Alliance for Building Better Medicine, formed as an outcome of a GO Virginia planning grant, has received a \$52.9 million U.S. Economic Development Administration grant to address the human and physical infrastructure necessary for the cluster's success under the leadership of Activation Capital.

The U.S. Economic Development Administration has recently designated the Richmond MSA, under the leadership of the Commonwealth Center for Advanced Manufacturing (CCAM), an Advanced Pharmaceutical Manufacturing Tech Hub. The designation was granted to 31 regions out of nearly 400 applicants to invest directly in burgeoning, high-potential U.S. regions and aim to transform them into globally competitive innovation centers. The designated Tech Hubs can apply to receive between \$40 million and \$70 million each for implementation funding,

The Community College Workforce Alliance has already developed training programs that have been extremely successful in meeting the needs of existing facilities for operators and technicians. The combination of effective community college programs, the transferability of skills from other manufacturing experiences, and on the job training in programs such as FAME is making progress in addressing immediate needs.

The Virginia Gateway Region (VGR) has been proactive in supporting general manufacturing operations through its work with the Regional Council. VGR has upgraded 15 sites, primarily in the Crater localities, that can support manufacturing facilities in the region,

The introduction of GO-TEC programs to the region's middle schools is a positive step in building a more robust talent pipeline and in marketing the commitment of the region workforce development to prospective employers.

### *Challenges*

- Pharmaceutical manufacturing companies note that they have become reliant on out-of-state recruitment for more highly technical and experienced workers. Enhancing and building out the regional talent development ecosystem at advanced levels will be crucial to sector development.
- The broader economy has clearly slowed hiring in the Manufacturing cluster. Employers told us in our conversations that they are cautious with new hiring. Unlike a few years ago, when there were worker shortages at all levels, employers today are primarily concerned about retaining more skilled employees who can find higher wages elsewhere.
- Bringing effective workforce programs that focus on emerging skill sets to the southernmost part of the region is a challenge that has yet to be successfully met.

### *Opportunities*

- The site development investments that Go Virginia has made in Region 4 and the successes of individual localities in attracting firms to the region should continue to provide opportunities for the location of manufacturing facilities.
- The formation of the Alliance for Building Better Medicine will enable the region to develop a coordinated approach to building out the entire ecosystem that is necessary for the success of a new cluster.
- Partnerships with colleges and universities can strengthen talent development programs for the cluster, especially through internship and coop programs.
- Mobile-based workforce programs that bring equipment and instruction to the southernmost part of the region may be an innovative way of bringing access to an underserved area.

## **INFORMATION TECHNOLOGY**

### *Overview-*

The Bureau of Labor Statistics job forecasts have consistently indicated that Information Technology employment is likely to provide the largest number of highly paid jobs in traded sector industries over the next decade. The Virginia Economic Development Partnership notes that more than 51% of traded sector employment growth in the Commonwealth from 2023 to 2030 will occur in the Knowledge Work category, one that encompasses the principal information technology job categories. In Region 4's 2021 Growth and Diversification Plan, information technology occupations such as software developers were forecasted to produce the largest number of new high paying jobs in the region.

### *Strengths*

The region is home to several finance and insurance companies that are heavily tech oriented as well as the Federal Reserve Bank of Richmond.

Several local universities have strong information technology and engineering programs.

Henrico County has been a leader in bringing world-class internet exchanges and data centers to the region.

### *Challenges*

-The actual growth of information technology jobs in Virginia and in RVA lags the national average. VEDP noted that while Virginia has been a national leader in tech-proficient workers, the forecasted growth only places the Commonwealth 31<sup>st</sup> among all the states.

-A report produced for the RVA757 Global Internet Hub Enhanced Capacity grant indicated that the percentage of IT employees in Hampton Roads and RVA lagged national averages and the growth rates of competitor regions in other states. The 10 years growth of tech employment in RVA was 4.6 per cent, lagging the national average of 6.4% and the 7.3% average of RVA's 11 competitor regions.

-These data were reinforced in our ideation session with Information Technology leaders in the region. From their perspective, the IT employment ecosystem in the region was less than robust. There were a limited number of employment opportunities for IT professionals who might be considering career paths beyond their first job and the region was not generating the growth in startups that were emerging from research universities in other parts of the country. Several participants noted that their firms were hiring individuals to work remotely from Texas and Colorado to fill positions. They believe that RVA does not have a distinctive identity within the tech field that attracts talent to the region.

### *Opportunities*

-The Region 4 Council is supporting several initiatives to expand employment in high-paying IT/Knowledge Work jobs and to enhance the region's overall reputation in the nation's IT ecosystem,

-The Council's Talent Pathways Initiative proposal will have IT/Knowledge Work as one of its two principal focus areas and will bring together business leaders, educational institutions, and professional certification providers to address identified gaps in the Tech Talent Pipeline.

-The Council supported a competitive Go Virginia Enhanced Capacity Building grant with Region 5 that examined the potential for the RVA757 megaregion to become a Global Internet Hub (GIH). The GIH would build upon the presence of international subsea cables in Virginia Beach and data center concentration in Henrico County to accelerate the growth of the digital infrastructure across the entire corridor. The grant has resulted in the formation of Global Internet Hub Alliance based on the model of the Alliance for Building Better Medicine in Pharmaceutical Manufacturing, bringing together business, government, and educational institutions from both regions.

-The Council's Regional Entrepreneurial Initiative (REI) has focused on the enhancement of IT/Knowledge Work startups as a crucial feature. The REI has identified the gaps in the startup ecosystem and is developing a comprehensive strategy to address these.

-The Virginia State University Minority Small Business Launch Center, the Greater Richmond Small Business Launch Center and the draft recommendations in the REI will expand the inclusiveness of the region's entrepreneurial community, both demographically and geographically.

-Council members noted that local jurisdictions are seeing an influx of new residents from higher cost areas, many of whom are working remotely in tech-related jobs. Strategies to integrate these new residents more fully into the information technology ecosystem in the region could ultimately help to grow the tech talent available to Region 4 businesses and startups.

## **LOGISTICS**

### *Overview*

VEDP identifies Logistics as one of its three priority traded sector clusters. Region 4 has historically been able to capitalize on its relative proximity to the Port of Virginia and on its location adjacent to major transportation roads and interchanges. In addition, Region 4's large inventory of available sites and investment in site upgrading has enhanced the region's geographical advantages.

### *Strengths*

The Logistics cluster benefitted from the pandemic more than Region 4's other priority clusters as companies in multiple industries worked to address supply chain issues. In Region 4, the Logistics cluster added more jobs from 2021-2023 than any priority sector and wages increased to become slightly above the regional mean.

### *Challenges*

Although wages in the Logistics cluster have increased significantly, these are still near the bottom of average wages for traded sector priority clusters.

Automation will increase wages for workers but is likely to result in a significant reduction of employees in warehousing and distribution facilities in the next decade.

Local and regional economic development organizations tend to prioritize recruitment of manufacturing companies over logistics facilities. Some local governments have instructed their economic development leaders not to actively pursue certain forms of logistics operations.

### *Opportunities*

-Highly automated logistics facilities are the major exception here and local government officials may look favorably upon their presence. These facilities require fewer employees than a traditional logistics site and an increasing number of tasks are performed by sophisticated equipment which has become a favorable source of revenue for local government officials.

-Modern automated logistics facilities will also foster a change in the composition of the logistics workforce. There will be fewer workers overall but increased employment for those that program, operate, maintain and sophisticated machinery. The skills needed among employees in the automated facility typically lead to an average wage higher than in a traditional warehouse as employees bring a skill set that more closely resembles operators and technicians within a manufacturing environment.

## **BIOSCIENCE/LIFESCIENCES**

### *Overview*

The Bioscience/Life sciences cluster can be separated into traded sectors (export-oriented) and local sectors (primarily serving the local population). Examples of local bioscience/life sciences industries include home health care services, nursing care facilities, medical laboratories, kidney dialysis centers, and hospitals. Local jobs constitute most of the employment in the sector. Traded industries jobs include research and development (R&D) in life sciences; pharmaceutical preparation manufacturing; and medical, dental, and hospital equipment and supplies wholesalers.

Virginia Commonwealth University Health blurs these lines. This report, as is typical for cluster analysis, considers hospital systems local. But it should be noted that a certain percentage of patients come to VCU Health from outside the region as a “destination” facility and that research activity at VCU Health contributes to growing traded sector industries in the cluster.

### *Challenges*

-Between 2021 and 2023Q1, employment in the traded cluster declined 2.6% to 6,043 workers. The decline was driven primarily by research and development industries, specifically R&D in the life sciences, R&D in biotechnology, and R&D in nanotechnology. Despite an overall decline, employment rose over this period in industries such as medicinal and botanical manufacturing and pharmaceutical preparation manufacturing.

<b>Employment in Bioscience/Life Sciences, GO Virginia Region 4</b>	<b>2021 to 2023Q1</b>						
	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023Q1</b>	<b>%</b>	<b>#</b>
Traded	6,802	6,440	6,204	5,992	6,043	-2.6%	-161
Local	65,055	64,233	60,731	61,007	61,331	1.0%	601
<b>Total Bioscience/Life Sciences</b>	<b>71,858</b>	<b>70,674</b>	<b>66,939</b>	<b>67,001</b>	<b>67,377</b>	<b>0.7%</b>	<b>439</b>

*Source: Chmura's JobsEQ*

-Reports produced for the Regional Entrepreneurial Initiative indicate that the region has not realized the commercial potential in the life sciences, noting that despite rising levels of IP creation, the region lacks high-growth university startups and a base of IP-driven emerging companies accessing SBIR funding and formal Venture Capital.



-Discussions with local and regional economic development directors noted that high interest rates have slowed the pace of companies relocating to the region that require extensive lab buildout.

**Opportunities:**

-The scientific basis for Advanced Pharmaceutical Manufacturing is chemical engineering, located primarily at the Medicines for All institute at Virginia Commonwealth University under the direction of Dr. Frank Gupton. Despite the overall decline in traded sector bioscience employment, the promise of Medicines for All catalyzing a Pharmaceutical Manufacturing cluster is closer to realization today than it was in 2021.

-The Regional Entrepreneurial Initiative (REI) that is being quarterbacked by Activation Capital will be crucial to this effort. The REI is finalizing a series of recommendations for immediate implementation to support deep tech commercialization in the life sciences. These recommendations will promote better collaboration with local universities, innovative ways of supporting life science entrepreneurs and a strategy for bringing more venture capital to the region.

-Since the 2021 G&D Plan, the University of Virginia has leveraged a \$100 million gift from Paul and Diane Manning with \$200 million of university and state funds to create the Paul and Diane Manning Institute of Biotechnology. The Fralin Biomedical Research Institute at Virginia Tech recently received a \$50 million transformational gift from the Red Gates Foundation. These two institutes along with Medicines for All at VCU have the potential for enabling Virginia to become an international leader in the manufacture of next generation medicines. Catalyzing collaborative efforts among the three institutes could be a unique opportunity for GO Virginia.

## **PROJECT DEVELOPMENT**

The Region 4 Council will utilize the 2023 Growth and Diversification Plan update to shape project development. The Council and the Grow Capital Jobs staff will utilize the four major investment categories- workforce and talent development, cluster-scaleup, entrepreneurial ecosystem buildout, and site development- to support growth in traded sector jobs in Region 4's priority clusters.

### **WORKFORCE AND TALENT DEVELOPMENT:**

The Council has focused its project efforts on addressing identified workforce and talent gaps, constructing a workforce and talent development pipeline, and supporting programs that overcome the shortcomings of traditional workforce development efforts. During the next two years, the Council will maintain these efforts while utilizing the Talent Pathways Initiative to focus more attention on the priorities of pharmaceutical manufacturing and information technology employment.

#### **Recent Projects Include:**

Name	Subgrantee	Purpose
Building a Pharmaceutical Manufacturing Pipeline	Brightpoint Community College	Develop a pipeline of skilled technicians

Advancing a Regional Skilled Ecosystem for the Life Sciences	Reynolds Community College	Work with industry partners in creating a fully equipped lab to develop skilled laboratory technicians
GO TEC Regional Career Connections Labs	Commonwealth Center for Advanced Manufacturing (CCAM)	Establish Career Connections labs in middle schools to engage middle school students in STEM career pathways experiences.
New Kent/RCC Welding Program	New Kent County	Train and develop a pipeline of welders to meet a critical and growing regional need
RVA Now	Greater Richmond Chamber of Commerce	Retain more graduates in the region by establishing opportunities for internships and more effective business-university collaboration

**Future Directions:**

-The Council will utilize the Talent Pathways Initiative to focus on the build out of the Pharmaceutical Manufacturing cluster and to develop a more coordinated approach between industry and educational institutions in meeting IT needs.

-The Council will continue to support programs that can be effective in providing work-based learning opportunities (internships and coop programs) such as FAME that provide more effective collaboration between industry and the region’s educational institutions.

-The Council will continue to address the need to maintain more highly skilled graduates in the region and the Commonwealth, including potential collaboration on internships and coop programs with institutes and universities across the Commonwealth. During the update process, Council members have emphasized the importance of addressing specialized challenges such as the exodus of engineering graduates out of Virginia and the more general matter of collaborating with all local colleges and universities on retaining graduates within the region.

**ENTREPRENEURIAL ECOSYSTEM BUILDOUT**

The Regional Council has supported several projects to cultivate and expand the pool of early-stage startups in the region, to establish an accelerator program of startups with high growth potential, and to increase the number of scalable minority enterprises.

*RECENT PROJECTS*

Name	Subgrantee	Purpose
VSU Minority Small Business Launch	Virginia State University	Increase scalable minority enterprises by creating a Small Business Launch Center
Lighthouse Labs Alumni Program	Lighthouse Labs	Support alumni of the pre-seed accelerator program for early-

		stage firms with high growth potential
Expanding Early-Stage Entrepreneurial Support	Startup VA	Support the entrepreneurial rise created by the pandemic
Regional Entrepreneurial Initiative	Activation Capital	Develop concrete strategies for shaping and growing the entrepreneurial ecosystem in the region

**FUTURE DIRECTIONS**

Activation Capital is completing the Regional Entrepreneurial Initiative (REI) project this month that will provide specific strategies and project ideas for enhancing Main Street business, scalable high tech, and deep tech commercialization that could provide Region 4 with a more distinctive entrepreneurial identity.

The REI project will provide a comprehensive strategy for building out the entrepreneurial ecosystem throughout the entirety of Region 4. One part of the initiative focuses on how Region 4 can promote a broad range of “main street” entrepreneurship and small business activity. Main street entrepreneurs and small businesses engage in a broad range of economic activities, many of which serve local populations. These firms are unlikely to hire hundreds of employees or develop a billion-dollar product, but collectively they make a major impact on a community’s economic vitality and capacity for wealth creation. This part of the study complements the 2021 Greater Richmond Small Business Ecosystem Assessment with an in-depth examination of the needs of small businesses and entrepreneurs in the Crater Region. While the projects that will emerge from this element of the project may not always qualify for GO Virginia support, the Council believes that building an entrepreneurial ecosystem for diverse populations and diverse communities is crucial to fostering a broad and vibrant regional-wide entrepreneurial culture.

The REI’s focus on catalyzing high growth startups and scaling “deep tech commercialization” will be more relevant to GO Virginia project funding. The projects that emerge from this initiative will be designed to create a more vibrant tech-heavy entrepreneurial culture and to promote more effective ways of commercializing university-based intellectual property, especially in the health and bioscience areas. An important finding of the REI process is that developing a vibrant group of entrepreneurial firms is typically a prerequisite for attracting major global companies to a region. In many areas of the economy, large firms spin off startups. In bioscience, large firms move to a region to capitalize on the scientific advances that entrepreneurial firms are making.

The REI will implement several themes articulated in the 2021 Growth and Diversification Plan, including:

- Improving outreach to potential entrepreneurs and existing small businesses
- Increasing business formation rates
- Increasing university-based startups with high commercialization potential
- Increasing financial support at critical stages of business formation
- Increasing collaboration with mature firms in the region

-Increasing the capacity to tap diverse communities in building out the region’s entrepreneurial ecosystem

**CLUSTER SCALE-UP**

The Region 4 Council has supported several scale-up projects since the inception of GO Virginia. It utilized special funding that was made available for pandemic response to support small business reopening and buildout of the entrepreneurial ecosystem. Region 4 also participated in the Virginia Bio-Connect project.

The development of the emergent Pharmaceutical Manufacturing cluster has been, however, the principal focus of Region 4’s cluster scale-up emphasis. Pharmaceutical Manufacturing is a new cluster that is a critical element of a national strategy to reshore an industry that has left the country’s medical system dependent on the variability of foreign-based production. Region 4’s efforts have contributed to the remarkable success of the cluster in the last few years and the Council is fully committed to supporting the further buildout and maturation of the cluster.

*RECENT PROJECTS*

Name	Subgrantee	Purpose
Virginia Bio-Connect	Virginia Biotech Association	Support the formation of 4 new bio hubs and connect regional bio hubs across the state
VCU Pharmaceutical Commercialization	VCU College of Engineering	Develop a comprehensive strategic plan of a new pharmaceutical engineering and manufacturing cluster
Pharmaceutical Manufacturing Cluster Scale-up	Activation Capital	Accelerate the growth of the emerging pharmaceutical manufacturing cluster
Gupton Initiative	Virginia College Fund	Create pipeline of internship and employment opportunities for students of VCF member institutions in 5 Go VA regions

*FUTURE DIRECTIONS*

-The Regional Council has voted to include Pharmaceutical Manufacturing as one of the two focus areas in its Talent Pathways Initiative proposal.

- The Regional Council will explore how it might enhance the growth of the facility that will be the basis of a development park for the pharmaceutical cluster.

- VEDP has also designated a set of “niche” areas that are not fully defined clusters but are emerging industries where the Commonwealth can have a competitive advantage. Controlled Environment Agriculture (CEA) is an emerging niche where Region 4 can be extremely competitive. The decision by Plenty to locate the world’s largest vertical farming campus in Chesterfield, the AG Tech research conducted at Virginia State University, and the region’s experience with food manufacturing make CEA a

niche that the Council should consider. The Council should consider projects that can combine research, next generation manufacturing, and site development to build upon the region’s competitiveness in this emerging niche.

**SITE DEVELOPMENT**

VEDP has noted that the availability of business-ready sites has been a significant obstacle to attracting major manufacturing projects to the Commonwealth. VEDP’s site development study in 2021 indicated that Region 4 has more available sites than any other GO Virginia region, although many were not business ready.

The Region 4 Council has supported several site development projects designed to upgrade the readiness of sites in the region. For the most part, these have been in the Crater part of the district where localities have not had the resources to undertake improvements without external assistance. In addition, the Council’s support for the Pharmaceutical Manufacturing cluster was instrumental in developing the Build Back Better grant proposal to the federal Economic Development Administration that has provided significant funding for upgrading infrastructure in Petersburg to support manufacturing facilities.

*SITE PROJECTS*

Name	Subgrantee	Purpose
MaMaC Mega-Site	MaMaC Industrial Facility Authority	Advance the 1600 acre certified mega-site to Tier 4
Sussex County Water Study	Virginia Gateway Region	Address water capacity issues at the Sussex County mega-site and identify steps that can increase its marketability
VGR Sites	Virginia Gateway Region	Elevate 15 sites totaling 1,652 acres to Tier 4
Middle Mile Fiber Expansion Project	Mid-Atlantic Broadband Communities	Extend middle mile critical fiber infrastructure to critical business and industrial parks
Virginia Growth Alliance Site Development Project	Virginia Growth Alliance (supplemented by Region 4)	Maintain Tier 4 status for Emporia/Greensville sites

*Future Directions*

The Council will continue to work on upgrading the number of business-ready sites throughout the region, especially where limited resources need to be supplemented by external funds.

In a June 2023 presentation to the Go Virginia statewide board, VEDP CEO Jason El-Koubi noted that traditionally half the projects that came to Virginia were industrial and half were office space that served the Knowledge Work sector. In recent years, however, there has been a dramatic shift toward industrial projects and VEDP is seeing far fewer deals utilizing office space in the knowledge work sector where half the projected growth in employment will occur nationally.

Grow Capital Jobs’ interviews with local and regional economic development officials and professionals in the real estate sector indicated that Region 4 is experiencing a similar trend. Officials spoke about downscaling that has resulted from a lasting impact of the pandemic’s work-from-home changes; they noted the importance of developing a strategy for attracting “middle-office” (a level once-removed from headquarters but above back-office) projects and said that the trends should catalyze a “reimagining” of downtowns.

The Council should determine where it can be most effective in collaborating with local, regional, and state economic development officials on strategies that can address how the emergent surplus of office space can be repurposed to support regional development. Grow Capital Jobs will convene relevant stakeholders to address this issue.

### GOALS AND STRATEGIES, 2021 AND 2023

Target Industry	Goals	Strategies	Outcomes/Impact Measures	Strategic Partners	Current Projects/Updates
Advanced Manufacturing and Bioscience	Prioritize buildout of Pharma Manufacturing Cluster	Support Alliance for Better Medicine, Develop REI Plan that Supports Cluster	Activation Capital receives \$52.9 Million grant from Economic Development Administration	Medicine for All, Alliance for Building Better Medicine, CCWA, VCU, VSU, Brightpoint, Reynolds	ARISE-Advancing a Regional Skilled Ecosystem for Life Sciences, CCWA Pharma Technician program
Pharma Manufacturing Innovation	Develop an advanced pharma manufacturing innovation pipeline	Support Alliance for Building Better Medicine program for developing and attracting startup companies solving key issues in pharma manufacturing	Identification of key scientific and manufacturing challenges, development of best-in-class innovation models, starting and attracting new companies	Alliance for Building Better Medicine, Activation Capital, VCU, VSU	<b>New pipeline projects focused on innovation in the cluster</b>
Advanced Manufacturing	Grow the Talent Pipeline	Enhance Career Pathways, Work-Based learning, Recruit Transitioning Military, Bring training programs to underserved parts of the region	Programs completed, Credentials granted, job offers for program completers	GO-TEC, CCAM, Community College Workforce Alliance, Brightpoint, Reynolds, Richard Bland	GO-TEC in Middle Schools, FAME program, Pharma Technicians Program <b>Talent Pathways Initiative (TPI) will be new, New Mobile-based training project for underserved areas</b>
Advanced Manufacturing and Logistics	Increase Business Ready Sites	Upgrade Portfolio of Sites	Upgrade 15 sites to Tier 4	Virginia Gateway Region, Local Econ.	Continue to upgrade sites for Logistics and Manufacturing

				Development Offices	<b>New focus on office site issues for Knowledge Work sectors</b>
Information Technology	Enhance Region's Tech Talent and Tech Reputation	Global Internet Hub-Joint Project with Region 5	Formation of Global Internet Hub Alliance	Region 5 Council, Dominion, Meta,	<b>GIH Alliance develops Talent, Infrastructure and Site Projects</b>
Information Technology	Provide additional support Lighthouse Labs alumni companies	Expand Lighthouse Labs Alumni Program	Number of companies served, capital accessed, jobs created	Lighthouse Labs, Activation Capital, University innovation programs	Lighthouse Labs Alumni program for early-stage companies with high growth potential
Information Technology and Bioscience	Align Startup Projects with Priority Clusters	Develop Regional Entrepreneurial Initiative (REI)	# of new companies, capital accessed, jobs created	Activation Capital	2023-2024 Implement REI
Logistics	Capitalize on supply chain disruption	Develop specialized logistics sites.	Employment and wage growth in sector leads priority clusters	Virginia Gateway Region, Greater Richmond Partnership, Local Economic Development Offices	<b>Modified focus-large automated logistic facilities that will have fewer workers, but will transform the nature of the workforce</b>
Bioscience-Manufacturing	<b>Increase Controlled Environment Agriculture (CEA)</b>	Develop strategic plan with relevant actors	Region-wide commitment to CEA, new facilities, and new product lines	CEA companies, VSU, Virginia Gateway Region, GRP, Chesterfield County	<b>CEA is a new niche that VEDP finds promising</b>

## THE UPDATE PROCESS

Grow Capital Jobs engaged the team of Chmura Economics and Decide Smart to provide research support and facilitation of the 2023 update. Members of the Regional Council and the staff of Grow Capital Jobs provided guidance, assisted in organizing stakeholder sessions, and participated in the ideation sessions with stakeholders. Ideation sessions and interviews were conducted with representatives from multiple industries in the priority clusters, educational providers, and local and regional economic development officials.

A formal presentation of the draft update was made to the entire Regional Council. During the Council's discussion, several members noted that issues such as childcare costs, housing and transportation that are not in the official purview of GO Virginia are important factors in determining the success of regional economic development efforts and GO Virginia might consider how it can best collaborate with initiatives to address these foundational issues.

Council members unanimously approved the update.