



MEMORANDUM

To: Department of Housing and Community Development
From: GO Virginia Region 8 Council
Date: 7/31/2018
Re: **Economic Growth and Diversification Plan Amendment**

The Region 8 Council recently re-evaluated its target industries and determined that it would be beneficial to consider additional target industries to promote and support transformative projects in our Region. To help with this task, Camoin Associates conducted a comprehensive review of data from the Region 8 Economic Growth and Diversification Plan. This review included analyzing historic and project growth in jobs, regional average wages, GO Virginia requirements, and conversations with key stakeholders.

The Region 8 Council thoroughly considered this background data, along with regional context, and confirmed *Value-Added Food Related Manufacturing* and *Biomedical/Biotechnical* as additional target industries. The Region 8 Council believes that these additional target industries will encourage a range of projects that could be funded through GO Virginia, thereby stimulating vital sectors within our regional economy. The addition of the two industries was unanimously approved by the Region 8 Council at its June 27 meeting. The subsectors within these industries are defined in Attachment A. Further description about how these industries are pertinent to the economic potential of Region 8 are included in a revised Executive Summary to Region 8's Economic Growth and Diversification Plan, Attachment B.

We appreciate this amendment request being presented to the State GO Virginia Board at its meeting on August 14. Please do not hesitate to contact Bonnie Riedesel, CSPDC Executive Director, should you have any questions on the updated target industries or the goals of the Region 8 Council.

Attachments:

- A: Subsector NAICS
 - B: Revised Executive Summary
 - C: Target Industry Update Memorandum
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Attachment A – Subsectors

Value-Added Food Related Manufacturing	
NAICS	Industry
1110	Crop Production
1120	Animal Production
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
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3332	Industrial Machinery Manufacturing
4238	Machinery, Equipment, and Supplies Merchant Wholesalers
4245	Farm Product Raw Material Merchant Wholesalers
4249	Miscellaneous Nondurable Goods Merchant Wholesalers
4931	Warehousing and Storage

Biomedical/Biotechnical	
NAICS	Industry
3254	Pharmaceutical and Medicine Manufacturing
3333	Commercial and Service Industry Machinery Manufacturing
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3391	Medical Equipment and Supplies Manufacturing
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers
5417	Scientific Research and Development Services
5622	Waste Treatment and Disposal
6215	Medical and Diagnostic Laboratories

Attachment B – Executive Summary



GO VIRGINIA REGION 8: ECONOMIC GROWTH AND DIVERSIFICATION PLAN **EXECUTIVE SUMMARY**



In collaboration with:



THOMAS P. MILLER & ASSOCIATES



Acknowledgements

Acknowledgments

This work would not be possible without the contributions of the various individuals and organizations who provided insight and experience in guiding the collection, synthesis, and presentation of the information contained herein. Thank you especially to the Region 8 Regional Council members for their insight and contributions to this plan.

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Special thanks to the staff of the Shenandoah Valley Partnership, Central Shenandoah Planning District Commission, Northern Shenandoah Valley Regional Commission and Shenandoah Valley Workforce Development Board.

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The report serves as a foundation for formulating the Economic Growth and Diversification Plan for Region 8 of the GO Virginia Initiative. The information provided herein will serve as a foundation for more in-depth planning and coordination to promote the growth of high-income jobs within the Commonwealth of Virginia.

The Project Team

The following consultant teams collaborated in assembling the data provided in this report:

Camoin Associates

Project Coordination; Economic Base Analysis



Thomas P. Miller & Associates

Occupational Analysis; Business Survey Administration



Innovation Policyworks

Innovation and Entrepreneurship Assessment



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Executive Summary

Introduction

The Economic Growth and Diversification Plan is a guiding document that the Region 8 Council will use to:

1. Identify economic opportunities, needs, and challenges,
2. Establish priorities among identified opportunities, and
3. Outline needed enhancements where GO Virginia funds can support collaborative programs among at least two or more localities.

The plan is a pre-requisite for establishing regional priorities for the use of Go Virginia project funds.

Based on extensive data collection and analysis, including an Economic Base Assessment, Innovation and Entrepreneurial Asset Inventory and Workforce Analysis (See Appendices I-V), seven targeted industry sectors were identified for Region 8.¹ These sectors will be the focus for creation of higher paying jobs for the region that will bring new investment, enhance the competitiveness of the region, and diversify the economy of the region, in turn spurring growth of Virginia's economy.

In addition, a set of framework initiatives was developed around four broad areas:

- Recruit and/or retain the talent needed in the region,
- Grow existing businesses, develop existing clusters, and scale-up small and mid-size companies,
- Establish start-ups from commercializing university-based research and supporting entrepreneurs, and
- Support potential joint economic development activities such as site development and training initiatives.

¹ Note that two targeted industry sectors, Biomedical/Biotechnical and Value-Added Food Manufacturing, were added as a result of additional research conducted by the Central Shenandoah Planning District Commission and the Commonwealth as of July 2018.

About Region 8

Region 8 spans the Shenandoah Valley of Virginia and is comprised of 16 cities and counties, shown in the map to the right.

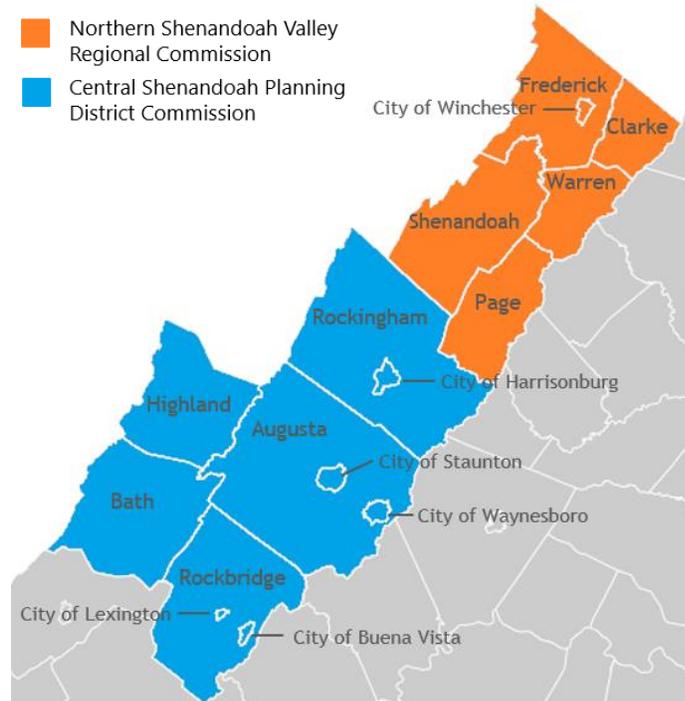
Region 8 is home to two planning district organizations: the Central Shenandoah Planning District Commission (CSPDC) and the Northern Shenandoah Valley Regional Commission (NSVRC). The Central Shenandoah Planning District Commission is comprised of Rockingham County, City of Harrisonburg, Highland County, 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.

The regional geography encompasses shining examples of American countryside in the Shenandoah National Park and George Washington & Jefferson National Forest, along with an abundance of historical properties. This area is also famed for its agricultural legacy and the industry continues to generate significant economic activity within the region.

As of 2017, Region 8 is home to a population of approximately 535,000 and 206,000 households. By 2022, the region is projected to add an additional 20,000 inhabitants and 8,000 households. Currently, the average household is made up of 2.5 individuals and the median age is 39 years.

Region 8 Localities

- Northern Shenandoah Valley Regional Commission
- Central Shenandoah Planning District Commission



About GO Virginia



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To enhance, reinforce, and complement its existing economic assets, the Commonwealth of Virginia introduced an effort to promote regional economic identity and cooperation. This effort, called the GO Virginia Initiative, is a collaboration designed to promote private-sector economic growth and diversification across the Commonwealth of Virginia through the creation of nine economic development regions to assess and target new investment and innovation in high-income and export-oriented industry sectors. The nine regions, established in the Spring of 2017, must assess current gaps in economic development resources in both an intraregional and interregional capacity, and successfully put forth potential projects that can fill in these gaps with the aid of state funding.

The GO Virginia Initiative is an opportunity for economic regions around Virginia to develop a deeper understanding of their current capacities and find innovative solutions to leverage their existing strengths to promote economic development. As described by the Virginia Department of Housing and Community Development (DHCD), the initiative “supports a voluntary, incentive-based approach as the best way to encourage regional cooperation on private-sector growth. To fund state incentives, the coalition favors use of growth revenues, re-purposed dollars, and efficiency savings...GO Virginia proposes NO new taxes, mandates, layers of government, or changes in local authority.”

Targeted Industries

The following industry sectors were selected based on quantitative and qualitative information, to be the future focus for economic development initiatives in Region 8. The targeted industries were compiled from related subsectors (a full list of those subsectors can be found in the Targeted Industry Appendix V). The sectors were chosen based on a wide list of criteria with a heavy emphasis on the following criteria outlined in the GO Virginia Initiative:

- Industries in the sector demonstrate strong current or projected employment growth.
- Industries in the sector have high earnings potential for workers.
- Industries in the sector are export-oriented.

The sectors chosen consist of industries that are already strong in Region 8, as they build upon assets including economic base, workforce, infrastructure, innovation, and entrepreneurship. Region 8’s economy is already quite diversified but needs to grow.

The seven targeted industry sectors for Region 8 are:

- Biomedical/Biotechnical
- Financial and Business Services
- Health Care
- Information Technology/Communications
- Light Manufacturing
- Transportation and Logistics
- Value-Added Food Manufacturing

Summary jobs data is shown below for each of these sectors.

Targeted Industry Sectors as a Percentage of Region 8 Total Jobs				
Sector	2016 Sector Jobs	2026 Sector Jobs	2016 Percentage of Total Jobs	2026 Percentage of Total Jobs
Biomedical/Biotechnical	2,339	2,624	1.0%	1.0%
Health Care	47,354	53,371	19.9%	20.4%
IT/Communications	5,066	6,533	2.1%	2.5%
Transportation and Logistics	13,017	15,246	5.5%	5.8%
Finance and Business Services	17,912	21,190	7.5%	8.1%
Light Manufacturing	19,974	19,325	8.4%	7.4%
Value-Added Food Manufacturing	21,511	23,256	9.0%	8.9%
Other Sectors	110,914	120,267	46.6%	45.9%

Source: EMSI

Each industry is profiled briefly below and described more fully in Appendix V.²

Biomedical/Biotechnical

The Biomedical/Biotechnical sector merges research, development, and the manufacturing of medical equipment with the production of pharmaceutical drugs. The core subsectors in Region 8 are **Pharmaceutical and Medicine Manufacturing (NAICS 3254)**, **Medical Equipment and Supplies Manufacturing (NAICS 3391)** and **Scientific Research and Development Services (NAICS 5417)**.

As of 2016, there were 2,339 workers across 96 business establishments in the Biomedical/Biotechnical sector in Region 8. From 2011 to 2016, employment within this sector declined by one job. Looking forward to 2021, the Biomedical/Biotechnical industry sector is projected to grow by 5%, adding an additional 117 jobs to Region 8. Much of the sector's growth is attributed to the subsector of **Scientific Research and Development Services (NAICS 5417)**, which grew by 249% (349 jobs) from 2011 to 2016 and is projected to gain another 120 jobs from 2016 to 2021. Highly concentrated industries within the Region include **Pharmaceutical and Medicine Manufacturing (NAICS 3254)**, with a location quotient of 1.83, and **Medical Equipment and Supplies Manufacturing (NAICS 3391)**, with a location quotient of 1.26.

Generating additional economic activity in the Biomedical/Biotechnical sector requires a concerted effort among educational institutions and their partners to improve technology transfer and commercialization of new products to increase business startups. Many of Region 8's colleges and universities currently have strong programs in health innovation, including the subsectors of pharmacy, chemistry and biology. Supporting this environment may include increased research funding, technological advancements, and encouraging manufacturing environments that focus on scalability and flexibility. Additionally, growth in this industry will require operators to stay on the cutting edge and look towards ways to increase cost effectiveness during times of changing market demands.

Financial and Business Services

The Finance and Business Services sector represents industries that provide finance, insurance, real estate, accounting, and consulting services. The core subsectors for Region 8 are **Depository Credit Intermediation (NAICS 5221)**, **Computer Systems Design and Related Services (NAICS 5415)**, and **Management, Scientific, and Technical Consulting Services (NAICS 5416)**.

As of 2016, 17,912 workers were employed by the Financial and Business Services industry sector in Region 8, spanning 2,108 establishments. Employment within this sector increased by 17% over the last

Major Products and Services in Region 8:

- Pharmaceuticals and medicines
- Medical equipment
- Diagnostic laboratories
- Scientific research and development
- Medical waste treatment and disposal

Major Products and Services in Region 8:

- Printing and related services
- Insurance and wealth management
- Accounting and bookkeeping
- Real estate leasing
- Information and data processing
- Legal and consulting services
- Depository credit intermediation

² Note that the Biomedical/Biotechnical Industry and Value-Added Food Manufacturing Industry do not include profiles in Appendix V.

decade, adding nearly 1,600 new jobs. Industries that are particularly concentrated within Region 8 include **Printing and Related Support Activities (NAICS 3231)** with a location quotient (LQ) of 4.20, **Insurance and Employee Benefit Funds (NAICS 3231)** with an LQ of 1.53, and **Depository Credit Intermediation (NAICS 5221)** with an LQ of 1.34.

Regional job growth in the Finance and Business Services sector has historically outpaced that of the state and nation. Regional factors have propelled job growth at a greater rate than expected over the last decade, making this industry highly competitive. **Depository Credit Intermediation (NAICS 5221)** is projected to be the most competitive industry in Region 8 by 2026.

Health Care

The Health Care sector represents industries that provide health care and social assistance for individuals. Industries in this sector cooperate in the process to serve patients through health care providers, technology, and research. Establishments include hospitals, doctors' offices, nursing homes, surgery centers, laboratories, and medical research centers. The core subsector for Region 8 is **General Medical and Surgical Hospitals (NAICS 6221)**, which employs over 8,600 workers and is projected to add an additional 890 jobs over five years. This addition will make it the second most competitive industry in the Region by 2026. Other core subsectors include **Continuing Care Retirement Communities (NAICS 623311)** and **Nursing Care facilities (NAICS 623110)**.

As of 2016, 47,352 workers were employed in the Health Care sector in Region 8. From 2011 to 2016, employment in the Health Care sector declined by 0.5%, a total of 222 jobs. Looking forward, Region 8 is projected to add over 3,500 Health Care jobs by 2021, for a 7% job growth from 2016 to 2021.

The Health Care sector plays a vital role in supporting the quality of life for residents in Region 8. As the population ages, an increased demand for health care services will require strategic planning by educational institutions and training providers to deliver an adequate number of health care workers who can perform a variety of medical specialties. The need is especially acute for nurses as the current workforce cohort continues to retire. Taking stock of existing retirement communities and assisted living facilities will also help localities understand how to retain individuals who want to age in place instead of leaving their community if they are not able to find sufficient care.

Major Products and Services in Region 8:

- General health care
- Surgeries
- Assisted living
- Medical research
- Medical equipment and pharmaceuticals
- Dentistry

Information Technology/Communications

The Information Technology/Communications (ITC) sector represents industries involved in the development, manufacturing, and usage of IT and communications-related products and services. Establishments within this sector are primarily in research and development, electrical component manufacturing, or computer systems design. The core subsectors for Region 8 are **Software Publishers (NAICS 511210)**, **Computer Systems Design**

Major Products and Services in Region 8:

- Software design
- Computer systems design
- Engineering research and development
- Fiber optic cable
- Cybersecurity
- Data processing

Services (NAICS 541512), and Security System Services (NAICS 561621).

Currently, the ITC sector in Region 8 employs over 5,000 employees in over 570 establishments. From 2011 to 2016, there has been a 9% growth in ITC jobs and a 11% growth in ITC establishments. Projections show an additional 922 ITC jobs by 2021, for a growth rate of 18% from 2016 to 2021. Regional growth in this sector has largely been driven by activity from the federal government, especially in the northern portion of Region 8. The region's proximity to Washington, DC presents opportunities to locate firms that are delivering products and services that are evolving to meet the changing demands of consumers and businesses. The ITC sector benefits from high demand across nearly every industry sector, as virtually every firm relies on some form of information technology, data hosting, or cybersecurity system.

Light Manufacturing

Light Manufacturing encompasses the range of processes in which materials are mechanically, physically, or chemically transformed into new products. Unlike heavy manufacturing, which is associated with continuous processes, light manufacturing is often associated with batches or isolated production runs. Light Manufacturing is less capital intensive than traditional manufacturing and is more oriented towards consumer-facing products. Establishments are mainly comprised of mills, plants, and factories.

Major Products and Services in Region 8:

- Plastics
- Medical devices and equipment
- Snack foods and chocolate
- Pharmaceuticals
- Textiles
- Electronic devices

In 2016, Region 8 was home to 419 Light Manufacturing establishments, which employed nearly 20,000 workers. Since 2011, the number of establishments and workers have decreased by 2% and 4% respectively. Despite this decline, manufacturing is still a significant source of employment for the region and provides above-average wages. While a decline in the number of employees needed in Light Manufacturing is being seen across the nation, Region 8 is competitively positioned to outperform similar markets in this subsector. In general, the jobs that are in demand in this sector are higher skill, and therefore higher wage positions. So, while employment may continue to decrease on a national scale, Region 8 is posed to shed jobs at a rate slower than competitors, and the remaining jobs will be more likely to provide a living wage.

Manufacturing has a strong legacy in the Shenandoah Valley and throughout Region 8. While this industry continues to experience major upheavals from technological advancements and increased productivity levels, Region 8 has valuable assets on which it can capitalize to ensure that local operators have the resources to be successful. Subsectors in this industry are supported by ancillary infrastructure in the transportation and warehousing sector, helping to move manufactured goods throughout the region's major road networks, rail systems, and ports.

Transportation and Logistics

The Transportation and Logistics sector represents industries that link producers and consumers through interconnected supply chains and an array of transportation modes. Logistics industries provide detailed coordination to increase efficiency in multi-modal transportation systems. Establishments in these industries use transportation equipment or transport-related facilities as a productive asset. Equipment varies based on mode of transportation, which includes air, rail, water, and road. Services within this sector primarily include transportation of passengers and goods, storing and warehousing products, and providing service and facilitating distribution to these establishments. The core subsectors for Region 8 include: **Charter Flights (NAICS 48121)**, **General Warehousing and Storage (NAICS 493110)**, and **General Freight Trucking, Long-Distance, Truckload (NAICS 484121)**, which have all shown significant growth within the past five years.

The Transportation and Logistics sector encompasses 614 establishments and employs just over 13,000 people in Region 8. In the five-year period from 2011 to 2016, Region 8 industries in this sector have grown by 23%, compared to a 17% growth at the national level. The region's transportation assets render it a prime location for companies moving goods throughout the country. From extensive interstate and state road networks to a regional airport and an inland port, capitalizing on assets throughout Region 8 localities will help improve overall connectivity.

Value-Added Food Manufacturing

The Value-Added Food Manufacturing sector exemplifies Region 8's agricultural roots and manufacturing legacy. In Value-Added Food manufacturing, manufacturers process and convert a raw commodity into a consumable good. This may require adding additional ingredients, packaging, or otherwise processing food materials.

In 2016, the Value-Added Food Manufacturing sector accounted for 21,511 jobs across 466 businesses. The sector grew 11% from 2011 to 2016, adding 2,190 jobs. The Value-Added Food Manufacturing sector is projected to expand by 7% by 2021, adding 1,498 jobs. Major job contributors are projected to be **Warehousing and Storage (NAICS 4931)** and **Dairy Production Manufacturing (NAICS 3115)**, adding 884 and 306 each. Location quotients in this cluster demonstrate that the region is highly specialized in a diverse range of value-added processes including **Sugar and Confectionery Product Manufacturing (NAICS 3113)** with an LQ of 8.46, **Animal Slaughtering and Processing (NAICS 3116)** with an LQ of 7.03, and **Dairy Product Manufacturing (NAICS 3115)** with an LQ of 5.27.

Growing the Value-Added Food Manufacturing sector entails developing stronger systems of food distribution, food processing, along with ensuring that the local agricultural inputs are in place to expand the industry. It has become increasingly important for consumers to know where their produce and food products come from, and expanding the food processing capabilities in Region 8 could build off this

Major Products and Services in Region 8:

- Ground transportation of passengers and goods
- General freight trucking
- Warehousing and distribution of goods
- Commercial and passenger air service

Major Products and Services in Region 8:

- Meat and poultry
- Fruits and vegetables
- Dairy products
- Beverages
- Grain
- Sugar and confectionery products
- Baked goods and tortillas

consumer demand. Corresponding marketing efforts are needed to ensure that Region 8, as well as localities outside of this jurisdiction, are aware of the products available from the area. Industrial parks throughout the region may require specific infrastructure upgrades to accommodate growth in this industry; such upgrades are potentially eligible for GO Virginia funding.

Framework Initiatives

The Region 8 Economic Growth and Diversification Plan is not a typical strategic plan, but rather, a framework for the types of projects the Region 8 Council will consider pursuing applications for as part of GO Virginia's grant program. Initiatives that comprise the framework are divided into the following categories:

- Talent Development
- Growing Existing Businesses
- Startups/Innovation/Commercialization
- Sites
- Other Opportunities

Based on the quantitative and qualitative analysis of Region 8's economy, issues pertaining to each of the categories were identified, and framework initiatives proposed. Each category below highlights how Region 8 can leverage its assets to improve upon existing networks, while also pursuing new collaborations to support inter-jurisdictional collaborative programs that will lead to job creation, economic diversification and knowledge transfer.

The following opportunities are described in greater detail in the Framework Initiative section that follows.

I. Talent Development Opportunities

a. Encourage Earn and Learn Programs

Providing on-the-job and incumbent worker training and services can allow businesses to upskill current employees into difficult to fill middle-skill positions.

b. Expand Employability Skills Training

Employability training programs can help to prepare entry level candidates with the life and soft skills demanded by businesses and needed for candidates to succeed in the workplace.

c. Engage Businesses with Sector Partnerships

Sector partnerships can offer an opportunity to engage businesses with their peers, hear about collective industry needs, and offer collaborative solutions.

d. Increase K-12 Educator Engagement with Industry

Increasing the opportunities for K-12 teachers and staff to engage with local industry will help to change the culture around the local career opportunities available for students.

e. Increase Talent Attraction

Talent attraction efforts can help to expand the talent pool by bringing new people into the region from other states or countries.

II. Growing Existing Businesses Opportunities

a. Create a Public-Private Training Loan Pool

As an offshoot to the sector partnership initiative, Region 8 should help create a fund that employees and employers would use to fund training programs for incumbent workers.

b. Develop a Business Retention and Expansion Program

Communities within Region 8 should form a partnership to create and implement a formal business retention and expansion program.

c. Create Additional Regional Tourism Destination Sites

Region 8 should help in the creation of one or more tourism destination sites to draw in and retain more outside tourism spending dollars.

d. Deploy Broadband Partnerships

Communities can join together to help extend quality broadband to unserved and underserved areas by entering into public-private partnerships to solve infrastructure shortcomings.

e. Expand Marketing and Promotion

This initiative would support efforts to promote the region externally to potential residents and businesses as being a great place to live, work, play, and visit.

III. Startups/Innovation/Commercialization Opportunities

a. Increase Regional Research and Development Expenditures

By increasing R&D expenditures, it is likely that increased discovery, intellectual property, and spin-off companies could result.

b. Increase the Breadth and Depth of the Entrepreneurial Ecosystem

Supporting the development and operations of strong entrepreneurial assistance programs throughout the region will increase the success of startups and help entrepreneurs stay in the Shenandoah Valley as they grow.

c. Attract and Retain Entrepreneurial Companies as They Scale-Up

The scale-up stage offers the greatest opportunity for economic impact as early-stage companies transition from product development to production and market expansion.

IV. Site Opportunities

a. Site Readiness Investigation

Many sites in the region would benefit from some additional preliminary investigation work to determine levels of needed investment and timeline to readiness.

b. Enhance Visibility of Existing Sites

Existing sites need to be properly characterized and promoted at the state level and can benefit from a designation in the Commonwealth's Site Readiness Program.

c. **Complete General Site Improvements: Northern Sub-region**

Improvements can be made to business and industrial parks in the northern portion of the region to focus particularly on Northern Virginia expansions in the technology, communications, business services, and banking sectors.

d. **Complete General Site Improvements: Southern Sub-region**

Improvements can be made to business and industrial parks in the central and southern portion of the region to focus particularly on light manufacturing, food and beverage, and transportation and logistics growth.

e. **Create Industrial Mega Site**

This initiative would create a “Mega Site” to help attract a large new industrial prospect.

V. Other Opportunities

a. **Identify Leadership for Plan Implementation**

Shenandoah Valley Partnership (SVP) can provide leadership for the GO Virginia plan implementation by supporting communities with additional site readiness initiatives and coordination between regional stakeholders.

b. **Develop Organizational Funding & Capacity Building Mechanisms for Plan Implementation**

Develop a sustainable funding mechanism that will give SVP the financial resources needed to address emerging Region 8 challenges and opportunities and execute on the plan.

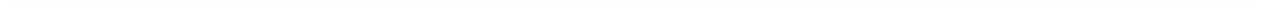
Implementation and Funding

The Economic Growth and Diversification Plan is a road map to help the Region 8 Council and their localities build resilient economies by leveraging existing assets, while also developing ambitious goals about possibilities for the future. A collaborative approach across the public and private sectors will be imperative to the successful implementation of this plan. The Framework Initiatives were developed with the understanding that the successful implementation of the initiatives will hinge on adequate organizational capacity and appropriate resources. The Region 8 Council recognizes that while state funds can be the catalyst to economic activity, additional funds will be required to realize the initiatives listed in this plan. Specific details on potential funding partners are listed throughout the Framework Initiatives and Performance Metrics sections. This plan will be reassessed on an annual basis to account for variations in factors driving the economy of Region 8.

Performance Metrics

Performance metrics were established to guide the successful progression of each framework initiative. The metrics provide concrete examples and timelines for how initiatives could advance in Region 8 with the aid of GO Virginia funds. While the metrics are defined to help establish benchmarks for the initiatives, it is anticipated that timelines and goals may change as new information or funding is acquired. The metrics will be documented in an Excel file that can be adjusted over time to reflect the changes in each initiative.

Attachment C – Target Industry Update Memorandum





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MEMORANDUM

To: Central Shenandoah Planning District Commission
From: Camoin Associates
Date: 6/20/2018
Re: **Target Industry Update**

Camoin Associates reviewed the data from the GO Virginia Region 8 Economic Growth and Diversification Plan to determine the industry cluster with the best fit to replace Health Care as a target industry. This memo outlines three potential target industries and their respective historical and project job growth, average earnings, and location quotients. We also provide our recommendation regarding the most relevant targeted industry for the region.

Industry Summary

- *Value-Added Food Manufacturing* is an industry that marries Region 8's agricultural roots with its manufacturing legacy. Average earnings in this industry cluster (\$50,094) are higher than the average annual earnings of all industries (\$41,000) in Region 8. Location quotients in this cluster demonstrate that the region is highly specialized in a diverse range of value-added processes. Concentrating efforts on growing this industry would entail developing stronger systems of food distribution, food processing, along with ensuring that the local agricultural inputs are in place to expand the industry. It has become increasingly important for consumers to know where their produce and food products are coming from, and growing the food processing capabilities in Region 8 could build off this consumer demand. Corresponding marketing efforts would be needed to ensure that Region 8, as well as localities outside of this jurisdiction, were aware of the products available from the area. There may also be specific infrastructure upgrades necessary at industrial parks in the region to accommodate growth in this industry; such upgrades are potentially eligible for GO Virginia funding.
- *Hospitality and Tourism* is an integral part of the Central Shenandoah Region's economy and generates significant economic activity. Earnings in this industry are relatively low (\$23,997) and do not exceed the average annual earnings within Region 8 localities (\$41,000). The Hospitality and Tourism industry cluster added jobs between 2011-2016 and is projected to continue gaining jobs over the course of 2016-2021. Growing this industry would entail promoting existing visitation assets, as well as creating and improving more opportunities for visitors. The elements that typically go into developing high-quality visitor experiences also benefit residents by creating an environment that is well-maintained and showcases environmental and recreational assets. Additionally, these assets may help employers gain a competitive edge in attracting their workforce to the area.
- *Biomedical/Biotechnical* merges research, development, and the manufacturing of medical equipment with the production of pharmaceutical drugs within Central Shenandoah Region. This industry cluster has average earnings (\$93,234) that exceed that of *Value-Added Food*



Manufacturing and Hospitality and Tourism clusters. Although historical growth has shown minimal decline (-1%) in the industry, future projections show a more favorable growth of 5%. Discussions and interviews during the GO Virginia planning process uncovered that the region's colleges and universities have strong programs in health innovation – including the subsectors of pharmacy, chemistry and biology. Yet, for this cluster to expand and maximize economic activity, a concerted effort among educational institutions and their partners would be required to improve technology transfer and commercialization of new products to increase business startups. Supporting this environment may include increased research funding, technological advancements, and encouraging manufacturing environments that focus on scalability and flexibility. Additionally, growth in this industry will require operators to stay on the cutting edge and look towards ways to increase cost effectiveness during times of changing demands. Furthermore, the industry will also face competition from other locations in Virginia, namely Charlottesville, which is an established hub for biomedical and biotechnology development. However, space is a constraining factor for firms in this realm and Region 8 may be able to offer more affordable property and land to businesses, if appropriate infrastructure is in place.

Recommendation: Camoin Associates recommends that the Central Shenandoah Planning District Commission adopts the *Value-Added Food Manufacturing* cluster as their sixth targeted industry. This cluster remains the most relevant in terms of regional assets, existing business that can be leveraged through GO Virginia funding and aligns with the requirements of the GO Virginia initiative.

Value-Added Food Related Manufacturing

As defined by the United States Department of Agriculture, value-added products require (1) A change in the physical state or form of the product; (2) Production of a product in a manner that enhances its value, as demonstrated through a business plan; or (3) The physical segregation of an agricultural commodity or product in a manner that results in the enhancement of the value of that commodity or product. In value-added food manufacturing, manufacturers process and convert a raw commodity into a consumable good. This may require adding additional ingredients, packaging, or changing the genetics of the product. Value-added goods are sold at a higher price, allowing manufacturers to capture a larger share of the food dollar. The Value-Added Food Related Manufacturing cluster is comprised of 20 industries.



Value-Added Food Manufacturing	
NAICS	Industry
1110	Crop Production
1120	Animal Production
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
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3332	Industrial Machinery Manufacturing
4238	Machinery, Equipment, and Supplies Merchant Wholesalers
4245	Farm Product Raw Material Merchant Wholesalers
4249	Miscellaneous Nondurable Goods Merchant Wholesalers
4931	Warehousing and Storage

Source: Camoin Associates

The tables below display the historic and project job growth within the Value-Added Food Manufacturing cluster in Region 8. Average earnings per job and location quotients (LQ)¹ for 2016 and 2021 are provided as well. Industries with location quotients greater than 2.00 have been highlighted, indicating concentrated industries.

From 2011 to 2016, the Value-Added Food Related Manufacturing cluster grew by 11%, adding 2,190 jobs. Warehousing and Storage (NAICS 4931) was a major job contributor, growing by 37% or an additional 1,345 jobs. Other Food Manufacturing (NAICS 3119) and Beverage Manufacturing (NAICS 3121) added 260 and 239 jobs respectively. Average earnings per job in this cluster are \$50,094.

As of 2016, there were several highly specialized industries within this cluster including Animal Production (NAICS 1120); Animal Food Manufacturing (NAICS 3111); Sugar and Confectionery Product Manufacturing (NAICS 3113), Fruit and Vegetable Preserving and Specialty Food Manufacturing (NAICS 3114); Dairy Product Manufacturing (NAICS 3115); Animal Slaughtering and Processing (NAICS 3116); Other Food Manufacturing (NAICS 3119); Beverage Manufacturing (NAICS 3121); and Warehousing and Storage (NAICS 4931).

¹ Location Quotient (LQ) analysis compares a specific geographic region to a larger reference area by quantifying how concentrated a particular industry, demographic group, or other variable is as compared to the larger geography. LQ is calculated by dividing the percent of jobs within each industry locally by the percent of jobs in the same industry at the national level. For example, if the finance and insurance industry accounts for 2% of jobs in a community and at the national level this industry has 1% of the total jobs, the community has a LQ of 2.0 (0.02 ÷ 0.01 = 2).



Value-Added Food Manufacturing Cluster, 2011 - 2016							
NAICS	Description	2011 Jobs	2016 Jobs	2011 - 2016 Change	2011 - 2016 % Change	2016 Location Quotient	Avg. Earnings Per Job
1110	Crop Production	1,212	1,414	202	17%	1.12	\$ 28,649
1120	Animal Production	1,713	1,553	(160)	(9%)	2.35	\$ 29,075
1151	Support Activities for Crop Production	540	614	74	14%	0.83	\$ 27,294
3111	Animal Food Manufacturing	223	302	79	35%	3.37	\$ 62,607
3112	Grain and Oilseed Milling	52	85	33	63%	0.93	\$ 67,585
3113	Sugar and Confectionery Product Manufacturing	883	943	60	7%	8.46	\$ 77,662
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	646	811	165	26%	3.13	\$ 54,524
3115	Dairy Product Manufacturing	951	1,122	171	18%	5.27	\$ 79,255
3116	Animal Slaughtering and Processing	5,647	5,298	(349)	(6%)	7.03	\$ 45,084
3118	Bakeries and Tortilla Manufacturing	408	472	64	16%	0.97	\$ 53,611
3119	Other Food Manufacturing	979	1,239	260	27%	3.91	\$ 65,191
3121	Beverage Manufacturing	507	746	239	47%	2.08	\$ 75,503
3122	Tobacco Manufacturing	0	0	0	0%	0.00	\$ -
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	<10	<10	Insf. Data	Insf. Data	0.10	Insf. Data
3331	Agriculture, Construction, and Mining Machinery Manufacturing	12	<10	Insf. Data	Insf. Data	0.03	\$ 101,813
3332	Industrial Machinery Manufacturing	78	23	(55)	(71%)	0.14	\$ 60,775
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	986	1,153	167	17%	1.13	\$ 59,323
4245	Farm Product Raw Material Merchant Wholesalers	119	92	(27)	(23%)	0.81	\$ 18,955
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	692	612	(80)	(12%)	1.20	\$ 41,836
4931	Warehousing and Storage	3,673	5,018	1,345	37%	3.60	\$ 48,809
	Total	19,321	21,511	2,190	11%		\$ 50,094

Source: EMSI

Region 8's Value-Added Food Related Manufacturing cluster is projected to expand by 7% by 2021, adding 1,498 jobs. Major job contributors are projected to be Warehousing and Storage (NAICS 4931) and Dairy Production Manufacturing (NAICS 3115), adding 884 and 306 each. Animal Production (NAICS 1120) and Animal Slaughtering and Processing (NAICS 3116) both declined from 2011 to 2016 and are projected to continue declining into 2021.

Eight industries are anticipated to maintain their LQ of 2.00 or above, indicating that Region 8 will remain highly specialized in a variety of Value-Added Food Related Manufacturing. One industry, Beverage Manufacturing (NAICS 3121) will lose concentration as it sheds jobs between 2016-2021.



Value-Added Food Manufacturing Cluster, 2016 - 2021							
NAICS	Description	2016 Jobs	2021 Jobs	2016 - 2021 Change	2016 - 2021 % Change	2021 Location Quotient	Avg. Earnings Per Job
1110	Crop Production	1,414	1,650	236	17%	1.33	\$ 28,649
1120	Animal Production	1,553	1,539	(14)	(1%)	2.38	\$ 29,075
1151	Support Activities for Crop Production	614	674	60	10%	0.83	\$ 27,294
3111	Animal Food Manufacturing	302	250	(52)	(17%)	2.55	\$ 62,607
3112	Grain and Oilseed Milling	85	97	12	14%	1.01	\$ 67,585
3113	Sugar and Confectionery Product Manufacturing	943	974	31	3%	8.46	\$ 77,662
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	811	868	57	7%	3.28	\$ 54,524
3115	Dairy Product Manufacturing	1,122	1,428	306	27%	6.25	\$ 79,255
3116	Animal Slaughtering and Processing	5,298	4,911	(387)	(7%)	6.17	\$ 45,084
3118	Bakeries and Tortilla Manufacturing	472	546	74	16%	1.06	\$ 53,611
3119	Other Food Manufacturing	1,239	1,363	124	10%	3.74	\$ 65,191
3121	Beverage Manufacturing	746	728	(18)	(2%)	1.73	\$ 75,503
3122	Tobacco Manufacturing	0	0	0	0%	0.00	\$ -
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	<10	<10	Insf. Data	Insf. Data	0.01	Insf. Data
3331	Agriculture, Construction, and Mining Machinery Manufacturing	<10	10.1932731	Insf. Data	Insf. Data	0.03	\$ 101,813
3332	Industrial Machinery Manufacturing	23	32	9	39%	0.18	\$ 60,775
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	1,153	1,288	135	12%	1.25	\$ 59,323
4245	Farm Product Raw Material Merchant Wholesalers	92	110	18	20%	0.93	\$ 18,955
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	612	639	27	4%	1.27	\$ 41,836
4931	Warehousing and Storage	5,018	5,902	884	18%	3.48	\$ 48,809
	Total	21,511	23,009	1,498	7%		\$ 50,094

Source: EMSI



Hospitality and Tourism

The *Hospitality and Tourism* sector is comprised of 14 industries at the 4-digit NAICS code level. These industries are focused around travel arrangements, lodging and accommodations, and tourism activities.

Hospitality and Tourism	
NAICS	Industry
1142	Hunting and Trapping
4539	Other Miscellaneous Store Retailers
4871	Scenic and Sightseeing Transportation, Land
4872	Scenic and Sightseeing Transportation, Water
4879	Scenic and Sightseeing Transportation, Other
5322	Consumer Goods Rental
5615	Travel Arrangement and Reservation Services
7112	Spectator Sports
7121	Museums, Historical Sites, and Similar Institutions
7131	Amusement Parks and Arcades
7132	Gambling Industries
7139	Other Amusement and Recreation Industries
7211	Traveler Accommodation
7212	RV (Recreational Vehicle) Parks and Recreational Camps

Source: Camoin Associates

From 2011 to 2016, the *Hospitality and Tourism* cluster grew 4% from 8,342 to 8,716 jobs in Region 8. Average earnings per job total \$23,997. As of 2016, the largest industry within the cluster is Traveler Accommodation (NAICS 7211) with 4,714 jobs. Several industries within this cluster have experienced historical decline, including Travel Arrangement and Reservation Services (NAICS 5615), and Spectator Sports (NAICS 7112). Amusement Parks and Arcades (NAICS 7131) has experienced a strong growth of 46%, adding 64 jobs from 2011 to 2016. RV Parks and Recreational Camps (NAICS 7212) and Museums, Historical Sites, and Similar Institutions (NAICS 7121) are also heavily concentrated within the region with location quotients of 3.56 and 2.45.



Hospitality and Tourism Cluster, 2011 - 2016							
NAICS	Description	2011 Jobs	2016 Jobs	2011 - 2016 Change	2011 - 2016 % Change	2016 Location Quotient	Avg. Earnings Per Job
1142	Hunting and Trapping	12	16	4	33%	2.35	\$ 27,608
4539	Other Miscellaneous Store Retailers	548	562	14	3%	0.98	\$ 27,832
4871	Scenic and Sightseeing Transportation, Land	24	<10	Insf. Data	Insf. Data	0.03	Insf. Data
4872	Scenic and Sightseeing Transportation, Water	<10	<10	Insf. Data	Insf. Data	0.20	Insf. Data
4879	Scenic and Sightseeing Transportation, Other	<10	-	Insf. Data	Insf. Data	0.00	\$ -
5322	Consumer Goods Rental	305	344	39	13%	1.37	\$ 36,397
5615	Travel Arrangement and Reservation Services	113	93	(20)	(18%)	0.25	\$ 30,026
7112	Spectator Sports	161	137	(24)	(15%)	0.48	\$ 21,161
7121	Museums, Historical Sites, and Similar Institutions	552	608	56	10%	2.45	\$ 32,742
7131	Amusement Parks and Arcades	138	202	64	46%	0.63	\$ 21,080
7132	Gambling Industries	<10	<10	Insf. Data	Insf. Data	0.05	\$ 15,191
7139	Other Amusement and Recreation Industries	1,594	1,667	73	5%	0.80	\$ 14,750
7211	Traveler Accommodation	4,611	4,714	103	2%	1.65	\$ 24,959
7212	RV (Recreational Vehicle) Parks and Recreational Camps	277	355	78	28%	3.56	\$ 22,218
	Total	8,342	8,716	374	4%		\$ 23,997

Source: EMSI

The *Hospitality and Tourism* cluster is projected to grow an additional 1% by 2021, adding 78 jobs to Region 8. Six of the 14 industries are projected to decline into 2021. The growth that is projected to occur in this cluster can be attributed to RV Parks and Recreational Camps (NAICS 7212) adding 92 jobs, and Other Miscellaneous Store Retailers (NAICS 4539) adding 54 jobs. RV Parks and Recreational Camps (NAICS 7212) and Museums, Historical Sites, and Similar Institutions (NAICS 7121) are projected to remain significant industries with location quotients of 3.85 and 2.28.

Hospitality and Tourism Cluster, 2016 - 2021							
NAICS	Description	2016 Jobs	2021 Jobs	2016 - 2021 Change	2016 - 2021 % Change	2021 Location Quotient	Avg. Earnings Per Job
1142	Hunting and Trapping	16	11	(5)	(31%)	1.49	\$ 27,608
4539	Other Miscellaneous Store Retailers	562	616	54	10%	1.00	\$ 27,832
4871	Scenic and Sightseeing Transportation, Land	<10	<10	Insf. Data	Insf. Data	0.02	Insf. Data
4872	Scenic and Sightseeing Transportation, Water	<10	<10	Insf. Data	Insf. Data	0.23	Insf. Data
4879	Scenic and Sightseeing Transportation, Other	-	-	0	%	0.00	\$ -
5322	Consumer Goods Rental	344	300	(44)	(13%)	1.22	\$ 36,397
5615	Travel Arrangement and Reservation Services	93	109	16	17%	0.29	\$ 30,026
7112	Spectator Sports	137	134	(3)	(2%)	0.44	\$ 21,161
7121	Museums, Historical Sites, and Similar Institutions	608	635	27	4%	2.28	\$ 32,742
7131	Amusement Parks and Arcades	202	181	(21)	(10%)	0.51	\$ 21,080
7132	Gambling Industries	<10	14	Insf. Data	Insf. Data	0.07	\$ 15,191
7139	Other Amusement and Recreation Industries	1,667	1,652	(15)	(1%)	0.72	\$ 14,750
7211	Traveler Accommodation	4,714	4,688	(26)	(1%)	1.55	\$ 24,959
7212	RV (Recreational Vehicle) Parks and Recreational Camps	355	447	92	26%	3.85	\$ 22,218
	Total	8,716	8,794	78	1%		\$ 23,997

Source: EMSI

Biomedical/Biotechnical

The *Biomedical/Biotechnical* cluster contains industries that are related to the research and production of medical drugs using biotechnology. There are eight 4-digit NAICS industries within the *Biomedical/Biotechnical* cluster.



Biomedical/Biotechnical	
NAICS	Industry
3254	Pharmaceutical and Medicine Manufacturing
3333	Commercial and Service Industry Machinery Manufacturing
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3391	Medical Equipment and Supplies Manufacturing
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers
5417	Scientific Research and Development Services
5622	Waste Treatment and Disposal
6215	Medical and Diagnostic Laboratories

Source: Camoin Associates

The *Biomedical/Biotechnical* cluster remained stable between 2011-2016, only experiencing a net loss of 1 job. Pharmaceutical and Medicine Manufacturing (NAICS 3254); Medical and Diagnostic Laboratories (NAICS 6215); Navigational, Measuring, Electromedical, and Control Instruments Manufacturing (NAICS 3345); and Professional and Commercial Equipment and Supplies Merchant Wholesalers (NAICS 4234) contributed to that decline. However, over that same time, Scientific Research and Development Services (NAICS 5417) grew by 249%, adding 349 jobs. Additionally, Waste Treatment and Disposal (NAICS 5622) grew by 119%, adding 25 jobs and Medical Equipment and Supplies Manufacturing (NAICS 3391) grew by 8% adding 45 jobs. Average earnings per job within this cluster are high at \$93,234.

Biomedical/Biotechnical Cluster, 2011 - 2016							
NAICS	Description	2011 Jobs	2016 Jobs	2011 - 2016 Change	2011 - 2016 % Change	2016 Location Quotient	Avg. Earnings Per Job
3254	Pharmaceutical and Medicine Manufacturing	997	796	(201)	(20%)	1.83	\$ 116,265
3333	Commercial and Service Industry Machinery Manufacturing	<10	0	Insf. Data	Insf. Data	0.00	\$ -
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	262	220	(42)	(16%)	0.37	\$ 70,688
3391	Medical Equipment and Supplies Manufacturing	559	604	45	8%	1.26	\$ 87,345
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	190	132	(58)	(31%)	0.14	\$ 70,493
5417	Scientific Research and Development Services	140	489	349	249%	0.46	\$ 86,827
5622	Waste Treatment and Disposal	21	46	25	119%	0.31	\$ 52,428
6215	Medical and Diagnostic Laboratories	164	52	(112)	(68%)	0.12	\$ 65,075
Total		2,340	2,339	(1)	(%)		\$ 93,234

Source: EMSI

Over the next five years, the *Biomedical/Biotechnical* cluster is projected to grow by 5%, adding 117 jobs. Scientific Research and Development Services (NAICS 5417) and Pharmaceutical and Medicine Manufacturing (NAICS 3254) are projected to grow by 120 and 27 jobs respectively.



Biomedical/Biotechnical Cluster, 2016 - 2021							
NAICS	Description	2016 Jobs	2021 Jobs	2016 - 2021 Change	2016 - 2021 % Change	2021 Location Quotient	Avg. Earnings Per Job
3254	Pharmaceutical and Medicine Manufacturing	796	823	27	3%	1.80	\$ 116,265
3333	Commercial and Service Industry Machinery Manufacturing	0	0	0	%	0.00	\$ -
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	220	180	(40)	(18%)	0.30	\$ 70,688
3391	Medical Equipment and Supplies Manufacturing	604	593	(11)	(2%)	1.19	\$ 87,345
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	132	132	0	%	0.14	\$ 70,493
5417	Scientific Research and Development Services	489	609	120	25%	0.56	\$ 86,827
5622	Waste Treatment and Disposal	46	64	18	39%	0.44	\$ 52,428
6215	Medical and Diagnostic Laboratories	52	57	5	10%	0.12	\$ 65,075
	Total	2,339	2,456	117	5%		\$ 93,234

Source: EMSI