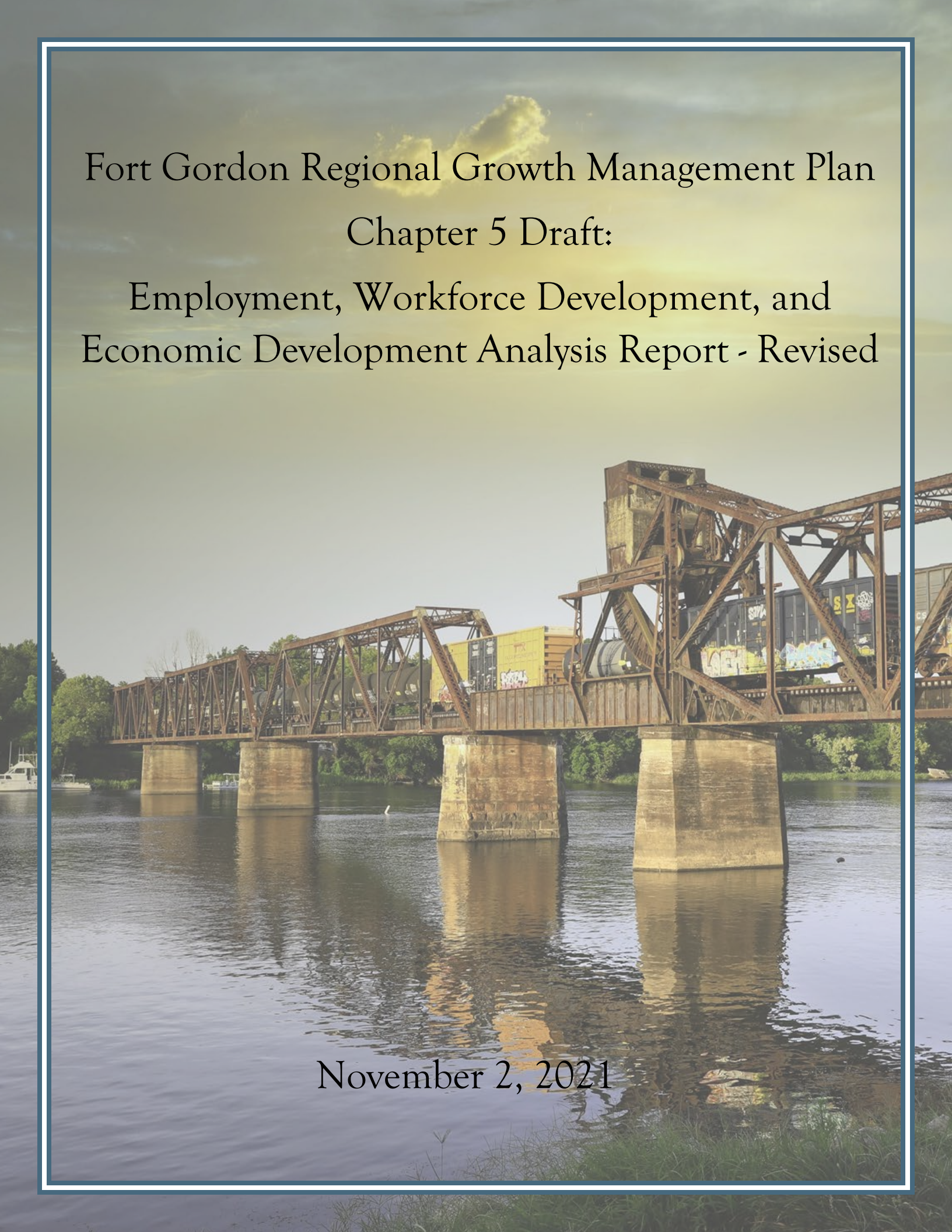
Fort Gordon Regional Growth Management Plan

Chapter 5 Draft:

Employment, Workforce Development, and Economic Development Analysis Report - Revised



November 2, 2021

5 Employment, Economic Development and Workforce Development

5.1 Introduction

As discussed in previous chapters, changes related to growth at Fort Gordon have far-reaching effects across the region's communities. This chapter seeks to understand the changes to employment and how emerging economic trends and technology will influence the local economy.

This report provides a data-driven approach to the economic trends of the Study Area around Fort Gordon and provides an understand of the economic impact of an increase in military personnel as well as which industries in the Study Area will benefit. Understanding what industries are growing and which ones are not is crucial to planning for growth and ensuring the region can benefit economically.

The report is based on an industry cluster analysis and workforce talent overview of the existing workforce in the Study Area. The clusters were analyzed to determine the sectors with the highest potential for growth in the Study Area.

Regional business data and economic studies were consulted to supplement the analysis of past workforce patterns and current employment trends. The team reviewed data sets from Economic Modeling Specialists International (EMSI), US Census Data, the Bureau of Labor Statistics, and the Bureau of Economic Analysis to gain a comprehensive view of the region and its needs. Ultimately, this analysis highlights the past and present economic and workforce conditions as well as industry clusters and workforce occupations with the most significant potential, along with industries targeted for growth. Through attraction, retention strategies, and supporting local entrepreneurs, the region can grow and develop critical competencies to become highly competitive and innovative in these industries, fostering a dynamic environment that can propel the local economy.

Much of the changes occurring in the Study Area are driven by Cyber Growth at Fort Gordon. Concurrently, the overall economy is transitioning to a predominantly digital orientation while this military driven growth occurs. What results is an increase in information technology across industry sectors, especially cyber security related firms operating in conjunction with the Installation and private businesses. This growth in technology will drive new market opportunities, especially in Department of Defense (DOD) contracting, cyber security, health Information Technology (IT), data centers, manufacturing, e-commerce, hotels, and related small businesses. Industries that find ways to integrate information technologies into their firms will be best positioned to succeed in a digitally driven economy.

A broad understanding of industrial sectors, and how they align with information technology, cyber security, and regional commerce can help prepare the labor force, form career paths, and enhance regional competitive advantages in innovation technology adaptation. This report seeks to provide an understanding about the drivers of innovation among critical industries in the Study Area and how to address supply chain gaps through competitive industry advantages and adoption of technology.

Information technologies are a central component of our lives and the economy. How we think about and use these technologies will change significantly as part of the digital transformation that is underway.

This transition represents an economic opportunity and the chance to secure a leadership position in emerging industries within the Study Area.

5.1.1 Components of Analysis

Economic Base - The economic base analysis assesses current industry concentration, identifying the industries that employ the most people in the area as well as those that represent unique specializations.

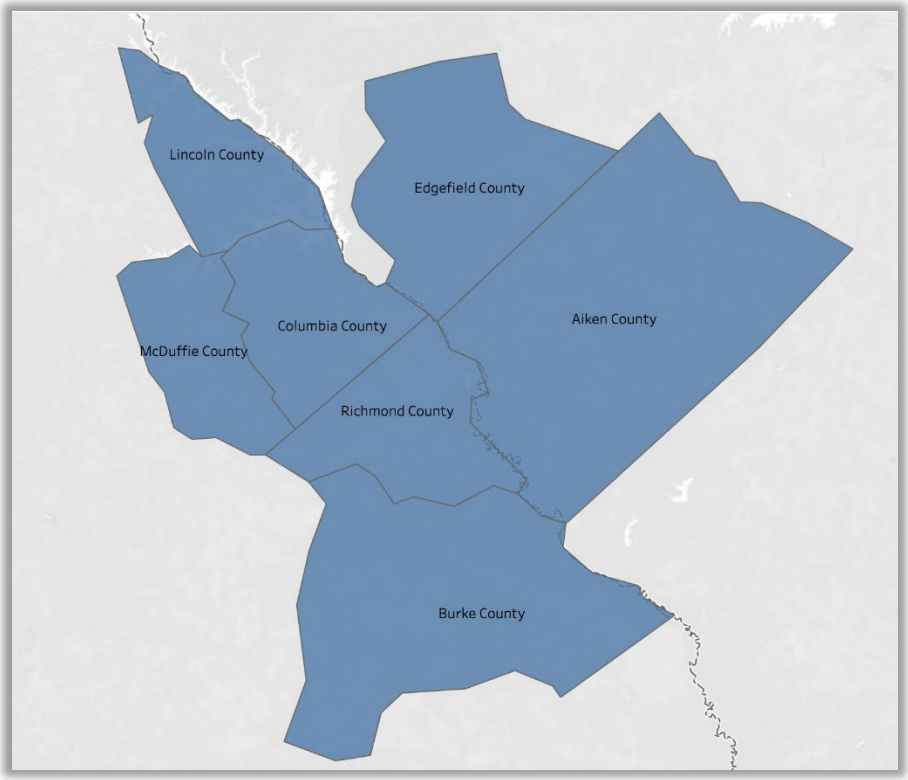
Targeted Industries - The targeted industry analysis utilizes clusters of industries to identify existing industry strengths and determine industry groups that could be potential areas for growth.

Workforce/Talent - The workforce analysis looks at the most common occupations and assesses education and the required training programs to enter the trade field. This analysis also looks at the most in-demand skills.

5.2 Economic Base Analysis

This economic base analysis examines the area around Fort Gordon by county. Seven counties are included within the Study Area.

Figure 5.1: Study Area



Georgia: Burke, Columbia, Lincoln, McDuffie, Richmond

South Carolina: Aiken, Edgefield

The economic base analysis examines the Study Area's largest industries, past and projected growth, industry concentrations, and industry competitiveness. Evaluating these indicators paints a picture of the current and prospective future of an industry within the area. Much of this report including the economic base analysis examines industries by North American Industry Classification System (NIACS) codes. This coding system helps correlate and analyze specific industry and economic data.

5.2.1 Existing Economic Development Plans

CSRA Regional Plan

There are four economic development plans in the Study Area. The CSRA Regional Plan is a long-range plan for the management of the region's projected growth by local governments and the CSRA Regional Commission Council. The CSRA has six primary goals:

1. Economic Development – Maintain a vibrant, diversified economy that expands job opportunities in the region, develops a qualified workforce, supports downtowns as multi-use destinations, and improves the quality of life for all residents.
2. Natural and Cultural Resources – Protect and preserve natural, environmental, and cultural resources in the region from development pressure, build a network of connected communities, and highlight historic resources and natural assets in the area.
3. Community Facilities and Services – Provide community facilities and services throughout the region that encourage appropriate development and more walkable, mixed-use communities that enhance the overall quality of life for all residents.
4. Housing – Provide a range of housing types and choices available in urban and rural areas that is safe and physically and economically accessible to all residents.
5. Land Use and Transportation – Effectively use existing infrastructure to ensure the coordination of land use and transportation planning in support of improved resident quality of life, including provisions for pedestrians, trails and bicycles, housing, access to recreation and green space, and protected natural and historic areas.
6. Intergovernmental Coordination – Create a culture of collaboration in planning and government decision-making where communities join to define commonalities and development strategies that benefit multiple jurisdictions to further growth, increase access to resources, generate cost savings, and promote healthy, active residents.

Economic development priorities established in the CSRA Regional Plan include increasing promoting agricultural, natural, and heritage tourism opportunities, increase job opportunities through business expansion, attraction, and retention, and to develop better qualified workers. Strategies established, but not fully executed, include supporting major employers and promote specialized growth in sectors like cyber, surveying high-tech and niche manufacturers about skills needs, and utilizing the existing workforce development programs. These strategies are appropriate for promoting a strong and diversified regional economy. This report will identify additional economic and workforce development strategies that build on the planning already completed and regional economic trends, to serve the needs of a growing regional population.

CSRA Comprehensive Economic Development Strategy (CEDS)

The CSRA CEDS examines the entire 13-county CSRA Region. The CEDS notes that the regional population has grown 32% since 1980, but lags state growth. Growth is uneven as 6 of 13 counties lost population. The regional population is also relatively evenly distributed among a variety of age cohorts suggesting that an aging population is not as significant of a challenge as it may be in other parts of the United States. Regional household incomes have also increased since 1980 but the area still has lower income than the Georgia state average.

The CEDS found that the CSRA Regional economy is heavily reliant on timber related industries. Manufacturing has been challenged with somewhat recent factory closings and most occupations now exist in services and sales/admin support sectors. Despite manufacturing challenges, the sector still employs over 14,000 people in the CSRA region and fabricated metal, food, nonmetallic mineral products, paper, wood products, and transportation equipment are some of the largest sectors. Though manufacturing has a significant presence, the CEDS plan notes that the area is transitioning to a service dominant economy due to substantial growth in retail trade, finance, wholesale trade, health care, admin and waste management, transportation and warehousing, food service sectors.

The CEDS plan also notes the economic importance of Fort Gordon, describing the installation as the regional economic driver. This relates both to direct employment at the installation as well as contracting needs to support base operations. Future growth opportunities driven by Fort Gordon are likely in retail, tourism, manufacturing, military, education and health care.

Specific strategies in the CEDS plan place an emphasis on the following:

- → Niche Manufacturing
- → Warehousing and Distribution
- → Business Services and IT
- → Tourism
- → Downtown Development

These are likely good areas to focus future development efforts based on regional strengths and growth opportunities further identified in the plan. Niche manufacturing may be an especially strong area for the region to focus based on identified strengths in small vehicle production.

The CEDS also emphasizes business retention and expansion as well as cluster based approached to economic development strategies. This report builds on these strategies by identifying cluster that may be appropriate for additional economic development focus in terms of attraction and retention efforts.

5.3 Past Industry Growth

Between 2010 to 2020, the industries that added the most jobs were examined. Beginning with 2-digit NAICS, most industries had a job increase. This was strongest in Construction as well as Health Care and Social Assistance, which comprise of over 70% of the net job growth. Moreover, the industries which saw the greatest percentage growth were Mining, Quarrying, and Oil and Gas Extraction (20%), Real Estate and Rental and Leasing (22%), Utilities (27%), Government (27%) Transportation and Warehousing (30%), and Construction (53%). As such, Construction has contributed to a great deal of aggregate job growth and percentage job growth. Lastly, the change in the GRP (GDP for the region by industry) of each industry was examined, and the industries with the greatest net GRP increase were Health Care and Social

Assistance ($950,083,236), Manufacturing ($2,251,961,132), Utilities ($1,627,560,179), Government ($2,936,473,863), and Construction ($1,793,004,288). More information can be found on Table 5.1.

Table 5.1: Industries by Job Growth/(Decline) (2-digit NAICS)

Description	2010 Jobs	2020 Jobs	Job Change	% Job Change	2010 GRP	2020 GRP	Net GRP
Government	60,350	76,853	16,503	27%	$3,317,088,984	$6,253,562,847	$2,936,473,863
Health Care and Social Assistance	27,441	32,594	5,152	19%	$1,514,122,335	$2,464,205,571	$950,083,236
Retail Trade	25,954	27,211	1,257	5%	$808,094,658	$1,784,963,332	$976,868,674
Manufacturing	20,210	22,427	2,216	11%	$1,298,109,799	$3,550,070,931	$2,251,961,132
Administrative and Support and Waste Management and Remediation Services	22,273	22,058	(215)	(1%)	$1,337,155,186	$2,170,054,672	$832,899,486
Construction	13,870	21,283	7,413	53%	$844,754,946	$2,637,759,234	$1,793,004,288
Accommodation and Food Services	18,919	20,903	1,984	10%	$312,811,877	$688,083,947	$375,272,071
Other Services (except Public Administration)	12,679	13,447	768	6%	$372,020,604	$589,795,096	$217,774,491
Professional, Scientific, and Technical Services	9,309	10,427	1,118	12%	$818,086,510	$1,381,248,035	$563,161,525
Transportation and Warehousing	4,744	6,153	1,409	30%	$277,852,103	$551,768,391	$273,916,287
Wholesale Trade	4,432	5,149	716	16%	$309,957,105	$916,049,337	$606,092,232
Finance and Insurance	5,826	4,151	(1,676)	(29%)	$466,923,944	$930,841,591	$463,917,647

Description	2010 Jobs	2020 Jobs	Job Change	% Job Change	2010 GRP	2020 GRP	Net GRP
Arts, Entertainment, and Recreation	3,131	3,294	163	5%	$98,771,685	$193,923,641	$95,151,955
Educational Services	3,138	3,009	(129)	(4%)	$84,134,896	$131,307,948	$47,173,052
Real Estate and Rental and Leasing	2,382	2,896	513	22%	$256,735,492	$544,149,132	$287,413,640
Utilities	1,931	2,453	522	27%	$195,310,087	$1,822,870,267	$1,627,560,179
Agriculture, Forestry, Fishing and Hunting	2,417	2,346	(71)	(3%)	$128,151,384	$130,324,004	$2,172,620
Information	2,636	2,249	(387)	(15%)	$154,215,978	$588,707,063	$434,491,085
Management of Companies and Enterprises	783	464	(320)	(41%)	$85,625,713	$64,427,560	($21,198,152)
Mining, Quarrying, and Oil and Gas Extraction	351	421	70	20%	$31,048,684	$82,498,854	$51,450,170
Unclassified Industry	185	206	21	12%	Insf. Data	Insf. Data	
Total	**242,964**	**279,993**	**37,029**	**15%**	**$12,710,971,972**	**$27,476,611,453**	**$14,765,639,482**

Source: Emsi 2021.3, August 2021 and TPMA

The top 15 industries between 2010 to 2020 were examined at the 6-digit NAICS level. There were six industries that added over 1,000 new jobs:

- → Federal Government, Military (9,936)
- → Power and Communication Line and Related Structures Construction (4,591)
- → Limited-Service Restaurants (2,463)
- → General Medical and Surgical Hospitals (2,325)
- → Warehouse Clubs and Supercenters (2,000)

→ Home Health Care Services (1,243)
→ Other Heavy and Civil Engineering Construction (1,079)

Moreover, there were four industries that saw over 100% job growth:

→ Power and Communication Line and Related Structures Construction (4,924%)
→ Other Heavy and Civil Engineering Construction (1,146%)
→ Snack and Nonalcoholic Beverage Bars (207%)
→ Electric Power Distribution (119%)

In both cases, Power and Communication Line and Related Structures Construction saw significant growth, meaning that it likely contributed to a great deal to economic growth. This can be seen by the fact that this industry also had the second greatest net GRP ($807,957,970). General Medical and Surgical Hospitals ($290,263,287), Other Heavy and Civil Engineering Construction ($306,776,257), Electric Power Distribution ($415,756,994), and Federal Government, Military ($1,670,808,010), Federal Government, Civilian, Excluding Postal Service ($490,374,294) saw significant GRP growth as well. More information can be found on Table 5.2.

Table 5.2: Industries with Highest Job Growth, 2020 (6-digit NAICS)

Description	2010 Jobs	2020 Jobs	Job Growth	% Job Change	2010 GRP	2020 GRP	GRP Growth
Federal Gov, Military	22,493	32,429	9,936	44%	$710,995,289	$2,381,803,299	$1,670,808,010
Power and Communication Line and Related Structures Construction	93	4,684	4,591	4,924%	$6,210,746	$814,168,715	$807,957,970
Limited-Service Restaurants	7,318	9,781	2,463	34%	$169,854,109	$289,080,165	$119,226,056
General Medical and Surgical Hospitals	8,908	11,234	2,325	26%	$653,984,221	$944,247,508	$290,263,287
Warehouse Clubs and Supercenter-s	2,378	4,378	2,000	84%	$96,538,147	$229,762,203	$133,224,056
Home Health Care Services	1,526	2,769	1,243	81%	$66,765,737	$145,602,581	$78,836,844
Other Heavy and Civil Engineering Construction	94	1,174	1,079	1,146%	$8,230,242	$315,006,500	$306,776,257

Description	2010 Jobs	2020 Jobs	Job Growth	% Job Change	2010 GRP	2020 GRP	GRP Growth
Federal Government, Civilian, Excluding Postal Service	8,200	9,020	820	10%	$916,949,748	$1,407,324,042	$490,374,294
Tire Manufacturing (except Retreading)	1,097	1,828	731	67%	$113,796,058	$221,795,809	$107,999,751
Snack and Nonalcoholic Beverage Bars	326	1,003	677	207%	$5,355,790	$18,825,332	$13,469,542
Industrial Building Construction	2,518	3,187	669	27%	$367,595,573	$431,703,662	$64,108,089
Travel Trailer and Camper Manufacturing	0	616	616	Insuf. Data	$0	$55,928,946	$55,928,946
Animal (except Poultry) Slaughtering	622	1,212	590	95%	$33,124,345	$116,336,422	$83,212,077
Electric Power Distribution	460	1,009	549	119%	$161,598,214	$577,355,208	$415,756,994
All Other Transportation Equipment Manufacturing	1,215	1,744	529	44%	$214,886,220	$361,218,040	$146,331,820
Landscaping Services	1,696	2,213	517	30%	$54,239,056	$91,112,304	$36,873,247
Total	**58,944**	**88,281**	**29,337**	**50%**	**$3,580,123,495**	**$8,401,270,736**	**$4,821,147,240**

Source: Emsi 2021.3, August 2021 and TPMA

5.3.1 Industry Analysis

Regionally, the largest employers by industry closely match national trends, with the exception of Federal Government - Military, Hazardous Waste Treatment and Waste Disposal, and Power and Communication Line and Related Structures Construction.

Table 5.3: Top Ten Industries by Total Jobs, 2020 (6-Digit)

Description	2015 Total Jobs	2020 Total Jobs	Avg. Earnings per Person	2015 LQ	2020 LQ	Ind. Mix Effect	Nation Growth Effect	Expect-ed Change	Competitive Effect
Federal Gov, Military	25,481	32,429	$62,969	4.17	4.15	(64)	(2)	(66)	7,254
Elementary and Secondary Schools (Local Government)	13,365	13,202	$62,468	1.18	1.16	(357)	(2)	(359)	196
General Medical and Surgical Hospitals	9,360	11,234	$68,549	1.28	1.44	376	(1)	375	1,499
Limited-Service Restaurants	9,387	9,781	$17,212	1.42	1.42	96	(1)	94	300
Colleges, Universities	10,320	9,738	$80,287	2.43	2.22	30	(1)	29	(611)
Federal Government, Civilian, Excluding Postal Service	8,226	9,020	$109,255	2.29	2.26	675	(1)	674	120
Local Government, Excluding Education and Hospitals	7,820	7,621	$64,654	0.88	0.83	(8)	(1)	(9)	(189)
Full-Service Restaurants	7,562	6,618	$20,524	0.90	0.98	(1,685)	(1)	(1,686)	742
Hazardous Waste Treatment and Waste Disposal	5,886	6,402	$108,934	108.14	103.61	607	(1)	607	90
Power and Communication Line and Related Structures Construction	196	4,684	$135,932	0.69	12.85	49	0	49	4,439

Source: Emsi 2021.3, August 2021 and TPMA

Table 5.4: Top 10 Jobs by Highest Percentage Growth, 2019 to 2020

Description	2015 Jobs	2019 Jobs	2020 Jobs	2021 Jobs	2015-2019 % Growth	2019-2020 % Growth	2020-2021 % Growth	Recovery Percent
Sign Manufacturing	78	20	76	79	(74.01%)	275.37%	3.99%	290.33%
Locksmiths	17	32	112	129	90.73%	244.98%	15.25%	297.58%
Fruit and Vegetable Canning	0	17	53	62	Insuf. Data	205.47%	16.39%	255.53%
Research and Development in Biotechnology (except Nanobiotechnology)	23	143	434	503	531.80%	203.61%	15.84%	251.69%
Packaging and Labeling Services	21	13	40	44	(37.29%)	198.11%	10.26%	228.71%
Other Miscellaneous Nondurable Goods Merchant Wholesalers	22	16	45	49	(29.25%)	183.95%	9.60%	211.21%
Commercial Bakeries	54	44	120	126	(18.89%)	174.22%	5.48%	189.25%
Research and Development in the Social Sciences and Humanities	34	11	27	29	(68.44%)	150.15%	7.91%	169.93%
Animal (except Poultry) Slaughtering	726	500	1,212	1,340	(31.05%)	142.36%	10.54%	167.90%
Storage Battery Manufacturing	435	104	241	273	(76.02%)	130.89%	13.16%	161.27%

Source: Emsi 2021.3, August 2021

5.3.2 Industry Sector Concentration: Location Quotient (LQ)

A locations quotient, or LQ, quantifies and compares the concentration of industries in a particular area or region. In most industries, the Study Area is considered below average, as the median location quotient in 2020 was 0.6. This means that most industries have a lower proportion of jobs in the region compared to the nation, and that the region has highly concentrated sectors. This is not necessarily negative, but likely signifies an opportunity to expand and grow related support sectors. Several industries were considered well above average, such as All Other Schools and Educational Support Services (State Government) (37.03), Newsprint Mills (51.93), All Other Transportation Equipment Manufacturing (60.36), Hazardous Waste Treatment and Disposal (103.61), and Kaolin and Ball Clay Mining (114.12). Moreover, Military was considered above average in Fort Gordon, as should be expected.

A regression was run to see how 2015 and 2020 LQ were related. The regression results indicate that industries with a higher LQ saw an increased concentration in the Study Area by 1.057 times in the five-year time span. This is to say that Fort Gordon generally became better for businesses already concentrated in the region.

Another regression was run to see if a change in LQ effected job change. The results indicate that a change in LQ had a positive effect on growth. This means that, when industries became more specialized for business at Fort Gordon, they had more jobs.

The five most specialized industries in the Study Area had an average LQ of 71.65, meaning the share of total employment for the most specialized industries was on average almost 72 times more than the U.S. average of those industries. The five least specialized industries in the Study Area had an average LQ of 0.044, meaning the share of total employment for the least specialized industries was on average about 23 times less than the U.S. average for those industries. More information about the top and bottom five LQ industries can be found in Table 5.5.

Table 5.5: Summary Statistics of Top Five LQ Industries, 2020 (Plus Military)

Description	2015 Jobs	2020 Jobs	Avg. Earning per job	2015 LQ	2020 LQ	Ind. Mix Effect	Nation Growth Effect	Expected Change	Comp-etitive Effect
Federal Government, Military	25,481	32,429	$62,969	4.17	4.15	(64)	(2)	(66)	7,254
Kaolin and Ball Clay Mining	237	326	$89,843	77.18	114.12	(23)	0	(23)	112
Hazardous Waste Treatment and Disposal	5,886	6,402	$108,934	108.14	103.61	607	(1)	607	(90)
All Other Transportation	1,710	1,744	$80,853	69.36	60.36	237	0	237	(203)
Newsprint Mills	339	340	$108,080	38.11	51.93	(96)	0	(96)	98
All Other Schools	847	866	$60,030	33.05	37.03	(96)	0	(96)	115

Source: Emsi 2021.3, August 2021 and TPMA

5.3.3 Cyber Jobs

From 2015 to 2020, most Cyber jobs saw a net growth, as only three of the Cyber related industries saw a decline, as shown in Table 5.6. Most Cyber Jobs also experienced net growth to 2025 as only five industries are projected to decline. Engineering Services saw a precipitous drop from 2015 to 2020 (1,714 jobs lost) which has led to a steep decline in the Location Quotient as well. If Engineering Services were excluded, there would have been a net growth in Cyber jobs. Only one Cyber industry is considered relatively better than the rest of the U.S., and that is Computer Facilities Management Services (2.44 LQ

in 2020). This same pattern is projected from 2020 to 2030, where a net job loss in Cyber related jobs, much of which is anchored by a loss in Engineering Services (914 jobs lost) is anticipated. If that sector was excluded, there would be a net gain in jobs. Moreover, only Computer Facilities Management Services is considered above average compared to the rest of the U.S.

Engineering Services consisted of the most cyber-related jobs in 2015 and 2020, making up 62.36% in 2015 and 35.31% in 2020. In 2030, however, the sector is no longer projected to be the largest concentration of cyber jobs, as shown in Table 5.7. If Engineering Services were excluded in the 2015 to 2020 analysis, there would be a net job gain of 816 jobs. Likewise, if Engineering Services was excluded in the 2020 to 2030 analysis, there would have been a net gain of 862 jobs. This suggests that Cyber is a relatively strong industry within the region. However, growth in this industry is somewhat distorted by the engineering services sector which saw significant decline. Factoring out engineering services, the region would have experienced a net gain of 1,678 jobs between 2015 and 2030.

Table 5.6: Summary Statistics of Cyber Jobs, 2015-2025

Description	2015 Jobs	2020 Jobs	2025 Jobs	'15 – '25 Change	% Change	Competitive Effect
Computer Facilities Management Services	88	323	525	438	499%	411
Computer Systems Design Services	376	657	775	399	106%	272
Research and Development in the Physical, Engineering, and Life Sciences	198	331	470	272	138%	249
All Other Telecommunications	75	179	268	193	255%	159
Other Scientific and Technical Consulting Services	141	233	310	169	120%	166
Computer Training	67	154	228	161	240%	132
All Other Professional, Scientific, and Technical Services	110	164	192	82	75%	41
Custom Computer Programming Services	293	353	369	76	26%	-34
Electronic Shopping and Mail-Order Houses	143	153	189	46	32%	-19
Process, Physical Distribution, and Logistics Consulting Services	36	58	78	41	115%	28

Description	2015 Jobs	2020 Jobs	2025 Jobs	'15 – '25 Change	% Change	Competitive Effect
Internet Publishing and Broadcasting and Web Search Portals	16	28	35	19	119%	5
Security Systems Services	110	112	107	(3)	(3%)	(24)
Other Computer Related Services	120	88	96	(24)	(20%)	(45)
Data Processing, Hosting, and Related Services	114	76	77	(37)	(33%)	(75
Software Publishers	241	100	70	(171)	(71%)	(356)
Engineering Services	3,228	1,514	868	(2,360)	(73%)	(2,695)
Total	**5356**	**4523**	**4657**	**(699)**	**(13%)**	**(1785)**

Source: Emsi 2021.3, August 2021

Table 5.7: Summary Statistics of Cyber Jobs 2020-2030

Description	2020 Jobs	2030 Jobs	2020 – 2030 Change	2020 – 2030 % Change	2020 LQ	2030 LQ
Computer Facilities Management Services	323	653	330	102%	2.44	3.74
Research and Development in the Physical, Engineering, and Life Sciences	331	538	207	63%	0.43	0.67
Computer Systems Design Services	657	854	197	30%	0.36	0.36
Other Scientific and Technical Consulting Services	233	356	123	53%	0.59	0.79
All Other Professional, Scientific, and Technical Services	164	209	45	27%	0.36	0.36
Custom Computer Programming Services	353	382	29	8%	0.2	0.17
All Other Information Services	10	16	6	60%	0.23	0.29
Testing Laboratories	108	112	4	4%	0.38	0.38
Other Management Consulting Services	47	48	1	2%	0.24	0.2

Data Processing, Hosting, and Related Services	76	76	0	0%	0.13	0.11
Security Systems Services (except Locksmiths)	112	103	(9)	(8%)	0.49	0.39
Administrative Management and General Management Consulting Services	360	290	(70)	(19%)	0.27	0.16
Engineering Services	1,514	600	(914)	(60%)	0.87	0.33
Total	**4,288**	**4,237**	**(51)**	**(0.01%)**	-	-

Source: Emsi 2021.3, August 2021

5.3.4 Industrial Competitiveness and Competitive Advantage

Shift share is an economic indicator that demonstrates which industries (or occupations) are competitive in a region. It includes four components: industrial mix effect, national growth effect, expected change, and regional competitive effect.

Industry Mix Effect is a measurement of how many jobs within an industry are predicted to come to an area given the national growth of jobs within that industry. The Competitive Effect measures how much of the change in number of jobs change is due to the strength of the industry within the region. These metrics are used to understand how much job growth can be attributed to either national trends or the region itself.

The national growth effect shows the number of jobs an industry is expected to gain or lose according to the industry's national job growth. So, if the industry sees national net job growth, job growth in most regions within the country can be expected as well.

Expected change is the amount of job growth or decline that would be expected for a particular regional industry based on the national growth effect and the industry (or occupation) mix effect. Job change beyond this level is "unexpected" and can therefore be attributed to the region's unique competitive effect

For the Industry Mix Effect, as indicated in Table 5.8, the industries with the highest were Plumbing, Heating, and Air-Conditioning Contractors (349), General Medical and Surgical Hospitals (376), General Warehousing and Storage (599), Hazardous Waste Treatment and Disposal (607), and Federal Government, Civilian, Excluding Postal Service (675). While Civilian Personnel saw a strong industry mix effect, surprisingly, Federal Government, Military (NAICS code 901200) saw a negative Industry Mix Effect of –66, indicating that growth in Federal Government, Military was outpaced by job growth in other sectors... Interestingly, the Civilian Personnel sector growth out-paced the national average.

Table 5.8: Summary Statistics of Top 5 Industry Mix Effect

Description	2015 Jobs	2020 Jobs	2015 LQ	2020 LQ	Ind. Mix Effect	Nation Growth Effect	Expected Change	Competitive Effect
Federal Government, Civilian, Excluding Postal Service	8,226	9,020	2.29	2.26	675	(1)	674	120
Hazardous Waste Treatment and Disposal	5,886	6,402	108.14	103.61	607	(1)	606	(90)
General Warehousing and Storage	696	493	0.60	0.22	599	0	599	(803)
General Medical and Surgical Hospitals	9,360	11,234	1.28	1.44	376	(1)	375	1,499
Plumbing, Heating, and Air-Conditioning Contractors	2,245	2,050	1.29	0.99	349	0	349	(544)

Source: Emsi 2021.3, August 2021

For the Competitive Effect, the industries with the highest concentrations were Full-Service Restaurants (742), Other Heavy and Civil Engineering Construction (1,148), Industrial Building Construction (1,199), General Medical and Surgical Hospitals (1,499), and Power and Communication Line and Related Structures Construction (4,439). Power and Communication Line and Related Structures has a regional competitive advantage, and this implies that this industry will see continual growth for the foreseeable future. Federal Government, Military (NAICS code 901200) also has a very strong Competitive Effect (306). This is expected given Fort Gordon's presence in the Study Area and indicates that Fort Gordon should continue to see a relatively high rate of job increase in this sector. Civilian Personnel also had a positive Competitive Effect. This is different from the Industry Mix Effect because Industry Mix Effect measures a certain sector's economy to the overall country's economy. Competitive Mix Effect measures job change that comes from a region's strength or emphasis on some sector.

Table 5.9: Summary Statistics of Top 5 Competitive Effect

Description	2015 Jobs	2020 Jobs	2015 LQ	2020 LQ	Ind. Mix Effect	Nation Growth Effect	Expected Change	Competitive Effect
Power and Communication Line	196	4,684	0.69	12.85	49	0	49	4,439
General Medical and Surgical Hospital	9,360	11,234	1.28	1.44	376	(1)	375	1,499
Industrial Building Construction	2,329	3,187	8.43	13.14	(341)	0	(341)	1,199
Other Heavy and Civil Engineering Constructions	24	1,174	0.12	5.41	2	0	2	1,148
Full-Service Restaurants	7,562	6,618	0.90	0.98	(1,685)	(1)	(1,686)	742

Source: Emsi 2021.3, August 2021

The impact from COVID-19 was examined as well. This was done by seeing how the 2015 to 2019 percent job change, 2019 to 2020 percent job change, and the 2020 to 2021 percent job change effected their respective industry mix effects. Three regressions were run and found that an increase in the percent job change had no effect on industry mix effect in 2015 to 2019 and 2019 to 2020 but did effect industry mix effect from 2020 to 2021. More specifically, the effect of 2020 to 2021 percent job change on industry mix effect was positive. This is likely due to strong industries and sectors that are not always growing at a rapid pace, but account for a significant amount of GRP in the region. The results from 2020 to 2021 is likely significant because that was around the time COVID-19 restrictions began to loosen, which likely led more jobs being created in sectors that may have more significance on the economy.

A regression was run to see if bigger industries had a bigger or smaller industry mix effect in 2020. The size of an industry was determined by number of jobs. This would show that, if larger industries had a higher industrial mix effect given national growth effects, then they are reaping the benefits. The results indicate that the number of jobs in 2020 had no effect on industry mix effect, meaning that the size of an industry does not serve as an indicator for the relative strength of the sector compared to the United States' overall economic growth.

5.4 Operational Analysis

The highest concentrations of occupations in the greater Fort Gordon region in 2020 were Registered Nurses (6,577), Military-only Occupations (6,794), Cashiers (6,872), Fast Food and Counter Workers (7,003), and Retail Salespersons (7,391). Of these jobs, the median annual income is $22,401.30, with Registered Nurse being the only occupation having a living wage.

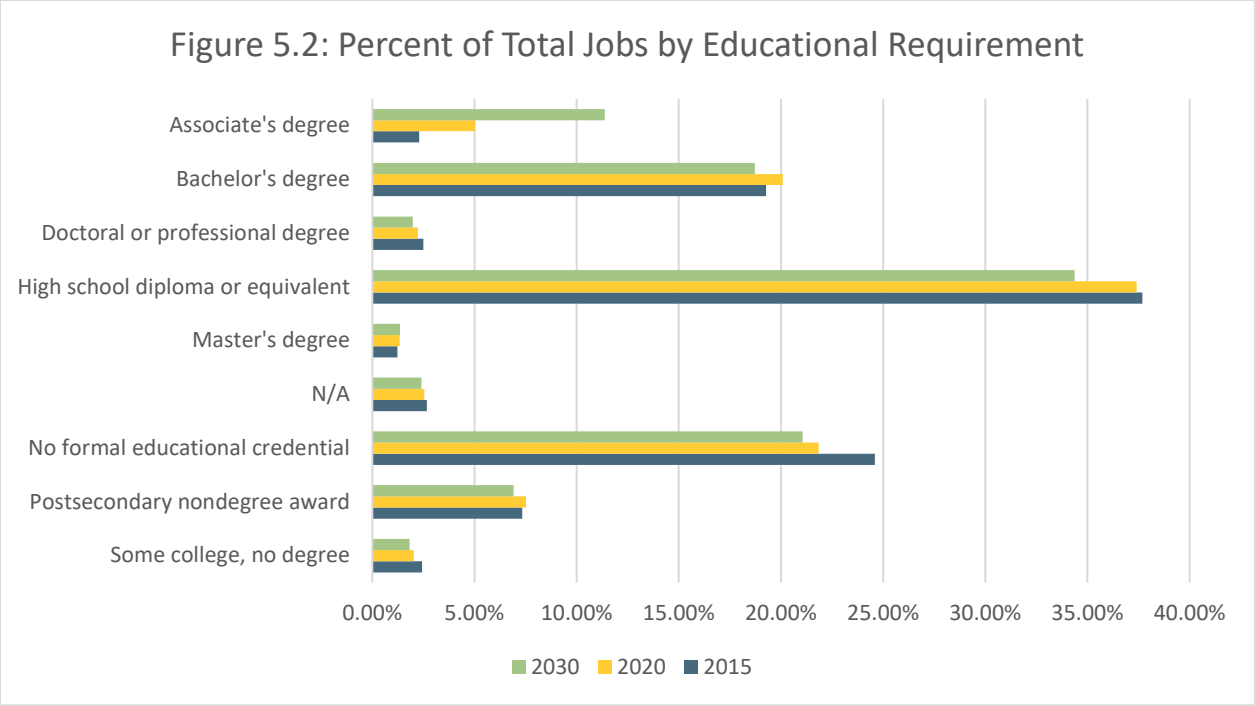
Table 5.10: Summary Statistics of Entry Level Education and Work Experience

Description	2015 Jobs	2020 Jobs	2015-2020 % Job Change	2020 LQ	Automation Index	Entry Level Education	Work Exp.
Retail Salespersons	7,800	7,391	(5%)	1.15	93.4	No formal education	None
Fast Food and Counter Workers	7,291	7,003	(4%)	1.24	130.8	No formal education	None
Cashiers	7,126	6,872	(4%)	1.23	105.5	No formal education	None
Military-only Occupations	6,771	6,794	0%	4.15	N/A	N/a	None
Registered Nurse	6,387	6,577	3%	1.30	85.3	No formal education	None

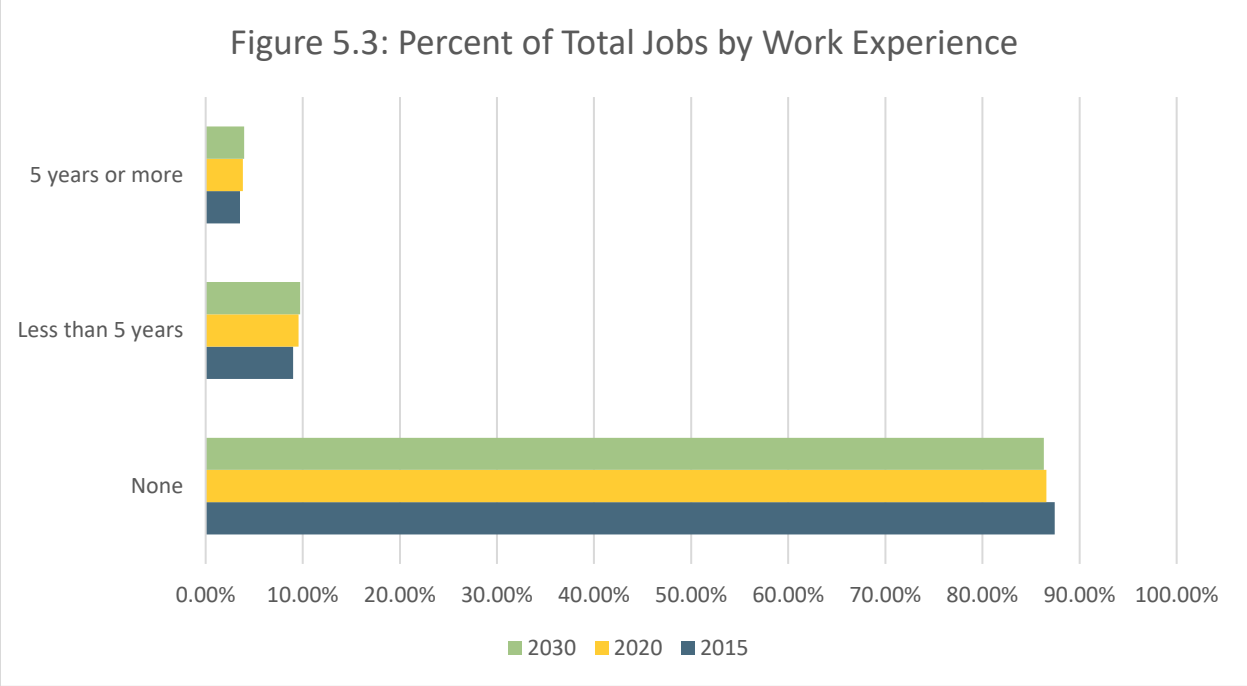
Source: Emsi 2021.3, August 2021

The typical amount of education and work experienced required was examined. This was done for 2015, 2020, and 2030. This was done by examining the number of jobs available for each occupation and seeing the education level required. Then, the proportion of respective jobs by education requirement was examined as well as work experience. For educational requirements, a high school diploma tends to be the most common job requirement. The proportion of educational requirements is relatively stable through the years, as no formal education is second, Bachelor's degree is third, and more. Overall, Bachelor's degree has become somewhat more popular, and no formal education has become somewhat less popular. However, the change in educational requirements by job in a given year is modest at best. The same can be said about Work Experience through the years, as no work experience remains the most popular but goes down somewhat from 2015 to 2030 while less than five years and five years or more rise. However, like with educational requirements, these changes are modest at best.

In comparing high concentrations of jobs in the Fort Gordon area with military spousal employment, the easiest jobs to find are not typically the types of employment military spouses are seeking. Military spouses are a highly educated group, with over 89% completing with some college education, 30% with a four-year degree, and 15% with an advanced degree (Source: Department of Labor, Military Spouses Fact Sheet). Additionally, up to 34% of military spouses in the workforce are in occupations that require licensure/certification, primarily in health and education-related fields. Frequent moves and various state requirements can lead to long periods of unemployment/underemployment for military spouses. In fact, over 30% of military spouses report being underemployed, where they are working part-time but would like to work more. (Source: Department of Labor, Military Spouses Fact Sheet). So while employment in retail and food service may be necessary for military spouses to support their family with a second income, like many families in America, it does not necessarily suit the needs of military spouses to find jobs that match their educational attainment and career goals.



Source: Emsi 2021.3, August 2021



Source: Emsi 2021.3, August 2021

Of all occupations in Fort Gordon, Paperhangers (136.9), Terrazzo Workers and Finishers (137), Reinforcing Iron and Rebar Workers (137.2), Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters (137.3), and Floor Layers, Except Carpet, Wood, and Hard Tiles (139.1) have the highest automation index. Moreover, the two occupations with the highest Automation Index had a LQ above one, meaning that

Fort Gordon specializes in those jobs. Economic challenges may occur for workers in, and industries related to these occupations as automation may cause workforce displacement. Opportunities to reskill and upskill workers may be necessary to reduce risk automation may have on trade related occupations.

5.5 Target Industries

The following targeted industry analysis identifies potential industries that could be strong targets for industry attraction. The Economic Base analysis contains data gathered from NAICS codes, which are used by the US, Canada, and Mexico to classify businesses by industry. Each business is classified into a six-digit NAICS code number based on the activity at the business. This analysis takes place primarily at the subcluster level by identifying first existing subclusters in the Study Area and then clusters that could fit into the existing supply chain. Subclusters are a division of clusters as defined by the U.S. Cluster Mapping project from Harvard Business School. This method groups like industries together based not on NAICS code but on related products and/or supply chains. For example, the automotive cluster includes not only the manufacturing of motor vehicles but also automotive parts and metalworking that goes into the manufacturing of cars. Subclusters are used in this analysis to provide more specificity than clusters, but less granularity than looking at a sole industry. An example of a subcluster structure for the automotive clusters includes automotive parts, motor vehicles, metal mills and foundries, gasoline engines and engine parts, small vehicles, and military vehicles and tanks.

Weighting was placed on trends including forecasted job growth, total imports/exports, and regional jobs to help rank industries that may be best fits for industry attraction efforts to address local supply chain gaps. The region of analysis for the target industry analysis focused on the Study Area but was also informed by economic conditions from the greater CSRA region. Target industry sub-clusters are identified to help guide the region in future economic development efforts.

5.5.1 Target Industry Sub Clusters

Using this quantitative analysis as a basis and feedback from the project advisory group, the following targeted industry groups were identified:

1. Research Organizations
2. Small Vehicles
3. Construction
4. Hospitality Establishments
5. Computer Services
6. Specialty Contractors
7. Communications Equipment Components

These groups were identified based on unique aspects to the Study Area. The following analysis provides a list and description of industries included in each subcluster as well as information on the local and regional demand, location factors, and the overall opportunities and challenges related to each group. Specific industries within these subclusters to focus attraction and development efforts around are identified as well.

5.5.2 Research Organizations

NAICS Codes

- → 541710: Research and Development in the Physical, Engineering, and Life Sciences
- → 541711: Research and Development in Biotechnology
- → 541712: Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)
- → 541713: Research and Development in Nanotechnology
- → 541714: Research and Development in Biotechnology (except Nanobiotechnology)
- → 541715: Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)
- → 541720: Research and Development in the Social Sciences and Humanities

This industry includes companies and organizations that are involved in physical, engineering or life sciences research and development (R&D). The industry only includes operators whose primary purpose is R&D and excludes players such as pharmaceutical or manufacturing companies that may undertake R&D to support their primary operations. Government entities are also excluded from this industry, though these entities may contract and fund the research this industry undertakes.

The federal government sources more than half of total industry revenue, so changes in federal funding levels greatly affect industry revenue. Over the last decade, this industry performed well as a result of its transition toward private funding sources and decreased reliance on federal spending. This trend is expected to continue as corporate profit margins continue to drive strong private investment. Additionally, investment in new technologies, such as nanotechnology, will benefit industry operators.

Table 5.11: Research Organizations Industry Data

NAICS	Description	2015 Jobs	2020 Jobs	2015 - 2020 Change	2020 Location Quotient	Competitive Effect	2020 % Demand met by Imports
541713	Research and Development in Nanotechnology	<10	<10	Insf. Data	0.13	0	85%
541714	Research and Development in Biotechnology (except Nanobiotechnology)	23	434	412	1.13	401	60%
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	198	331	133	0.43	118	87%

NAICS	Description	2015 Jobs	2020 Jobs	2015 - 2020 Change	2020 Location Quotient	Competitive Effect	2020 % Demand met by Imports
541720	Research and Development in the Social Sciences and Humanities	34	27	(7)	0.25	(8)	85%

Source: Emsi 2021.3, August 2021

Research organizations present a strong opportunity as a significant percentage of in-region demand is met by imports coming from outside the region. Nearly 90% of these research and development services are supplied by out of region businesses. This supply chain gap indicates an opportunity to attract or locally develop businesses in these sectors that could have linkages to the Study Area or the Savanah River Site. Of the six-digit industries in this subcluster, Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) has the greatest regional presence based on employment, but all of these industry sectors present supply chain opportunities.

5.5.3 Small Vehicles

NAICS Codes

→ 336999: All Other Transportation Equipment Manufacturing

This Industry includes businesses that manufacture smaller vehicles such as ATVs, golf carts, and snowmobiles. This industry produces many of the most popular recreational vehicles on the market. Consequently, the industry's performance is sensitive to changes in consumer spending. This industry's performance is directly tied to employment and discretionary income level which drive purchases of recreational vehicles. The industry has introduced several well-received products in recent years to lure a new class of customers. Despite these successes, revenue growth has been partially hindered by the appreciating US dollar and steep declines in exports to Canada, the largest foreign consumer of industry products, amid weak economic growth in that country.

Fluctuating input prices have also complicated industry expansion. Volatility made it difficult for operators to plan their annual budgets, which sometimes caused unexpected declines in profit margins. Additionally, as the agriculture sector has struggled due to an oversupply of crops (particularly corn), demand for some industry products used primarily in farming has dropped substantially. Consequently, revenue streams from that segment have dried up. Increases in total industry revenue, coupled with the adoption of ambitious cost-cutting strategies by larger industry operators, have translated to a sizable increase in profit margins. Given the increased efficiency of larger operators, the industry has remained relatively consolidated, with the top four major companies commanding nearly 60.0% of the entire market.

Table 5.12: Other Transportation Equipment Manufacturing Industry Data

NAICS	Description	2015 Jobs	2020 Jobs	2015 - 2020 Change	2020 Location Quotient	Competitive Effect	2020 % Demand met by Imports
336999	All Other Transportation Equipment Manufacturing	1,710	1,744	34	60.36	(203)	1%

Source: Emsi 2021.3, August 2021

5.5.4 Construction

NAICS Codes

- → 233310: Mfg & Industrial Building Construction
- → 234920: Pwr/Communication Transmission Line Construction
- → 234930: Industrial Nonbuilding Structure Construction
- → 234990: All Other Heavy Construction
- → 236210: Industrial Building Construction
- → 237120: Oil and Gas Pipeline and Related Structures Construction
- → 237130: Power and Communication Line and Related Structures Construction
- → 237990: Other Heavy and Civil Engineering Construction

This subcluster includes industry sectors in all forms of construction ranging from Heavy and Civil Engineering Construction, Construction of Buildings, and Construction of Utilities. Heavy Engineering Construction includes Operators primarily engaged in heavy and engineering construction projects, except for highway, street, bridge, and airport construction. Work performed includes new work, reconstruction, rehabilitation, and repairs. The industry also includes specialty trade contractors, if they are primarily active in activities related to engineering construction projects. Construction projects include waterworks, marine facilities development, and open space improvement.

Construction of industrial buildings also falls within this subcluster. This includes contractors primarily responsible for the construction (e.g., new work, additions, alterations, maintenance, and repairs) of industrial and manufacturing buildings. Establishments include general contractors, design-build companies, and construction management operators.

Finally, this subcluster also includes construction of utilities related project like fossil fuels pipelines and electrical infrastructure. Operators in this sector provide construction, repair, rehabilitation, and maintenance work for a variety of forms of electric power and telecommunications infrastructure, including power lines, power plants, radio and television towers and cable infrastructure. Industry operators, however, do not perform construction work on hydroelectric power stations, the construction of broadcast studios or electrical maintenance work within buildings.

Table: 5.13: Construction Industry Data

NAICS	Description	2015 Jobs	2020 Jobs	2015 - 2020 Change	2020 Location Quotient	Competitive Effect	2020 % Demand met by Imports
236210	Industrial Building Construction	2,329	3,187	858	13.14	1,199	2%
237120	Oil and Gas Pipeline and Related Structures Construction	<10	428	Insf. Data	1.82	418	57%
237130	Power and Communication Line and Related Structures Construction	196	4,684	4,488	12.85	4,439	5%
237990	Other Heavy and Civil Engineering Construction	24	1,174	1,150	5.41	1,148	13%

Source: Emsi 2021.3, August 2021

Regionally significant industries in this subcluster include Industrial Building Construction, Oil and Gas Pipeline and Related Structures Construction, Power and Communication Line and Related Structures Construction, and Other Heavy and Civil Engineering Construction. Together, these industries employed 9,225 workers within the Study Area. It is one of the most regionally significant clusters due to high LQs for all industries listed in Table 5.12, especially Industrial Building Construction and Power and Communication Line and Related Structures Construction which, have exceptionally high LQs. This regional specialization along with rapid five-year growth make it a strategic industry for the Study Area. Future economic development efforts could focus on attracting construction related businesses to the region to build on these industry sector strengths. Oil and Gas Pipeline and Related Structures Construction has the greatest supply chain gap and may present to greatest opportunity for industry attraction efforts, but the other sectors in Table 5.13 show potential to address supply chain leakages and regional demand.

5.5.5 Hospitality Establishments

NAICS Codes

- → 722110: Full-Service Restaurants
- → 722211: Limited-Service Restaurants
- → 722212: Cafeterias
- → 722213: Snack and Nonalcoholic Beverage Bars
- → 722310: Food Service Contractors
- → 722320: Caterers
- → 722410: Drinking Places (Alcoholic Beverages)
- → 722511: Full-Service Restaurants

- → 722513: Limited-Service Restaurants
- → 722514: Cafeterias, Grill Buffets, and Buffets
- → 722515: Snack and Nonalcoholic Beverage Bars

This subcluster includes industry sectors related to hospitality and tourism primarily restaurants and catering. Restaurants include chain and single location establishments that provide food services to patrons who order and are served while seated (i.e., waiter or waitress service) and pay after eating. These establishments may provide this type of food service to patrons in combination with selling alcoholic and other beverages. Fast food restaurants are also included in this subcluster.

Furthermore, this subcluster includes catering related industry sectors. Caterers are comprised of companies that provide individual event-based food services. These companies generally have equipment and vehicles to transport meals and snacks to events or prepare food off-site. Banquet halls with catering staff are included in this industry. Examples of events catered by establishments in this industry are graduation parties, wedding receptions, business luncheons and trade shows. Food service contractors also fit it into this subcluster.

Table 5.14: Hospitality Establishments Industry Data

NAICS	Description	2015 Jobs	2020 Jobs	2015 - 2020 Change	2020 Location Quotient	Competitive Effect	2020 % Demand met by Imports
722310	Food Service Contractors	945	935	(10)	1.36	172	5%
722320	Caterers	157	136	(21)	0.56	27	12%
722330	Mobile Food Services	27	55	29	0.64	21	8%
722410	Drinking Places (Alcoholic Beverages)	336	288	(48)	0.61	39	19%
722511	Full-Service Restaurants	7,562	6,618	(944)	0.98	742	17%
722513	Limited-Service Restaurants	9,387	9,781	395	1.42	300	2%
722514	Cafeterias, Grill Buffets, and Buffets	538	275	(263)	2.30	(27)	2%
722515	Snack and Nonalcoholic Beverage Bars	659	1,003	345	0.84	224	26%

Source: Emsi 2021.3, August 2021

Food services Contractors, Cafeterias, Grill Buffets, and Buffets, and Limited-Service Restaurants have the highest LQs of all industries in this subcluster within the Study Area. Industry sectors with the greatest unmet regional demand include Snack and Nonalcoholic Beverage Bars and Drinking Places (Alcoholic Beverages) as both have above 19% of demand met by imports, indicating supply chain gaps.

5.5.6 Computer Services

NAICS Codes:

- → 514210: Data Processing Services
- → 518210: Data Processing, Hosting, and Related Services
- → 541511: Custom Computer Programming Services
- → 541512: Computer Systems Design Services
- → 541513: Computer Facilities Management Services
- → 541519: Other Computer Related Services

The Computer Services subcluster includes data centers, cyber security, and other computer related service industry sectors. IT and Cyber Security is a major component of this cluster. This includes firms that provide the following services to client companies: writing, testing and supporting custom software; planning and designing integrated hardware, software and communication infrastructure; and on-site management of computer systems and data processing facilities. This industry excludes packaged software publishers and off-site data processing and hosting services.

Data processing and Data processing centers make up the other component of this sector. Businesses in these industries provide data processing or hosting activities. Data processing services provide specialized reports from information supplied by clients. Hosting services can include web and application hosting. Services range from automated data entry to processing data. Most of these hosting services are contained in data centers.

Table 5.15: Computer Services Industry Data

NAICS	Description	2015 Jobs	2020 Jobs	2015 - 2020 Change	2020 Location Quotient	Competitive Effect	2020 % Demand met by Imports
518210	Data Processing, Hosting, and Related Services	114	76	(38)	0.13	(61)	93%
541511	Custom Computer Programming Services	293	353	60	0.20	9	88%
541512	Computer Systems Design Services	376	657	281	0.36	226	78%
541513	Computer Facilities Management Services	88	323	235	2.44	225	4%
541519	Other Computer Related Services	120	88	(32)	0.41	(39)	72%

Source: Emsi 2021.3, August 2021

Many of the industry sectors in this subcluster do not have a high LQ when examining the Study Area. Computer Facilities Management has the highest LQ and is on par with the national average. However, this subcluster stands out because many of the industry sectors included have a significant amount of unmet regional demand. Significant regional supply chain gaps likely exist in Data Processing, Hosting, and Related Services, Custom Computer Programming Services, and Computer Systems Design Services. These

industry sectors present business attraction and growth opportunities that could be targeted by future economic development efforts.

5.5.7 Specialty Contractors

NAICS Codes

- 238110: Poured Concrete Foundation and Structure Contractors
- 238120: Structural Steel and Precast Concrete Contractors
- 238130: Framing Contractors
- 238140: Masonry Contractors
- 238150: Glass and Glazing Contractors
- 238160: Roofing Contractors
- 238170: Siding Contractors
- 238190: Other Foundation, Structure, and Building Exterior Contractors
- 238210: Electrical Contractors
- 238220: Plumbing, Heating, and Air-Conditioning Contractors
- 238290: Other Building Equipment Contractors
- 238310: Drywall and Insulation Contractors
- 238320: Painting and Wall Covering Contractors
- 238330: Flooring Contractors
- 238340: Tile and Terrazzo Contractors
- 238350: Finish Carpentry Contractors
- 238390: Other Building Finishing Contractors
- 238910: Site Preparation Contractors
- 238990: All Other Specialty Trade Contractors
- 332322: Sheet Metal Work Manufacturing
- 337212: Custom Architectural Woodwork and Millwork Manufacturing
- 562991: Septic Tank and Related Services

Specialty Contractors is a broad industry sector that includes 22 different industry sectors. Many of these industry sectors include contractors associated with building construction like plumbers, drywall and insulation installers, carpenters, etc. Contracted work typically includes new construction, alterations, maintenance and repairs and additions.

Table 5.16: Specialty Contractors Industry Data

NAICS	Description	2015 Jobs	2020 Jobs	2015 - 2020 Change	2020 Location Quotient	Competitive Effect	2020 % Demand met by Imports
238110	Poured Concrete Foundation and Structure Contractors	180	231	50	0.51	18	50%
238120	Structural Steel and Precast	139	90	(49)	0.60	(57)	37%

NAICS	Description	2015 Jobs	2020 Jobs	2015 - 2020 Change	2020 Location Quotient	Competitive Effect	2020 % Demand met by Imports
	Concrete Contractors						
238130	Framing Contractors	50	41	(9)	0.23	(14)	72%
238140	Masonry Contractors	141	149	8	0.49	8	58%
238150	Glass and Glazing Contractors	47	52	5	0.38	(4)	60%
238160	Roofing Contractors	169	162	(7)	0.38	(36)	61%
238170	Siding Contractors	120	116	(4)	1.24	(18)	15%
238190	Other Foundation, Structure, and Building Exterior Contractors	115	110	(6)	1.09	(13)	27%
238210	Electrical Contractors and Other Wiring Installation Contractors	1,122	1,300	178	0.75	53	47%
238220	Plumbing, Heating, and Air-Conditioning Contractors	2,245	2,050	(196)	0.99	(544)	23%
238290	Other Building Equipment Contractors	127	108	(19)	0.41	(28)	69%
238310	Drywall and Insulation Contractors	309	329	20	0.63	3	53%
238320	Painting and Wall Covering Contractors	308	339	31	0.60	24	40%
238330	Flooring Contractors	169	198	29	0.85	18	34%

NAICS	Description	2015 Jobs	2020 Jobs	2015 - 2020 Change	2020 Location Quotient	Competitive Effect	2020 % Demand met by Imports
238340	Tile and Terrazzo Contractors	129	106	(24)	0.69	(31)	41%
238350	Finish Carpentry Contractors	312	353	41	0.81	24	26%
238390	Other Building Finishing Contractors	60	75	15	0.45	13	62%
238910	Site Preparation Contractors	1,052	1,245	193	1.41	91	12%
238990	All Other Specialty Trade Contractors	656	662	6	0.76	(36)	26%
332322	Sheet Metal Work Manufacturing	134	190	56	1.04	49	84%
335912	Primary Battery Manufacturing	0	310	310	15.20	310	67%
337212	Custom Architectural Woodwork and Millwork Manufacturing	<10	<10	Insf. Data	0.09	0	95%
562991	Septic Tank and Related Services	63	33	(30)	0.62	(40)	74%

Source: Emsi 2021.3, August 2021

Because this subcluster is so large, it contains a mix of industry sectors with varying LQs and unmet demand. The largest opportunities for industry attraction and business development efforts from an unmet demand standpoint include Sheet Metal Work, Septic Tank and Related Services, Custom Architectural Woodwork and Millwork Manufacturing as these industry sectors have a demand met by imports above 70%. Site Preparation Contractors is a strong existing sector with a high LQ and large number of jobs making it possible to build on this sector's strengths, however only 12% of demand is met by imports so there are likely limited supply chain opportunities in the region related to this industry.

5.5.8 Communications Equipment Components

NAICS Codes

→ 335912: Primary Battery Manufacturing

Communications Equipment Components is a small subcluster consisting of only Primary Battery Manufacturing. Primary batteries are non-rechargeable batteries. Industry products have a variety of uses in cell phones, medical equipment, households, and the automotive and transport sectors. Batteries have become an indispensable household item because they are used for a range of portable electronics, from wireless electric razors to flashlights. High disposable income contributes to favorable spending patterns and increases demand for batteries.

Table 5.17: Primary Battery Manufacturing Industry Data

NAICS	Description	2015 Jobs	2020 Jobs	2015 - 2020 Change	2020 Location Quotient	Competitive Effect	2020 % Demand met by Imports
335912	Primary Battery Manufacturing	0	310	310	15.20	310	67%

Source: Emsi 2021.3, August 2021

The Study Area has seen a significant increase in Primary Battery Manufacturing in the past five years, growing from zero jobs in 2015 to 310 in 2020. The LQ for this industry is also very high at over 15 times the national average. Despite this, there is significant regional unmet demand as 67% of all demand is satisfied by imports. This suggests there is more room for this industry sector to grow and build on regional strengths.

5.6 Economic Impact Analysis

5.6.1 Military Growth

According to calculations on military job growth from Chapter 2, it is projected that 894 jobs will be added to the Installation between 2021 and 2024. The economic impact of adding these jobs was examined for the Study Area. Based on this increase, it is anticipated that 1,560 additional jobs would be created by direct, indirect, and induced effects for a total of 2,454 jobs. Table 5.18 breaks down the various economic effects created by this increase in personnel.

Table 5.18: Effect on jobs from adding 894 jobs to Federal Government, Military

Initial Jobs	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
894	378	97	1,085	2,454
1.00 Multiplier	0.41 Multiplier	0.11 Multiplier	1.2 Multiplier	2.75 Multiplier

Source: Emsi 2021.3 and TPMA, August 2021

The initial number represents the initial change in jobs. Direct Jobs examines the effect of new input purchases by the initially changed industries. This is the first round of impacts. This change is due to inter-industry effects. Indirect Jobs include the subsequent ripple effect in further supply chains resulting from the direct change. This shows the sales change in the supply chains of the supply chain, because of the direct change. This is the sum of the second and subsequent rounds of impact. This change is due to inter-industry effects. Induced effect is the change due to the impact of the new earnings, investment, and government created by the initial, direct, and indirect changes. Induced effects enter the economy as employees spend their paychecks in the region, businesses invest to grow their operations, and

government spends more to support the changes. In this scenario, the induced effect also anticipates additional jobs created by military spouses accompanying those filling the 894 initial jobs.

How these job increases are spread across sectors can also be examined. Table 5.19 shows where jobs are expected to be added at a high level across industry sectors at the 2-digit NAICS level. Besides government related jobs factored by the initial input, Construction and Professional, Scientific, and Technical Services industry sectors are expected to see the greatest impact due to ARCYBER growth.

Table 5.19: Economic Impact Scenario Results by Industry

NAICS	Industry	Change in Jobs
11	Agriculture, Forestry, Fishing and Hunting	1
21	Mining, Quarrying, and Oil and Gas Extraction	1
22	Utilities	2
23	Construction	250
31	Manufacturing	27
42	Wholesale Trade	42
44	Retail Trade	83
48	Transportation and Warehousing	50
51	Information	33
52	Finance and Insurance	33
53	Real Estate and Rental and Leasing	65
54	Professional, Scientific, and Technical Services	258
55	Management of Companies and Enterprises	4
56	Administrative and Support and Waste Management and Remediation Services	133
61	Educational Services	33
62	Health Care and Social Assistance	127
71	Arts, Entertainment, and Recreation	36
72	Accommodation and Food Services	100
81	Other Services (except Public Administration)	96
90	Government	1080
All	**Total**	**2,453**

Source: Emsi 2021.3, August 2021

In addition to new jobs created by the increase in troops, the additional earnings for all new jobs can be calculated as well. It is anticipated that adding 894 new jobs to the Study Area would create an additional $133M in regional earnings. Table 5.20 demonstrates how the various economic multipliers effect this earnings total.

Table 5.20: Effect on earnings from adding 894 jobs to Federal Government, Military

Initial Earnings	Direct Earnings	Indirect Earnings	Induced Earnings	Total Earnings
$56.3M	$22.5M	$4.1M	$50.1M	$133.0M
1.00 Multiplier	0.40 Multiplier	0.07 Multiplier	1.12 Multiplier	2.36 Multiplier

Source: Emsi 2021.3 and TPMA, August 2021

Like job change, the initial figure represents the initial change in earnings. Direct Earnings examines the effect of new input purchases by the initially changed industries. This is the first round of impacts this change is due to inter-industry effects. The subsequent ripple effect in further supply chains resulting from

the direct change. This shows the sales change in the supply chains of the supply chain, because of the direct change. This is the sum of the second and subsequent rounds of impact. This change is due to inter-industry effects. Induced change is due to the impact of the new earnings, investment, and government created by the initial, direct, and indirect changes. Induced effects enter the economy as employees spend their paychecks in the region, businesses invest to grow their operations, and government spends more to support the changes.

Finally, we can examine the expected change in taxes on production and imports tied to the economic impact of these jobs. Based on Fort Gordon growth, it is anticipated that $6.6M taxes will be generated from production and imports of new goods and services. Table 5.21 demonstrates how the various local state and regional tax increases that could be generated.

Table 5.21: Effect on taxes on production and imports from adding 894 jobs to Federal Government, Military

Local Tax	State Tax	Federal Tax	Total Tax
$2.9M	$2.5M	$1.2M	$6.6M

Source: Emsi 2021.3 and TPMA, August 2021

Taxes on production and imports (TPI) consist of tax liabilities, such as general sales and property taxes, that are chargeable to business expense in the calculation of profit-type incomes. Special assessments are also included. TPI is comprised of state and local taxes—primarily non-personal property taxes, licenses, and sales and gross receipts taxes—and Federal excise taxes on goods and services.

5.6.2 Population Growth

Population growth increases the total size of the economy with increased consumer spending on goods and services, which drives an increase in jobs to meet that demand. A healthy population growth can mean that employers are able to grow their own employees regionally and reduce costs in recruiting and relocation. It is important to note, as well, that as baby boomers retire and exit the labor force, there will be a smaller proportion of the population in the labor market seeking employment. While population and employment growth do not have to mirror one another, drastic population growth with lagging jobs will put additional stresses on a local economy. Population growth without jobs will lead to increased competition for existing jobs, the ability for employers to offer lower wages, and a rising unemployment rate.

As shown in Table 5.22, the national population ten-year growth rate is 6.76% from 2020 to 2030, with a national employment ten-year growth rate of 7.75% from 2020-2030. It is positive economic indicator to see employment growing at a rate that will support the number of people entering the labor market but can be a cause for concern if there are not enough people in the economy to support the employment needs, creating a labor shortage.

The Study Area, on the other hand, is projected to see a ten-year growth rate of 8.84%, with employment growing by 8.52%. Adding 54,136 to the population in the Study Area by 2030 will increase the demand for services as well as the demand for jobs. To accommodate this population growth and not face a rising unemployment rate, the Study Area will need to coordinate efforts to ensure that employment growth meets the needs of its growing population.

Table 5.22: Study Area Population and Employment Change, 2020-2030

	United Sates	Study Area
2020 Population Estimate	332.6 million	611,868
2030 Population Estimate	355.1 million	666,004
10-Year Population Growth Rate	6.76%	8.84%
2020 Employment Estimate	153.5 million	279,993
2030 Employment Estimate	165.4 million	303,863
10-Year Employment Growth Rate	7.75%	8.52%

Source: US Census, Bureau of Labor Statistics, Source: Emsi 2021.3, August 2021.

Table 5.23: Study Area Employment Change by Industry 2-digit

NAICS	Description	2020 Jobs	2030 Jobs	2020 - 2030 Change
62	Health Care and Social Assistance	32,594	38,668	6,074
23	Construction	21,283	26,254	4,970
72	Accommodation and Food Services	20,903	25,424	4,521
31	Manufacturing	22,427	24,562	2,135
44	Retail Trade	27,211	28,694	1,483
42	Wholesale Trade	5,149	6,415	1,266
81	Other Services (except Public Administration)	13,447	14,524	1,078
54	Professional, Scientific, and Technical Services	10,427	11,378	950
48	Transportation and Warehousing	6,153	6,912	759
53	Real Estate and Rental and Leasing	2,896	3,592	696
61	Educational Services	3,009	3,536	527
71	Arts, Entertainment, and Recreation	3,294	3,577	283
21	Mining, Quarrying, and Oil and Gas Extraction	421	499	77
51	Information	2,249	2,295	46
99	Unclassified Industry	206	219	13
11	Agriculture, Forestry, Fishing and Hunting	2,346	2,303	(43)
22	Utilities	2,453	2,342	(111)
55	Management of Companies and Enterprises	464	231	(233)
52	Finance and Insurance	4,151	3,728	(423)
90	Government	57,738	57,199	(539)

NAICS	Description	2020 Jobs	2030 Jobs	2020 - 2030 Change
56	Administrative and Support and Waste Management and Remediation Services	22,058	20,020	(2,038)
Total		260,879	282,371	21,492

Source: Emsi 2021.3, August 2021

5.7 Economic and Workforce Development Strategies

A region's ability to connect workers with good quality jobs and employers with a skilled, qualified workforce is central to its economic vitality. The Study Area has much of the infrastructure and assets in place to rise to the challenge of further aligning the talent development system that equips workers with the requisite skills to meet the needs of employers with quality jobs.

Building on its strengths, lessons learned from across the country, and local labor market information, the region can take several steps to further align its workforce and economic development efforts. In terms of economic development, the Augusta area should consider the following strategies:

1. Create a regional association for defense contractors
2. Identify expansion opportunities for existing businesses
3. Develop or align a business attraction strategy focusing on target industries
4. Leverage existing initiatives and investments in cyber at Fort Gordon

While these economic development activities are underway, the region should be proactively investing in an aligned set of workforce development strategies that will ensure that the talent development system has a pipeline of qualified, skilled talent available to meet the needs of new and existing businesses. These activities should include the identification, design, and implementation of sector partnership and work-based learning activities that support these targeted economic development efforts. Additionally, there will be a need to ensure that all residents have equitable access to the high-quality employment opportunities that result from these investments.

5.7.1 Economic Development Strategies

Based on findings from the target industry analysis, The Fort Gordon region has an opportunity to attract industries in the following sectors:

- → Research Organizations
- → Small Vehicles
- → Construction
- → Hospitality Establishments
- → Computer Services
- → Specialty Contractors
- → Communications Equipment Components

These industries were identified based on regional strengths and trends including job growth, location quotient, and existing supply chain gaps. Emphasis was placed on industry sectors with significant gaps in-region. These supply chain gaps suggest significant opportunities for regional industry attraction efforts.

Currently regional economic development efforts include projects like the Gate 6 access road which is driven by a $50 million investment and will create a new interchange that will eventually link Fort Gordon to I-20. Development at White Oak Business Park located in Columbia County, GA along I-20 includes 612 acres of developable land. Leadership has been working to develop spec buildings at the park to aid regional economic development efforts. Master Planning has been completed for two phases of development at the park which will include modern business park eco-friendly amenities and prioritizes preserving the area's natural resources. Anchor tenants will include Amazon and Club Car. There are regional opportunities to build on these business attractions through additional economic development strategies. This could include building on local flexible local incentives. The Growth of ARCYBER at Fort Gordon has also increased Information Technology related opportunities to build economic development efforts around, including data centers which can be significant drivers for tax revenue and utility services. Ensuring regional utility access will be important for future economic growth. Fortunately, the region seems to have a strong utility sector presence. The following strategies are aimed to build on regional opportunities for economic growth:

Create a Regional Association for Defense Contractors

Regional opportunities likely exist to connect large and small employers working cooperatively within the region to address industry challenges, supply chain gaps, and defense contracting needs. A regional association for defense contractors may have similar function to the CSRA Alliance for Fort Gordon but could maintain a much broader mission that aims to work with defense contractors across all industry sectors. The CSRA Alliance for Fort Gordon could be the lead entity for this new organization. Creating an association for defense contractors headed by influential regional industry leaders to give the CSRA Alliance Region's defense industry a defined sense of direction.

Industry leaders would serve on the association's board of directors and would appoint staff members to run its daily operations. This group would advocate on behalf of the region's defense contractors at national, state, and regional levels on issues the defense community faces.

Due to the diversity of defense contractors across an array of industries, it may be necessary to create sub-committees within the defense association. These sub-committees would be specific to the distinct clusters that comprise the region's defense contractors, such as construction contractors; manufacturers, R&D and professional services contractors. Subcommittees could meet monthly, while the entire defense contractor's association could meet quarterly. All members would have access to the same benefits, which could include:

- → Acting as an advocacy group for the region's defense industry contractors;
- → Serving as a liaison with local, state, and federal agencies and elected officials;
- → Developing or improving the regional defense community's ability to develop, attract, retain, and execute business opportunities; and
- → Improving interactions between defense contractors and defense customers.

The association for defense contractors could be partially funded through memberships and structured similarly to other local and state defense associations; such as the Charleston Defense Contractors Association (CDCA), Dayton Area Defense Contractors Association (DADCA), Florida Defense Contractors Association (FDCA), North Carolina Military Business Center (NCMBC) or the Northeast Indiana Defense Industry Association (NIDIA). These examples illustrate different sizes of defense associations, ranging

from the metropolitan level, regional level, or state-wide level, however each model could be scaled or reduced to meet the Alliance's needs. These defense contractor organizations also represent many different types of contractors. For example, the NCMBC works to connect the following industries with defense contracts:

- → Advanced Manufacturing and Materials
- → Aerospace Systems
- → Biotechnologies and Biodefense
- → Clothing and Textiles
- → Construction
- → Cyber, Software, and Advanced IT Systems
- → Energy and Environment
- → Food
- → Furniture
- → Human Factors
- → Medical Technologies
- → Transportation

The NCMBA is structured slightly different than the other defense industry association mentioned because it is more of a business development entity, rather than a true industry association, however it is a great example of how many different contracting industries can be represented by an organization. Leveraging aspects of this organization in addition to the traditional activities of a membership driven industry association would be beneficial. As mentioned previously, the CSRA Alliance for Fort Gordon could scale existing membership programs into an industry association that focuses on more than just cyber development.

Programming offered by a defense contractors association could include networking opportunities and conferences. Members would also be able to participate in monthly "lunch and learn" events specific to each industry sub-committee. For example, the defense manufacturer subcommittee could have an expert present on international exporting, or product commercialization. Quarterly meetings combining all subcommittees could focus on broader contracting topics. Additionally, a yearly summit could be created for association members with relevant exhibits and speakers.

Potential funding sources could come from association membership tiers like the CSRA Alliance for Fort Gordon's existing membership model.

Identify Expansion Opportunities for Existing Businesses

Opportunities likely exist to work with local economic developers and build upon existing business retention and expansion programs (BRE) to help identify opportunities for suppliers within target industries. BRE programs help reduce the risk of businesses leaving or downsizing, as these businesses typically have strong community ties. Additionally, BRE assistance programs are generally less expensive than business attraction programs and generate more jobs. Research shows that BRE programs assist communities by:

- → Increasing sustainable job creation and new business development;
- → Boosting the overall regional business climate;

- → Establishing an early warning system for at-risk companies;
- → Promoting the availability of business resources;
- → Advancing a collaborative environment, building partnerships among the business community, economic development leaders, and public officials;
- → Increasing communication and awareness for economic development professionals and public officials on the business community's strengths and weaknesses.

Additional opportunities for existing businesses to expand production to fill a need that is being addressed by companies from outside the region have been identified in the target industry analysis section of this report. Helping local businesses expand into these opportunities will not only help growth but will also prevent businesses from closing. Potential funding sources could include Local funding for Economic Development, U.S. Department of Commerce, U.S. Department of Commerce International Trade Administration, U.S. Department of Labor, U.S. Small Business Administration, U.S. Small Business Administration Office of International Trade, Business Retention & Expansion International (BREI).

Develop or Align a Business Attraction Strategy Focusing on Target Industries

A business attraction strategy geared toward target industries could help build and diversify the region's economic base. An initial action item could include marketing existing critical mass of assets of advanced manufacturing, construction, energy, and information technology/computer services, specialty contractor, as well as the emerging opportunities related to tourism, distribution, and hospitality. This attraction strategy should be completed in partnership with business, retention, and attraction. Business attraction is a key component to maintaining regional competitiveness. This report chapter begins to identify a roadmap for business attraction and highlights industries that are primed for further investment. The following industries were identified:

- → Research Organizations
- → Small Vehicles
- → Construction
- → Hospitality Establishments
- → Computer Services
- → Specialty Contractors
- → Communications Equipment Components
- → Defense Contractors

Increased focus on marketing existing strengths and opportunities to site location consultants, business leaders, and even competing regions is strongly encouraged. Spotlighting the region's strengths, as well as effective collaboration efforts, will rouse attention with both the existing communities and external competing regions. Action steps for implementing or enhancing existing business attraction strategies could include:

- → Identifying and attending pertinent economic development conferences and industry-specific trade shows;
- → Developing reuse concepts for buildings that are strategic assets of the region;
- → Developing attraction lead lists, cost comparison reports, and collaborative marketing materials;
- → Conducting prospecting missions to target markets, site selectors, and businesses;

- → Partnering with the region's telecom and electric providers on economic development opportunities;
- → Enhancing asset promotion for the region, including opportunities with Fort Gordon;
- → Working with installation leadership to ensure that all of the necessary resources and amenities are in place locally to ensure contracts are executed within the Fort Gordon MSA.

Leverage Existing Initiatives and Investments in Cyber at Fort Gordon

Fort Gordon is experiencing tremendous investment and growth due to the movement of U.S. Army Cyber Headquarters from facilities in Virginia, Maryland, and Washington, DC. This expansion includes over 80 major construction and renovation projects that will bring nearly $2 billion of investment over the next ten years. This development includes projects like the Cyber Center Schoolhouse and Army Cyber Headquarters. The Fort is in tremendous position to continue leveraging these investments to promote future economic development. A working group within the CSRA Alliance for Fort Gordon could be formed to identify specific opportunities for public private partnerships that capitalize on the Fort's strengths. This includes cyber but also energy related investments. A project with Georgia Power could be replicated in future public private partnerships. Through this partnership, Fort Gordon has provided 750 acres for a 30-megawatt solar energy project. Potentially, private industry could view this model as a best practice. The information technology and energy strengths of the Fort could create opportunities for public-private partnerships around projects like data centers.

In today's 'data is everything' world, increasing the number of data centers serving Fort Gordon and housing data for the Army is a competitive strength. Regional leadership should harness the investments made in information technology within the installation to grow the IT industry sector around Fort Gordon. Targeting and attracting IT focused companies who can capitalize on the technologies and workforce developed 'inside the gates' would prove fruitful for the regional economy.

Funding for this initiative could be provided by the Economic Development Administration, FCC Universal Service Fund, as well as the Department of Agriculture. USDA grants that could be eligible include USDA Rural Development, USDA Telecommunications Infrastructure Loan Program, and USDA Community Connect Grant Program.

5.7.2 Workforce Developments Strategies

Existing Strategies and Identified Gaps

As described in the labor market information outlined above, the Study Area has several growing industries with good jobs that include pathways to family sustaining wages. However, when reviewing the top occupations in the region, many workers are in historically vulnerable industries with low wages and limited advancement opportunities such as retail, food service, material handling, and healthcare support. The region has many of the assets in place to deliver high quality workforce development services, however, it must replicate and scale these strategies to ensure that employers have a qualified talent pool and workers do not become stagnated in low-wage work.

Examples of successful existing workforce strategies include:

The CSRA Alliance for Fort Gordon (The Alliance) is a two-state, seven-county regional economic development and attraction initiative that supports both the defense and private sectors in technology,

innovation, and growth. The Alliance offers workforce development activities including free cyber training and job placement for veterans and military spouses.

Fort Gordon Cyber District/ Alliance for Cyber Education is Metro Augusta's youth cyber-education program. The purpose of this program is to promote cyber skill development and future career opportunities to regional K-12 students. While created through the nonprofit CSRA Alliance for Fort Gordon, the program is a partnership between the K-12 education system, business leaders, and other community-based partners. It has been recognized not only as a local best practice, but as a national best practice model as well. For two consecutive years, the Fort Gordon Cyber District/ Alliance for Cyber Education has been named a CyberPatriot Center of Excellence. CyberPatriot is the nation's largest youth cyber education program and the initiative dedicated to strengthening cyber skills among American youth. The Center of Excellence designation is awarded to communities and institutions that provide leadership and support to further the educational experiences of their students through the CyberPatriot program.

The Army Transition Assistance Program (TAP), which helps transition service members to civilian careers for soldiers with at least 180 or more continuous days of Title 10 active-duty service. TAP also provides skills translation, resume building, and job search techniques as well as mandated curriculum, which includes pre-separation briefing, transition overview, Military Occupation Specialty (MOS) crosswalk, and more. The MOS crosswalk program helps those in military occupations identify pathways and training opportunities that allow them a variety of career pathways in which they can advance their military careers.

The Army Career Skills Program (CSP), which provides training for transition military members. CSP provides training for skills such as welding, IT, Commercial Driver's License (CDL) training, construction, and industrial maintenance, most of which are at no cost to soldiers.

The Study Area has built a strong foundation for growing and sustaining a regional talent pool that meets the needs of both employers and workers in the cyber industry. Through the Alliance for Fort Gordon, business, government, education, workforce, economic development, and community-based organizations have a demonstrated an ability to work collaboratively to implement cyber specific initiatives. These same partnerships, skills, and collaborative spirit will need to be brought to bear to ensure that access to opportunity in the region is equitable for workers and that similar sector specific supports and initiatives are available to other growth sectors in the region.

Workforce Development Recommendations

A workforce system that is clearly aligned with business needs will better allocate resources to strengthen efficiencies between career-readiness providers, adult education, the public workforce system, and industry groups. This type of demand driven alignment can ensure that employers are effectively signaling the required skills for a job, education and training providers are able to prepare workers, and workers are empowered to communicate their proficiency in the required skills. To achieve this alignment, the region should focus on three primary areas: equity and accessibility in STEM careers and sector specific strategies including work-based learning and sector partnerships.

Sector Partnerships are an employer-driven model for aligning resources and promoting collaboration among educational institutions, workforce service providers, and community-based organizations to meet the needs of business. They offer a way to simultaneously meet business' need for a robust and qualified

workforce, while also expanding access to the skills that lead to jobs with family sustaining wages for workers.

In its *Toolkit for Developing High Performing Industry Partnerships*, The National Fund for Workforce Solutions outlines five characteristics for a successful sector strategy – employer and industry engagement, stakeholder engagement, data informed strategy and continuous learning, operational capacity, and race equity and inclusion. Given the success of the Alliance for Fort Gordon in building a robust partnership to support the growth of the cyber industry in the region, it seems like a natural next step to begin to leverage that success for additional industries that may be struggling to meet their talent needs. Based upon available labor market information, two industries that may be ripe for sector partnership exploration include construction and advanced manufacturing. In addition to being a strong economic driver in the region, the support of an advanced manufacturing sector partnership would build a complementary workforce to the STEM and cyber talent pipelines that have already been identified as areas of need. Many of the skills and technical requirements necessary for occupations in manufacturing may be transferable to the skill sets required in other STEM fields such as engineering.

A potential partnership the Fort Gordon region could explore is with the National Military Family Association (NMFA) and the Socratic Arts' Cyber Academy, a Department of Defense funded program, to provide cyber security scholarships for military spouses. With most military families requiring two incomes to earn a living wage, many overeducated and underemployed military spouses find part-time employment in industries with lower paying jobs that are most affected by downturns in the economy. Before the pandemic skyrocketed unemployment, military spouses saw unemployment rates above 20% and even higher rates of underemployment. More recently, in a survey conducted by NMFA during COVID, 34% of military spouses reported that they lost their job, 25% reported a loss in hours, and 53% said their family as a whole experienced a decrease in income. Creating a partnership connecting military spouses to cyber security with the influx of families arriving at Fort Gordon for ARCYBER can build upon the catalyst created by the growth of the military base to create higher paying jobs for military spouses and grow the civilian cyber security industry in the region.

Additional partnerships could be explored for Veterans and Military Spouses alike through existing relationships at organizations such as the U.S. Chamber of Commerce Hiring Our Heroes (HOH). Fort Gordon has been a long-time partner of HOH and should consider expanding opportunities through the Chamber's Military Spouse Economic Empowerment Zone or the Next Step Vets initiatives. Programs like these have the opportunity to expand the installation's footprint to those who may reside outside the area but are looking at retiring and/or relocating in the Fort Gordon footprint.

Work-based learning, referred to as WBL, is the "umbrella" term used to identify activities that collaboratively engage employers and training providers in providing structured learning experiences for individuals, particularly students. Types of work-based learning include internships, cooperative education, on-the-job training, work-experience, transitional jobs, pre-apprenticeships, and apprenticeships. These experiences focus on assisting individuals in developing broad, transferable skills for secondary and post-secondary education and the workplace; often translating into employment opportunities that offer livable wages.

A comprehensive work-based learning strategy connected to the sector-specific partnership outlined above brings value for educators, workers, and employers and is an important piece of a skills-centered talent development system. It can provide workers, in particular young workers and workers of color, with

the important signposts and roadmap necessary to successfully transition from the K-12 system to the workforce. JFF's Center for Apprenticeship and Work-Based Learning defines work-based learning "as a student or worker completing meaningful jobs and tasks in a workplace that develop readiness for work, knowledge, and skills that support entry or advancement in a particular field." While a work-based learning framework should be tailored to the specific needs of the Fort Gordon region, JFF has developed a continuum for skill development that can be applied across a broad range of workers and learners – K-12 students, young adults, college students, adult jobseekers, and incumbent workers.

The Study Area is a relatively diverse community and as a result, equity and accessibility in STEM careers will be of upmost importance as Fort Gordon continues to orient its regional economy around cyber, IT, and other STEM careers. Occupations in these sectors are some of the fastest growing, in-demand, and high wage career options in the region and yet, people of color and women are underrepresented in these high-quality jobs. Whether implicit or explicit, these industries have a well-documented history of perpetuating gender and racial discrimination through hiring, management, and workplace practices. A failure to address these inequities early and often during this time of regional growth will result in continued inequality for women and people of color..

To ensure that the opportunity created by public-private investments in cyber, STEM and other high-quality careers meets both the talent needs of employers and is equitably accessible to workers, the Study Area will need to apply a systemic, equity explicit and outcomes-oriented lens to its talent development efforts.

An overview of race-explicit strategies that could be deployed to ensure people of color have equitable access to careers in cyber and STEM is outlined in Race Forward's *Race-Explicit Strategies for Workforce Equity in Healthcare and IT.* Examples of these strategies include the collection and tracking of outcome-focused data by race, expansion of access to certifications for people of color, and the development of racially inclusive framing as a part of partner-building strategies.

In order to ensure that opportunities in the cyber and STEM fields are accessible to women (92% of military spouses are women), the region may want to consider targeting outreach and recruitment for training programs and employment opportunities to the spouses of military personnel stationed at Fort Gordon. While not all military spouses are women, many are due to the higher rates of men participating in military service. These women often have the skills and competencies necessary for the job or training program but have had their careers impacted by their service member's military service. With so much recruitment being dependent on personal connections and many jobs being filled by referrals, military spouses are at a disadvantage each time they move and have to start a new career network. By creating a strategy to specifically recruit, train, hire, and retain military spouses for cyber and STEM careers, the region can begin to see improved representation by women in these fields.

Examples of such strategies could include partnerships with local education and institutions to offer discounted or free certifications for cyber and STEM careers to military spouses; encouraging local Chamber members to offer on-the-job training, flexible work arrangements, or remote work to military spouses who traditionally have difficulty finding childcare due to a lack of family network and frequent moves. Programs such as the U.S. Chamber's Hiring Our Heroes Military Spouse Economic Empowerment Zones provide a framework for communities to create inclusive and creative environments that are military spouse friendly.

This commitment to equity is not only a benefit for workers. In order to increase its available talent pool, the region cannot focus solely on the attraction of new talent but must also retain its current talent and tap into nontraditional talent. By developing recruitment, hiring, and retention strategies for diverse and non-traditional IT and STEM talent pipelines, the Augusta area will be able to maximize its local talent pool.

Implementation and Funding Strategies

One of the most ubiquitous issues currently is the mobilization of industry, education, and policymakers as each recognizes the opportunities and challenges associated with meeting the evolving talent needs of employers. As outlined above, two of the plausible solution strategies include sector-focused partnerships and work-based learning. Both initiatives often include technical and community colleges, as well as employers and leaders who coalesce around the need to produce and increase the number of technically skilled and career-ready workers. Opportunities continue to emerge for such alliances to leverage state and federal grants with private and endowed funds to support incumbent worker advancement credentialing at no cost to participants; to identify potential leaders within the current labor force and provide the necessary training to advance them, thus backfilling the workforce pipeline with newly skilled talent.

Examples of successful sector partnership implementation and funding include:

In the **State of Ohio,** grant funding was established to support local communities and regions interested in starting or accelerating an industry sector partnership. The vision was to fill in-demand jobs and continue to diversify and grow a high quality, dynamic workforce which were led by the business community with common workforce-related goals. While matching funds were required for eligibility, there were a number of qualifiers, including: cash funds raised; equipment costs, including computers, training equipment, software, subscriptions, and other items directly related to partnership operations; and/or facility costs, including acquisition, rent, utilities, and other costs incurred directly related to partnership operations. Twelve partnerships were awarded across various regions and focus on multiple in-demand industry sectors, including: healthcare, information technology, manufacturing, construction, and transportation.

One marquee example is the **Mahoning Valley Manufacturers Coalition (MVMC).** Through the establishment of a successful sector-partnership model, relationship-building among industry champions have flourished and replicable tools and templates were designed to meet employer needs in such a successful manner that twelve other regional industry sector partnerships across the state of Ohio replicated it, aiding in the implementation of a U.S. Department of Labor Scaling Apprenticeship grant. Additionally, a toolkit was development as was a systematic process for interviewing, collecting data, and building employer-specific proposals; plus, customized work-based learning solutions were delivered to employers.

Another relevant engagement strategy occurred in the **State of Montana** with a consortium known as **BillingsWorks**, which is comprised of an economic development organization, two institutions of higher education, the chamber of commerce, and various stakeholders. Sector partnerships convened to identify skill gaps with which employers found themselves challenged, and conversations were facilitated to discuss the feasibility and willingness to buy into and hire from a newly created career and technical center campus.

Building upon the initial project, a State of the Workforce Report was generated with an action plan for local employers and industry leaders. BillingsWorks was able to use the strategy plan and the four strategic goals to outline its vision as a premier business-driven workforce development hub. Plus, they launched their own sector partnership, creating the Montana BioScience Internship Initiative, linking educational institutions and businesses to career and internship opportunities; also forming the Summer Intern Leadership Initiative.

The collaborative standard of education and employer alliances and the call to reenergize relations amongst stakeholders point to transformative outcomes for communities and the economy through such sector-based partnerships. The alliances have proven to yield a strong return on investment for stakeholders ranging from the employers and public agencies to taxpayers and the workforce. The strategic and significant effort of economic resiliency through workforce education is a journey and an ever-changing challenge; therefore, technical and community colleges were integral to the process for their ability to provide flexible, accelerated, non-credit, and for-college-credit curricular models that speak directly to business and industry needs for attracting a new workforce, while also strengthening and advancing the current workforce.

While the mapping of external funding, including philanthropy and government investments, will play a vital role in the sustainability of sector-based partnerships, Next Generation Sector Partnerships advises against using external grant funding to support early, start-up costs associated with standing up sector partnerships. The Next Generation Sector Partnership Training Manual states, "To be clear, standard procedure for Next Gen Sector Partnerships has been to avoid start-up or implementation grants. This comes on the tail of many years and lessons learned of partnerships forming because of money, and therefore not sustaining over time. States, however, can play important roles in capacity support for conveners and support teams as well as incentive funding for actual projects and activities after a successful partnership has come together authentically." Understanding this recommendation means the Fort Gordon region will need leverage existing collaborations and partnerships when supporting new sector partnerships.

Examples of successful work-based learning implementation and funding:

The Strengthening Career and Technical Education for the 21st Century Act (Perkins V) provides a framework for forming regional consortia of local educational agencies and institutions of higher education that can collectively use Perkins funds to support consortium-wide activities and initiatives that include work-based learning opportunities. Plans to be supported by Perkins funds often include a system of organized regional associations, including secondary and post-secondary education institutions, industry partners, community stakeholders, and state agency representatives that work collaboratively to develop programs of study that are fully aligned and lead directly to careers. Plans also traditionally outline how regional collaboration between secondary schools, post-secondary institutions, and employers will provide students with experience in, and an understanding of, all aspects of an industry, which may include work-based learning such as internships, mentorships, simulated work environments, and other hands-on or inquiry-based learning activities.

In one case study, a regional strategic work-based learning (WBL) plan was facilitated to best understand the opportunities and barriers to effective WBL experiences for secondary and post-secondary career and technical education students in **Northern New Mexico**. It was also designed to help lay the groundwork for further collaboration of future workforce training grant opportunities.

The client was the United States Department of Energy's national laboratory, the **Los Alamos National Laboratory (LANL)**. It serves as one of the largest employers in the State of New Mexico. In a project funded by the LANL Foundation, consensus was built among a group of disparate partners with conflicting priorities, and a plan for work-based learning opportunities was established. The plan reached stakeholders ranging from tribal nations and local employers to community organizations and the general population. Representation from each population congregated in virtual, community round-table engagements to collectively build strategy, action steps, and activities with ownership and buy-in from all. They were provided a full-scale strategic plan with recommendations for implementation, as well as a systematic approach for regional partners to bridge gaps and a logic model for regional leaders to execute a work-based learning ecosystem in a comprehensive manner.

Appendix – Additional Data

Pareto Principle

Largest Industries and Firms

The Pareto Principle was applied to see what the concentration of jobs were in 2020 by industry. The Pareto Principle seems to be satisfied here, as there is an extremely strong concentration of jobs being chosen. The largest industry was Federal Government (Military), and this is to be expected.

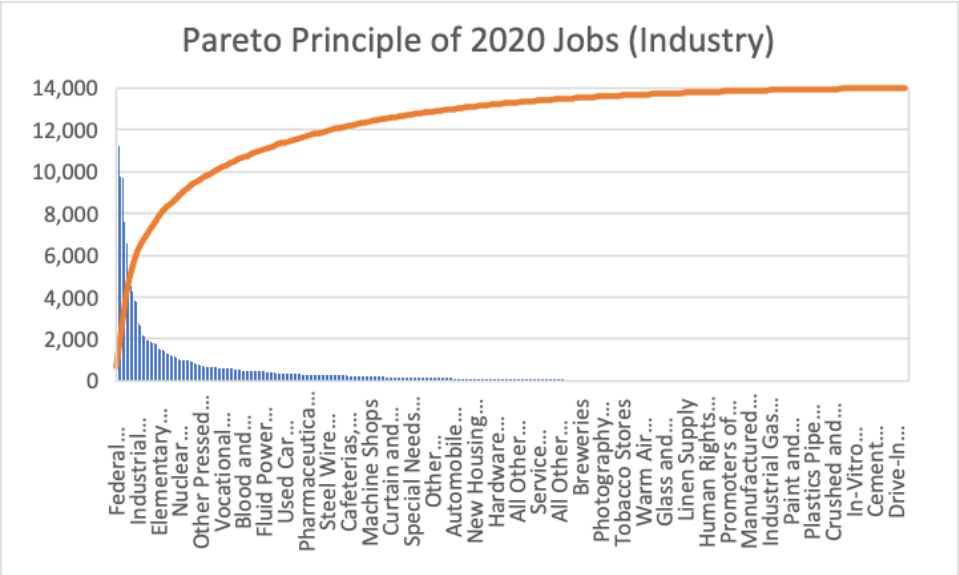


Figure 5.3: Pareto Principle of 2020 Jobs. Source Emsi 2021.3, August 2021

Among growing and shrinking sectors, the Pareto Principle applies as well, as there is a concentration in growing sectors. In shrinking sectors, the same pattern holds true. These indicate that the growth and decline of jobs in an industry is concentrated among a select few industries. However, this concentration is not as strong in the shrinking sectors. This could present problems for Fort Gordon when there is economic growth, as growth means that a handful of industries reap the benefits. This is also an issue for economic contractions, as a handful of industries would be hurt immensely by the contraction.

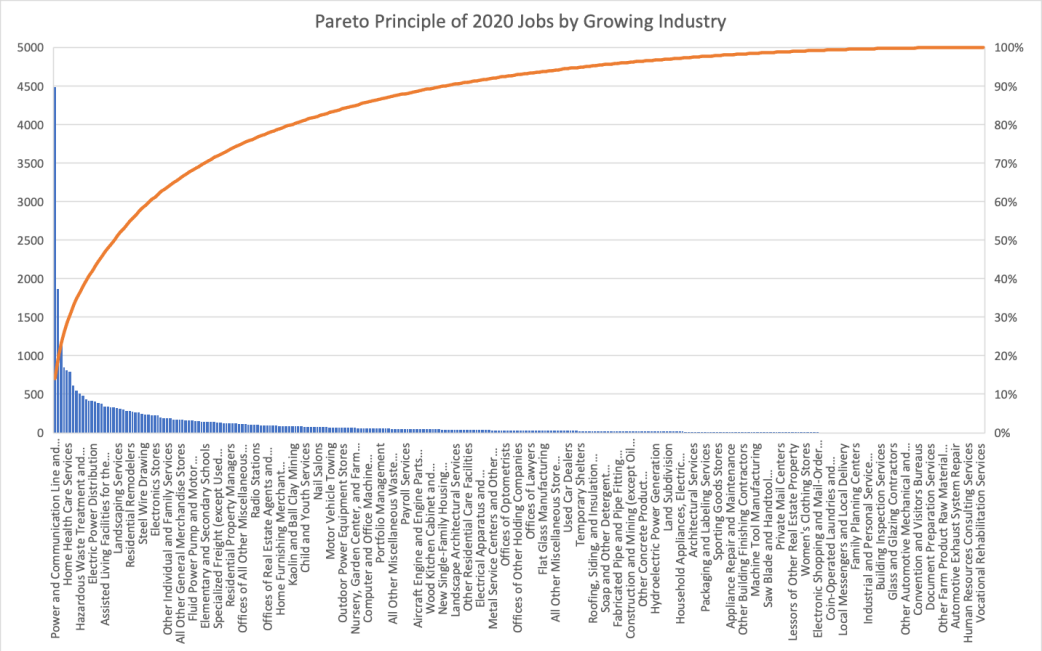


Figure 5.4: Pareto Principle among Growing Sectors 2020 to 2030. Source Emsi 2021.2, August 2021

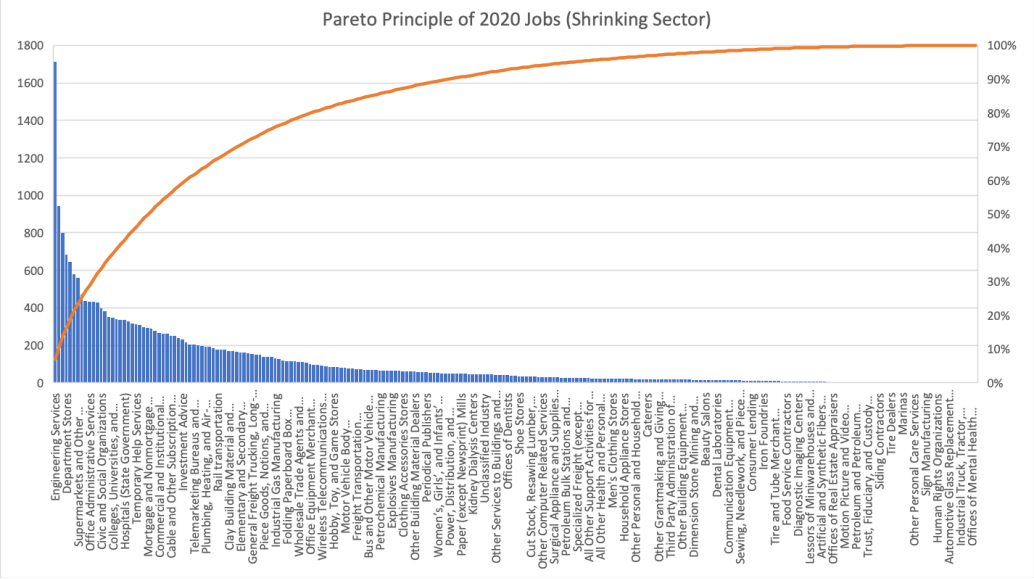


Figure 5.5: Pareto Principle among Shrinking Sectors, 2020 to 2030. Source Emsi 2021.3, August 2021

The concentration of jobs and job growth by industry could represent an issue in the future if the most popular industries are also the ones that are growing the most, as the region can become too heavily dependent upon a single industry or employer. A regression was run to see if 2015 jobs had any effect on job growth; 2015 jobs was used as a proxy for the size of the industry. The results indicate that there is no relationship, meaning that neither smaller firms nor larger firms are growing at a slower or faster rate. This means that there will not be any inequality among industries in the near future.

Lorenz Curve of Fort Gordon

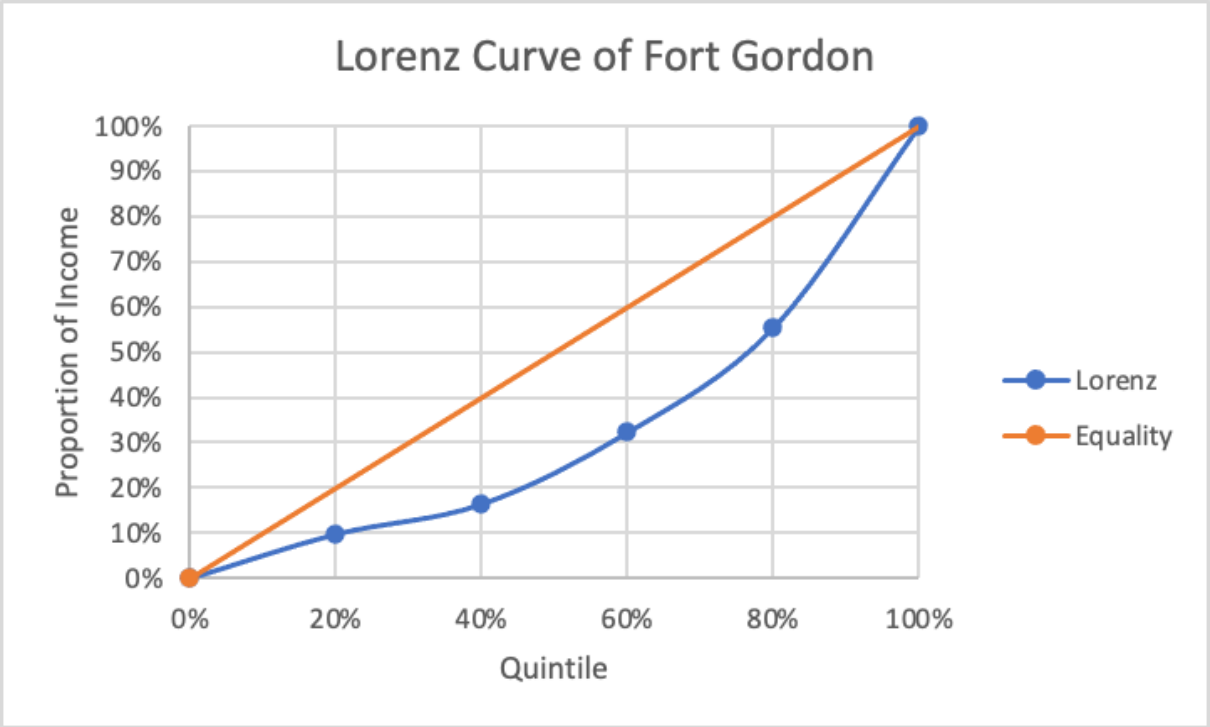


Figure 5.6: Lorenz Curve for Income Inequality. Source Emsi 2021.3, August 2021