

Florida's Great Northwest Labor Supply & Demand Research Analysis



Prepared for



Submitted by



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ABOUT US



ABLE Operations, LLC is an economic, workforce and policy consulting firm that specializes in providing research and guidance to local and state government entities, non-profit organizations and private sector businesses.

Our team includes a Ph.D. economist with extensive experience collaborating with Local Workforce Development Boards (LWDB), State Colleges and Universities, Chambers of Commerce, local businesses, and Economic Development Councils in workforce and economic development. In addition, our project manager is a Masters' level educational researcher.

Our previous work includes labor market supply and demand analysis, economic and fiscal impact and feasibility analysis, performance measurement evaluation, survey research and data analytics.



The ultimate purpose of collecting the data is to provide a basis for action or a recommendation.



Dr. W. Edwards Demming



OUR TEAM



AARON SCHMERBECK, Ph.D PRINCIPAL

Aaron is the owner and managing partner of ABLE Operations. He began his postsecondary education at St. John Fisher College, here he completed a double major in Economics and Mathematics. Aaron then went on to Florida State University, where he obtained a Master of Science in Economics and a Ph.D. in Economics focusing on financial economics and mathematics.

Aaron has significant expertise with workforce supply and demand assessment. This includes collaboration with regional organizations, including universities and colleges, chambers of commerce, training institutions, workforce investment boards, and economic development councils. Aaron uses mixed methods (quantitative and qualitative) to examine whether gaps in the supply of regionally produced talent (degrees/certificates) meets the regional industry demand for a host of occupational skillsets. Given assessment outcomes, these assessments leverage relationships between local businesses, workforce development boards, government agencies and training/education institutions to address skill gaps and training shortages for target industries. This includes curriculum/program design and implementation, recruitment and the development of innovative public/private sector partnerships. These assessments include the use of focus groups, data sharing agreements and vision setting initiatives which have helped align economic, workforce and community development efforts with business, federal and state agencies, and training providers.



LINDSAY SCHMERBECK, M.S. PROJECT MANAGER

Lindsay manages various projects at ABLE Operations, LLC . She handles the organization and implementation of the projects, as well as the financial components of the business. Additionally, she ensures each project is handled in a timely manner. Lindsay is also responsible for updating the website and blog.

Project Overview:

ABLE Operations was tasked with providing Florida's Great Northwest (FGNW) with research and analysis of the regional labor market. This study is one part of FGNW Education ROI Research and Marketing grant funded through Triumph Gulf Coast (TGC). The purpose of this study is to inform Florida's Great Northwest and Triumph Gulf Coast of potential gaps between key regional industries' demand for employees, and the ability of the local training/education institutions to supply these skills.

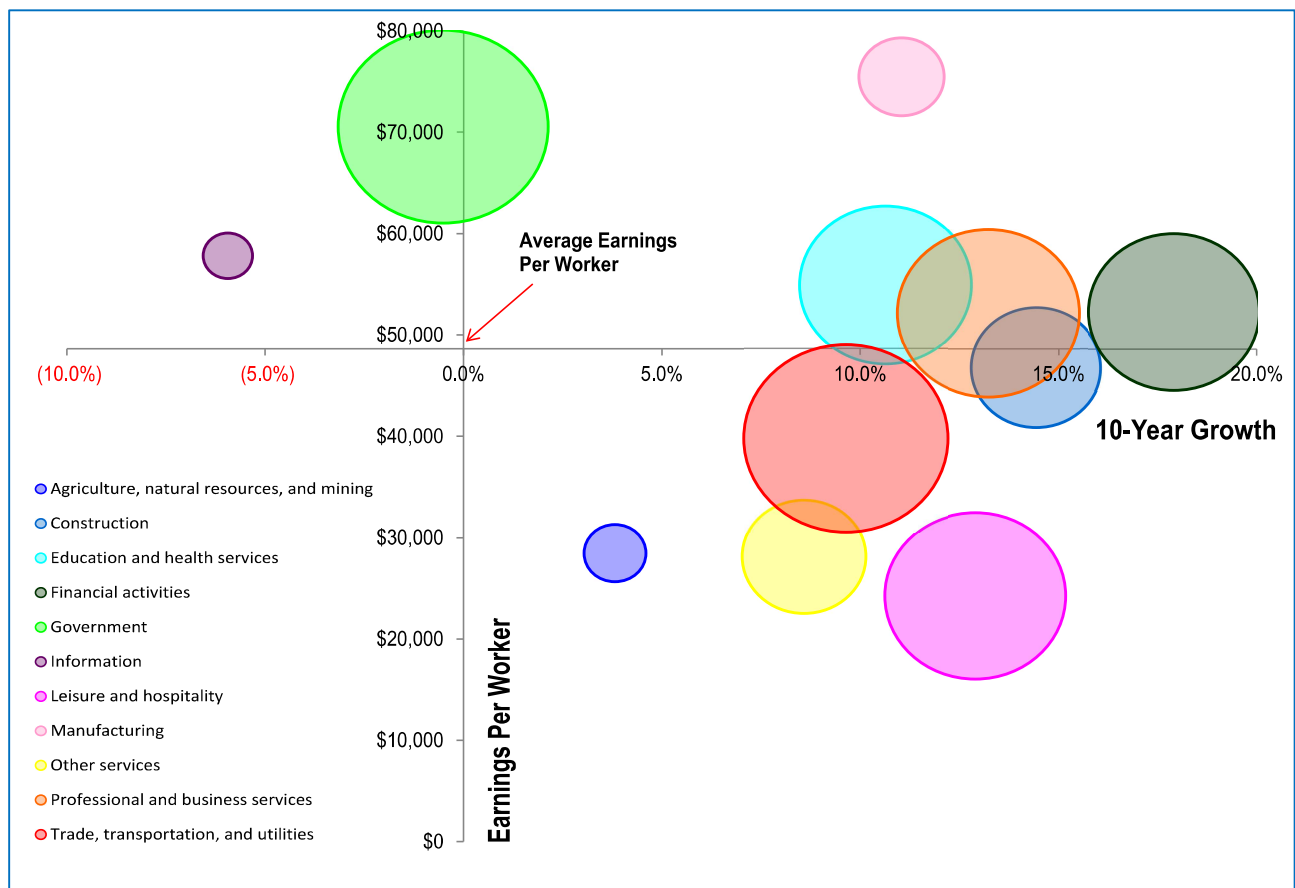
This document will provide a holistic view of the industries, occupations, workforce, and labor market conditions in the Triumph Gulf Coast 8-county region. The first section will include an industry overview, considering the region's current employment, wages, and expected growth. The next section will identify and focus on specific groups of high economic impact industries (clusters), that provide higher than average growth and wages to the region. The third section will identify the occupations and skill sets associated with these clusters. A wage comparison and gap analysis will follow. Finally, the document will conclude with a series of recommendations from the analysis.

Industry and Workforce Overview:

The Triumph Gulf Coast 8-county region is home to approximately 570,000 jobs. Figure 1 highlights industry employment, average earnings, and forecasted job growth over the next 10-years. The size of the circle represents total employment in a specific industry (based on color). The vertical axis measures average earnings in each industry for the TGC region. The horizontal axis provides expected growth over the next decade. The axes intersect at TGC's average earnings of \$48,645. These earnings are about 7% lower than Florida's average, and roughly 22% lower than the national average. The upper right quadrant of Figure 1 represents industries that are expected to grow and have higher earnings relative to the TGC region.

For the 8-county region, the largest circle (light green) represents Government. Given the concentration of military bases, Government accounts for almost 100,000 jobs, or 17% of the workforce. This not only impacts the region through direct employment, but through Department of Defense contracts and grants. In the last two fiscal years (2019,2020) the 8-county region was awarded \$3.3 billion annually through the Department of Defense and Homeland Security. In fiscal year 2020, roughly \$1 billion was directly awarded to manufacturing. Manufacturing (pink) is expected to grow by 11% over the decade in the region. In addition, manufacturing offers the highest earnings in the region at \$75,484. Another industry that relies on federal defense spending in the region is Professional and business services (orange), having been awarded \$1.2 billion in fiscal year 2020. This industry is expected to grow 13% in the next decade, adding roughly 10,000 net new jobs. Professional and business services pay above the region's average earnings by 7% at \$52,161.

Figure 1: Industry Concentration and Growth for TGC Region, 2020-2030



The second largest industry in the region is Trade, transportation, and utilities (red). This industry employs nearly 93,000 and is expected to grow over 10% by adding 9,000 new jobs over the next decade. The average earnings vary by detailed industry, but on average pays roughly \$40,000. Financial Services (dark green) pays over 7% higher earnings than the region's average. This industry is expected to grow nearly 18% over the next decade, adding 11,600 net new jobs to the region. This accelerated growth is largely due to the presence and expansion of the largest credit union in the Nation, Navy Federal Credit Union.

The four high level industries in bold above, in conjunction with regional reports (Northwest Florida Forward, UWF Haas Center, FGNW, etc.), will guide the identification of clusters for the region's workforce analysis in the next section.

Industry Clusters Overview:

Defining industry clusters within a region can be a difficult and subjective task. To leverage previous industry cluster research for this study, ABLE Operations utilized the Harvard Business School (HBS) Institute for Strategy and Competitiveness definitions provided through the U.S. Cluster Mapping Project. This project defined 67 mutually exclusive industry clusters. These 67 clusters are separated into groups, considered to be either “Traded” or “Local”.

Local clusters focus on regional industries that are typically everywhere throughout the U.S. and roughly proportional to the economy. The location quotient would be stable throughout different communities and typically measure close to 1.0. Examples of these industry clusters include utilities, health services, financial services, education and training, food and beverage, etc. These clusters typically do not export a good or service outside of the community. As an example, consider the regional hospital or community bank. Customers or patients are usually residents of the community. These clusters are likely to exist given the demand from the community.

Traded clusters, however, have a variety of concentrations throughout different regions. These firms likely have a choice on where to locate and compete for talent, supply chain, and resources. The traded clusters typically export goods and services, bringing in “new” dollars into the region. Firms competing over the Department of Defense contracts and grants is one example, as federal money is flowing into the region. If these firms relocated, the economic impact of those dollars would likely leave as well.

With a likely higher return on investment, ABLE Operations focused on the 51 defined traded clusters for this study. To narrow the scope for the workforce analysis, regional industry data was compiled of multiple variables including:

- 2020 Jobs – how many jobs the cluster currently has in the 8-county TGC region,
- 10-year Growth – expected growth of net new jobs the cluster would add in the next 10-years in the TGC region,
- Location Quotient – concentration of the industry cluster relative to the Nation,
- Average Earnings – average compensation and profits in the cluster per worker,
- Export Sales – total sales of the cluster that occurred outside the region, and
- Economic Multipliers – jobs and sales multipliers that include the direct, indirect, and induced impact to the region for the cluster.

ABLE Operations conducted factor analysis of the compiled data to form a scoring index of the HBS defined traded clusters. Table 1 provides the index scores of the selected clusters.

Table 1: TGC Region Industry Cluster Index	
Cluster Name	Index Score
Upstream Chemical Products*	89
Downstream Chemical Products*	70
Aerospace and Defense	67
Production Technology and Heavy Machinery	64
Financial Services	62
Transportation and Logistics**	56
Water Transportation**	53
Distribution and Electronic Commerce	51

*Clusters were combined and renamed Chemical Products

**Clusters were combined and renamed Water Transportation and Logistics

These clusters include specific industries from manufacturing, professional and business services, trade and transportation, and finance.

Skills and Occupations Overview:

Given the targeted clusters identified, the next focus will consider the skill sets needed to support the industries. Using staffing patterns, ABLE Operations has identified the talent needs of the clusters. The next two tables provide the supporting occupations for these clusters. Table 2 considers occupations that typically require an Associate's degree or less than 2-years of training. Table 3 identifies the occupations that typically require a Bachelor's degree or higher.

Table 2: Occupations Supporting the Targeted Clusters
(Certificate or Associate's)

Occupation Description	Aerospace & Defense	Chemical Products	Production Technology	Financial Services	Water & Logistics	Distribution eCommerce
Aerospace Engineering & Operations Technicians	X					
Aircraft Mechanics & Service Technicians	X					
Avionics Technicians	X					
Bookkeeping, Accounting, Auditing Clerks				X		X
Brokerage Clerks				X		
Chemical Equipment Operators & Tenders		X				
Chemical Plant & System Operators		X				
Chemical Technicians		X				
Computer User Support Specialists				X		
CNC Tool Operators	X		X			
Electrical & Electronic Engineering Technicians	X		X			
Electrical & Electronics Drafters	X					
Electricians					X	X
Heavy and Tractor-Trailer Truck Drivers		X			X	
Industrial Engineering Technicians			X			
Industrial Machinery Mechanics	X	X	X			
Insurance Sales Agents				X		
Light Truck Drivers						X
Loan Interviewers & Clerks				X		
Machinists	X		X		X	
Mechanical Drafters	X		X		X	
Plumbers, Pipefitters, & Steamfitters					X	
Tellers				X		
Welders, Cutters, Solderers, & Brazers			X		X	

Table 3: Occupations Supporting the Targeted Clusters
(Bachelor's +)

Occupation Description	Aerospace & Defense	Chemical Products	Production Technology	Financial Services	Water & Logistics	Distribution eCommerce
Accountants & Auditors				X		
Aerospace Engineers	X					
Chemical Engineers		X				
Chemists		X				
Computer Systems Analysts	X			X		
Credit Analysts				X		
Electrical / Electronics Engineers	X		X			
Financial Advisors				X		
Financial Managers				X		
Industrial Engineers	X		X			
Lawyers				X		
Loan Officers				X		
Logisticians	X					X
Marine Engineers					X	
Mechanical Engineers			X		X	
Software Developers	X					X

Supply and Demand Analysis:

The identified occupations (Tables 2 and 3) to support the targeted clusters will require specific skills and talents. The remainder of this analysis will consider the supply, demand, and market characteristics of such workforce.

There are many factors to consider when analyzing supply and demand of a specific occupation. Typically, this process considers expected job openings (demand) relative to potential training programs for those occupations. This can be quite a tough task, as matching Classification of Instructional Programs (CIP) to Standard Occupational Classification (SOC) codes is not straightforward. For example, an individual who obtains an accounting degree may not necessarily become an accountant. The skills that individual has are in demand by other occupations, such as a financial analyst or credit analyst.

Consider the supply and demand for an electrical/electronics drafter (SOC 17-3012). Figure 2 represents the Primary Occupation, which typically requires an Associates degree. Employers looking to hire an electrical drafter would usually request a degree in CAD/CADD drafting, drafting and design technology, or electrical drafting CAD/CADD (CIP 15.1302, 15.1301, and 15.1305 respectively located under Degrees). The standard analysis would compare this degree production to demand of electrical drafters. However, other occupations are also looking for these skills, such as architectural/civil, mechanical, and other drafters (Secondary Occupations). This analysis will take a more holistic approach by considering both potential supply (degrees) with potential demand (occupations).

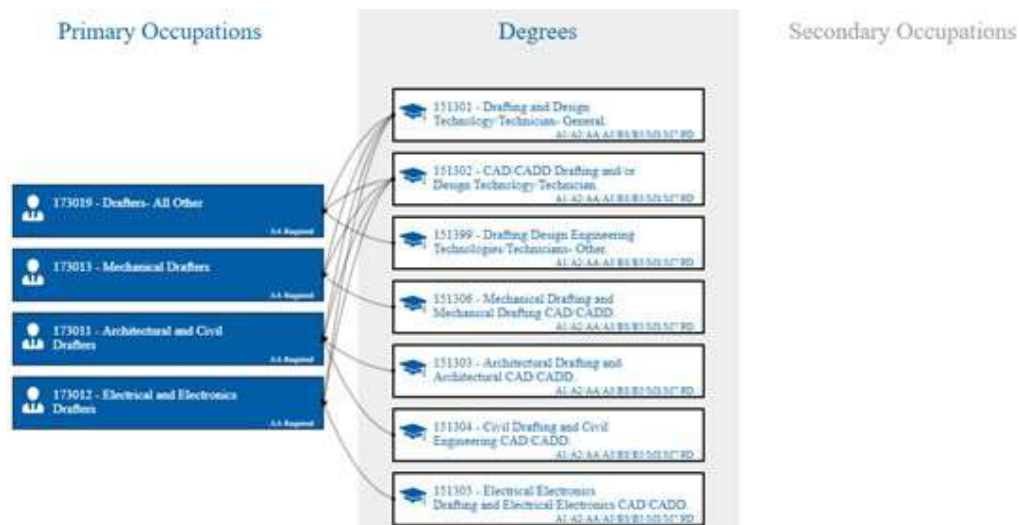
Figure 2: Electrical and Electronics Drafters



Source: Bureau of Labor Statistics, Department of Labor

When combining the secondary occupations with the primary, a workforce grouping of skill sets is created. Figure 3 provides the drafting skills group of four different occupations. Once these four drafting occupations are together it is straightforward to see the seven associated instructional programs. There are no longer any secondary occupations, and a complete grouping is identified with seven instructional pro-

Figure 3: Drafting Skills Grouping



Source: Bureau of Labor Statistics, Department of Labor

The remainder of this section will consider supply and demand analysis of the groupings ABLE Operations identified from the occupations defined in the previous section. Table 4 identifies wage and a supply to demand ratio for the 8-county TGC region, Florida, and U.S. A supply to demand ratio (S/D ratio) less than 1 implies a talent gap might exist as training/education programs are not meeting industry demands. A S/D ratio greater than 1 indicates supply of regional talent might be higher than industry demands. The Talent Quotient compares the S/D ratio of the TGC region to the U.S. ratio.

Table 4: Occupation Workforce Analysis
(Certificate or Associate's)

Required Skills	TGC Region		Florida		U.S.		Talent Quotient
	Median Wage	S/D Ratio	Median Wage	S/D Ratio	Median Wage	S/D Ratio	
Aerospace Engineering Technicians	\$48,618	0.00	\$54,655	0.38	\$65,701	0.93	0
Aircraft Maintenance	\$63,757	0.32	\$59,076	0.46	\$62,390	0.36	0.89
Banking Support Services	\$34,197	0.00	\$36,561	0.00	\$35,296	0.01	0
Bookkeeping and Clerical	\$36,728	0.07	\$38,687	0.16	\$42,051	0.10	0.64
Chemical & Industrial Technicians	\$52,297	0.06	\$46,698	1.09	\$51,610	0.45	0.18
Computer Support Specialists	\$47,072	0.71	\$48,695	0.47	\$55,818	0.48	1.57
Drafting	\$46,349	0.16	\$50,899	0.40	\$56,256	0.43	0.42
Electrical Technicians	\$58,712	0.18	\$47,928	0.30	\$53,442	0.19	0.98
Electricians	\$42,170	0.07	\$42,579	0.04	\$53,890	0.13	0.51
Industrial Mechanics	\$54,422	0.00	\$48,138	0.02	\$54,442	0.11	0
Insurance	\$48,739	0.00	\$51,691	0.00	\$56,267	0.00	0
Machinists	\$38,731	0.05	\$37,883	0.03	\$41,094	0.06	0.73
Plumbers	\$39,495	0.01	\$41,504	0.04	\$51,749	0.03	0.31
Ship Engineers and Captains	\$66,187	0.00	\$60,692	0.00	\$68,429	0.08	0
Truck & Bus Drivers	\$34,165	0.00	\$35,757	0.02	\$41,407	0.03	0
Welding	\$38,718	1.40	\$38,270	0.78	\$41,814	0.73	2.18

The first reaction might be of concern given most of the S/D Ratios are red (less than 1). However, it is important to note that these occupations do not always require a certificate or Associates degree. For example, tellers are one of the occupations included in Banking Support Services. Typically, this occupation is provided on the job training and not formal instruction. When making relative comparisons to either the State or Nation, workforce data are more informative.

Table 5: Occupation Workforce Analysis
(Bachelor's +)

Required Skills	TGC Region		Florida		U.S.		Talent Quotient
	Median Wage	S/D Ratio	Median Wage	S/D Ratio	Median Wage	S/D Ratio	
Aerospace Engineers	\$99,283	0.00	\$104,768	2.64	\$116,529	1.29	0.00
Accounting & Finance	\$67,711	0.05	\$70,444	0.18	\$77,927	0.21	0.26
Chemical Engineers	\$105,466	0.00	\$85,566	5.21	\$101,637	5.65	0.00
Chemists & Scientists	\$65,826	0.85	\$57,528	1.56	\$75,196	1.48	0.58
Computer Database & Programming	\$83,935	0.39	\$87,128	0.53	\$98,511	0.59	0.65
Electronics Engineers	\$93,184	0.64	\$95,145	1.14	\$101,260	1.12	0.58
Industrial Engineers	\$85,046	0.00	\$78,583	0.47	\$88,100	0.39	0.00
Lawyers	\$82,004	0.00	\$96,900	0.47	\$113,328	0.55	0.00
Logisticians	\$73,680	0.13	\$59,064	0.23	\$72,234	0.25	0.51
Marine Engineers	\$73,707	0.00	\$74,506	0.00	\$92,394	0.48	0.00
Mechanical Engineers	\$87,035	0.48	\$85,219	2.34	\$88,427	1.73	0.28

Further Research:

In addition to the clusters, industries, and occupations mentioned above, ABLE Operations and FGWN recognize the need to assess other skill sets. In the second year of this research grant, a market overview and workforce analysis will be conducted for both Cybersecurity and Unmanned Aircraft Vehicles/Systems (UAV/UAS). These emerging skill set groups do not currently follow the traditional SOC to CIP analysis, as further research and data analysis will provide insight.

Cybersecurity: Programs currently exist for Cybersecurity throughout the eight-county TGC region. However, these program offerings are being identified as broader, outdated CIP codes/titles. For example, the current Cybersecurity program offering an Associate's degree at Northwest Florida State College (NWFSC) is identified as CIP 11.1003 - Computer and Information Systems Security/Auditing/Assurance.

NWFSC is one of 11 institutions with this same program (11.1003) in Florida, joining 234 other institutions throughout the U.S. Although they are identified as the same program, training and course requirements often differ. As an example, State College of Florida Sarasota-Manatee offers Computer Information Technology (identified as 11.1003), which does not have the emphasis in database or network security.

The Bureau of Labor Statistics (BLS) updated the newest CIP codes/titles in 2020. This update identifies three cyber programs: Cyber/Electronics Operations (29.0207), Cyber/Computer Forensics and Counterterrorism (43.0403), and Cybersecurity Defense/Strategy (43.0404). Florida State University (FSU) is the only public university that was recently approved for one of these offerings (43.0403), but has not graduated anyone as of 2019. It is expected that institutions with an emphasis on cybersecurity will begin to identify their offerings with these CIP codes/titles. The Cyber/Electronics Operations program has completed over 2,150 students from 2014-2019. Throughout the U.S., this program has expanded from just two institutions with 81 completions in 2014, to 24 institutions with 745 completions in 2019.

It is important to note that the workforce needs of both Cybersecurity and Unmanned Aircraft Vehicles/Systems (UAV/UAS) are expected to span multiple industries. Given the TGC region's comparative advantage in Defense, it is likely that DoD/DHS contracts and grants will boost demand for these skills. It is expected that Financial Services, Retail, Professional and Business Services are just some of the industries that will demand cybersecurity talent. Students that complete a UVS Operations certificate, might find opportunities in the Agriculture, Distribution and eCommerce, Professional and Business Services industries throughout the TGC region.

Recommendations:

Given the impact of the targeted clusters, in-demand occupations, and skills gap analysis, ABLE Operations would suggest the following recommendations:

New Investment – The training programs provided in these recommendations do not currently produce graduates in the 8-county TGC region (as of 2019). It would be considered new investment as the institutions would likely be adding a new program to their current offerings.

1. *Skills Grouping: Industrial Mechanics. Nationally, training institutions will supply roughly 11% of job openings for this skill group. It is likely that most of the training is experienced through on-the-job training. However, there are currently no programs offered in the TGC region. To compensate for the lack of supply, the median wage in the TGC region is roughly 13% higher than Florida.

- a. Occupations: Elevator/Escalator, Control/Valve installers and repairer, Industrial machinery mechanic, Machinery maintenance, Millwrights.
- b. Curriculum: Industrial Mechanics/Maintenance Technology and Energy Systems Installation/Repair (CIP: 47.0303, 47.0701, 47.0705, 47.0706).
- c. Examples: Currently programs exist in locations throughout the State. Big Bend Technical College (Taylor) and Suncoast Technical College (Sarasota) are just two examples.

2. *Skills Grouping: Aerospace Engineering Technicians. Nationally, training institutions are in line with supporting industry needs (S/D ratio close to 1). Florida does offer these training programs at institutions located in the Central and Eastern part of the State. However, there are currently no graduates in the TGC region (as of 2019). However, the supply data indicated that Northwest Florida State College started offering the program in 2019. The demand for this occupation is not as strong as Aircraft Maintenance but is expected to increase given the pipeline of projects in Northwest Florida.

- a. Occupation: Aerospace Engineering and Operations Technicians.
- b. Curriculum: Aeronautical/Aerospace Engineering Technology, Aerospace Ground Equipment Technology, Air and Space Operations Technology (15.0801, 29.0401, 29.0402).
- c. Examples: Eastern Florida State College produces the largest graduates in the State. In addition, programs exist at Embry-Riddle, Daytona State, and Pasco-Hernando.
- d. Triumph Gulf Coast Projects: A&P FAA Certs through NWFSC & SD/Lively Tech. UAS/UAV FAA Certs through Wakulla, Franklin, Gulf School Districts, Gulf Coast State College, AMIKids Panama City, and NWFSC.

3. *Skills Grouping: Truck and Bus Drivers. It is not a requirement to attend a training facility to obtain a CDL license. However, these occupations are one of the highest in demand across multiple industry clusters.

- a. Occupations: Heavy Tractor-Trailer Truck, Light Truck, and Bus Drivers.
- b. Curriculum: Commercial Vehicle Operator (49.0205).
- c. Examples: Miami Lakes and Sheridan Technical Colleges produce the largest graduates in the State. In addition, programs exist at Florida State College Jacksonville, Tallahassee Community College, and Sunstate Academy.
- d. Triumph Gulf Coast Projects: CDL through Pensacola State College, TCC & Walton Sheriff Office.

4. Skills Grouping: Industrial Engineers. There is likely a shortage of industrial engineers across the TGC Region, State, and Nation. Florida exceeds the National average with five State Universities producing graduates throughout Florida. Given the wage premium and industry concentration for the 8-county TGC region, it would be beneficial to expand current engineering programs to include Industrial Engineering.

- a. Occupation: Industrial Engineers.
- b. Curriculum: Industrial and Manufacturing Engineering (14.3501, 14.3601).
- c. Examples: Currently Florida State University and FAMU graduate roughly 60 students a year in this field. Additional institutions include UCF, FIU, University of Miami, and USF.

5. Skills Grouping: Insurance. Providing training in this field with less than a Bachelor's degree is rare. There are only a handful of institutions that offer this throughout the Nation. Given the concentration and growth of the Financial Services cluster in the TGC region, a program like Insurance offered at a State College could offer short-term training for employers. In addition, this program could be a feeder opportunity to furthering education and career advancement.

- a. Occupations: Claims Adjusters, Examiners and Investigators, Insurance Appraisers, Underwriters, and Sales Agents.
- b. Curriculum: Health/Medical Claims Examiner, Risk Management, Financial Risk Management, Actuarial Science, and Insurance (51.0715, 52.0215, 52.0810, 52.1304, 52.1701).
- c. Examples: FAU recently began offering a certificate in Insurance (52.1701). American College of Financial Services (Montgomery, PA) completes over 500 1-yr certificates annually.

6. Skills Grouping: Banking Support Services. Like Insurance, training in this specific study is un common. Given the concentration and growth of the Financial Services cluster in the TGC region, a program like this offered at a State College could offer short-term training for employers. In addition, this program could be a feeder opportunity to furthering education and career advancement.

- a. Occupations: New Account, Loan Interviewers, Credit Authorizers, Checkers, and Clerks. Tellers, Bill and Account Collectors.
- b. Curriculum: Banking and Financial Support Services (52.0803).
- c. Examples: A couple programs are offered in South Florida with one of the largest completions in the Nation coming from Miami-Dade College.

Continued Support – The training programs provided in these recommendations are currently available in the 8-county TGC region (as of 2019). Support could include expansion of the current program, partnerships with other institutions, marketing, etc.

1. *Skills Grouping: Chemical and Industrial Technicians. Currently programs are being offered at Pensacola State College and Gulf Coast State College. Florida does offer these training programs throughout, with most completions occurring in the Central and Eastern part of the State. Florida has a concentration of more than twice the National average. However, the TGC Region is much lower, and offers a wage premium to attract talent.

- a. Occupations: Industrial Engineering, Chemical, Environmental Science, and Social Science Technicians. Chemical Plan and Equipment Operators.
- b. Curriculum: Variety of industrial, manufacturing, chemistry and science (15, 30, 40, 41).
- c. Examples: Florida State College Jacksonville and Eastern Florida State College produce the largest graduates in the State. Pensacola State College and Gulf Coast State College currently offer programs.

2. *Skills Grouping: Aircraft Maintenance. The TGC region is doing an excellent job at producing graduates in this field. The region is roughly in line with the National S/D ratio. The State has roughly a 25% higher concentration in this ratio relative to the U.S. Florida does have success at institutions located in Tampa, Central, and Eastern parts of the State.

- a. Occupation: Avionics Technicians, Aircraft Mechanics, and Aircraft Structure, Surfaces, Rigging, and Assemblers.
- b. Curriculum: Airframe Mechanics, Avionics Maintenance and Technology, Aircraft Powerplant Technician. (47.0607, 47.0608, 47.0609).
- c. Examples: Tom P Haney Technical Center and George Stone Technical College.
- d. Triumph Gulf Coast Projects: A&P FAA Certs through NWFSC & SD/Lively Tech. UAS/UAV FAA Certs through Wakulla, Franklin, Gulf School Districts, Gulf Coast State College, AMIKids Panama City, and NWFSC.

3. *Skills Grouping: Drafting. There is likely a shortage of Drafting across the TGC Region, State, and Nation. The TGC region is roughly 42% of the National S/D ratio concentration. Some of this gap is due to the closure of ITT – Pensacola. The State is consistent with the U.S concentration.

- a. Occupation: Architectural, Civil, Electrical, Electronics, and Mechanical Drafters.
- b. Curriculum: Variety of CAD/CADD programs – see Figure 3. (15.13).
- c. Examples: Pensacola State College, Northwest Florida State College, and Gulf Coast State College. Miami-Dade, Eastern Florida State College, and Valencia College are the largest producers in the State.

4. Skills Grouping: Plumbing. It is not a requirement to attend a training facility to become a plumber as most training is likely done through on the job training. However, these occupations are one of the highest in demand across multiple industry clusters, and the TGC region has a S/D ratio of roughly one third relative to the U.S.

- a. Occupation: Plumbers, Pipefitters, Steamfitters, Septic Tank Servicers and Sewer Pipe Cleaners.
- b. Curriculum: Pipefitting, Plumbing Technology, Related Water Supply Services (46.0502, 46.0503, 46.0599).
- c. Examples: Pensacola State College currently offers a program. South Florida Institute of Technology is the largest producer in the State.

Strong Supply – The training programs provided in these recommendations are currently supplying adequate training for the region. In fact, there is a possibility of over-producing, making it difficult for graduates to find employment in the region.

1. Skills Grouping: Welding. Recent efforts in the TGC region to expand programs in welding have been a success. Over the last 6 years completions have increased by roughly 400%! During that time, two additional institutions offered programs in the region. The State has also followed the trend, doubling completions in this field over the last six years.

- a. Occupation: Welders, Cutters, Solderers, and Brazers.
- b. Curriculum: Welding Engineering/Technology (15.0614, 48.0508).
- c. Examples: Pensacola State College, Emerald Coast Technical, George Stone, Northwest Florida State College, Okaloosa Technical, Radford M Locklin, Tom P Haney.
- d. Triumph Gulf Coast Projects: Franklin and Gulf School District

2. Skills Grouping: Computer Support Specialists. It is not a requirement to attend a training institution to become a computer support specialist as some training is likely done through employees being self-taught. The S/D ratio in this field is roughly 60% higher for the TGC region relative to the U.S. It is important to note, however, this could be an opportunity for 2+2 programs and partnerships with Universities to expand Bachelor's production.

- a. Occupations: Computer Network and User Specialists, Web Developers and Design.
- b. Curriculum: Variety of computer curriculum (11).
- c. Examples: Pensacola State College, Northwest Florida State College, Gulf Coast State College, and more.
- d. Triumph Gulf Coast Projects: Walton School District

Summary:

Labor Supply and Demand Analysis - Recommendations		
New Investment	Continued Support	Strong Supply
<p>Industrial Mechanics - Currently paying a premium for these occupations relative to the State (National Avg). These occupations are in-demand across a variety of industries including Aerospace, Chemicals, and Production Technology. 7 different occupations and 4 potential programs.</p>	<p>Chemical and Industrial Technicians - Currently offered at PSC and GCSC. These occupations are in-demand across a variety of industries including Chemicals and Production Technology. 6 different occupations and 28 potential programs.</p>	<p>Welding - Currently offered at PSC, NWFSC, GCSC. 2 different occupations and 2 potential programs.</p>
<p>Aerospace Engineering Technicians - Given the commitment to Aerospace & Defense, opportunity to meet local needs. Prepare for potential pipeline and continued DoD contract revenues. 1 occupation and 3 potential programs.</p>	<p>Aircraft Maintenance - Currently offered at Tom P Haney and George Stone. Meet local demands given Aerospace/Defense pipeline. 3 different occupations and 3 potential programs.</p>	<p>Computer Support Specialists - Currently offered at numerous institutions. 3 different occupations and numerous potential programs.</p>
<p>Truck and Bus Drivers - Strong demand at all regions. These occupations are in-demand across a variety of industries including Chemicals, Water & Logistics, and Distribution/eCommerce. 4 different occupation and 1 potential program.</p>	<p>Drafting - Currently offered at numerous institutions. ITT-Pensacola gap not yet filled. 4 different occupations and 7 potential programs.</p>	
<p>Industrial Engineers - Currently paying a premium for these occupations relative to the State (National Avg). The occupation is in-demand across a variety of industries including Aerospace and Production Technology. 1 occupation and 2 potential programs.</p>	<p>Plumbing - Currently offered at Pensacola State College. 2 different occupations and 3 potential programs.</p>	
<p>Insurance - Unique opportunity to leverage local cluster. Potential for job-seekers and employers, with opportunity for future career paths. 4 occupations and 5 potential programs.</p>		
<p>Banking Services - Unique opportunity to leverage local cluster. Potential for job-seekers and employers, with opportunity for future career paths (2+2). 5 occupations and 1 potential program.</p>		

