



# CRISP Sector Strategy

# Report

**A Partnership of the Berks, Lancaster, and Lehigh Valley  
Workforce Development Boards**

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## EXECUTIVE SUMMARY

The Berks, Lancaster, and Lehigh Valley Workforce Development Areas form a contiguous geographic “crescent” that lies immediately to the north and west of the greater Philadelphia economic region, Pennsylvania’s largest and wealthiest. Despite their proximity to the Philadelphia metro region, the four counties (Berks, Lancaster, Lehigh and Northampton) that make up Pennsylvania’s crescent region are distinctively different socially, economically, and culturally. Rather, the crescent counties share many similarities with each other in demographics, such as age, race, and annual population growth; in economic values, such as household income and poverty levels; in educational attainment; and in social characteristics, such as family makeup and language skills. The region also shares a comparable cost of living index, which is much more modest than that faced by residents of greater Philadelphia. Most notably, housing prices are considerably more affordable for working and middle-class families in the crescent counties.

Also known as the “Route 222 Corridor,” all three metropolitan statistical areas are anchored by urban core cities (Allentown, Bethlehem, Easton, Reading, and Lancaster) with rich industrial cities which are surrounded by substantial suburban and rural areas – home to many active farms and green spaces. All three workforce areas also show a common trend in population shift with significant and growing Latino populations that are now the second largest ethnic group in each distinct area. Finally, the crescent region could also be termed Pennsylvania’s “opportunity region” as home to large numbers of “opportunity occupations” with better than average pay and benefits, but that do not require four-year degrees for entry and advancement.

The Lehigh Valley, Berks County, and Lancaster County Workforce Development Boards have partnered, in response to this dynamic mutual reality, to share current and projected workforce development needs in the high-demand industry clusters in the four-county region.

The partnership, designated Crescent Regional Industry Sector Partnership (CRISP) and funded by a PA Department of Labor & Industry Grant with the Lehigh Valley Workforce Development Board as lead applicant and fiscal agent, is charged with identifying clusters important to the economic competitiveness of the region and examining the high priority occupational talent supply vs. employer demand in this labor sharing region. Along with the aforementioned socio-economic similarities, the CRISP consortium considers common workforce development issues in very specific targeted industry clusters, all of which exhibit a significant impact across the region, to develop strategies that will create efficiencies through greater collaboration, identify and reduce service redundancies, and establish cost effective programs that can benefit from policy collaboration on a regional basis. All of this with the principle in mind that in the 21<sup>st</sup> century workforce development and economic development are inseparable.

Of these targeted regional industry clusters, two stand out as driving industries that have recently proven to be catalysts for employment and economic stability: (1) **Manufacturing** and (2) **Transportation and Warehousing**. These two clusters are ordered second and sixth in

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## Exhibit 1

*Traded (a/k/a basic) clusters are groups of related industries that serve markets beyond the region in which they are located.*

*They are free to choose their location of operation (unless the location of natural resources drives where they can be) and are highly concentrated in a few regions, tending to only appear in regions that afford specific competitive advantages.*

*Since traded clusters compete in cross-regional markets, they are exposed to competition from other regions.*

*Traded clusters are the "engines" of regional economies; without strong traded clusters it is virtually impossible for a region to reach high levels of overall economic performance.*

*Source: "Clusters 101"*

*Institute for Strategy and Competitiveness, Harvard Business School*

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total employment size in the CRISP region respectively and rank as the consortium's most important consideration in its targeted sector strategy workforce development focus.

**Note:** *While the strongest forecasted employment growth is expected in the region's large Healthcare sector, this industry has long taken positive steps to promote healthcare professions by motivating individuals to pursue careers in this industry with clearly defined educational requirements. The success of this career stimulus has resulted in ensuring that the talent pipeline for the anticipated in-demand healthcare occupations will be self-sustaining and, generally, in balance with the regional demand over time. In addition, the Healthcare sector provides financial value within the region primarily through an induced (local non-basic industry) multiplier effect and rarely brings in wealth from outside the region, therefore having little net benefit to the economic prosperity of the region.*

By virtue of their employment location quotients (LQ) or concentration relative to the national average, *Manufacturing and Transportation and Warehousing* provide the greatest workforce development challenges to long term CRISP regional employment sustainability and growth. But it is not enough to view *Manufacturing and Transportation and Warehousing* as wholly consistent industries in their regional influence. One workforce area often has greater concentration in a certain sub-cluster or sub-clusters than the others so regional manufacturing should be viewed as somewhat diversified or even fragmented across the region. For the purposes of this report, the CRISP consortium must examine and identify comparative industry sub-clusters in which all three workforce areas share a comparable presence and interest.

In this report, *Manufacturing and Transportation and Warehousing* industry sectors were both examined for their respective economic impact on the CRISP region. Identified as *traded industry clusters (Exhibit 1)*, both sectors contribute significant value because their combined regional domestic products serve national and global markets bringing financial wealth back into the regional economies.

Of the sub-clusters examined during an industry cluster analysis, *Food Processing and Manufacturing* represents the highest LQ (2.45) for a traded industry in the CRISP region. Breaking down the sub-cluster even further, shows that there is a true comparative relationship within the CRISP consortium in an industry group comprising the manufacture of food and beverage products.

The CRISP region is strategically located within overnight delivery to markets that serve over 100 million potential customers. This location is a comparative advantage as food and beverage processing requires the timely delivery of product to consumers. The interactivity and efficiency of logistics and transportation operations within the industry warrants vigorous occupational promotion in the CRISP region.

Having identified the comparative industry focus, employment issues emerged. Staffing pattern analysis of current and projected in-demand occupational needs within the Food and Beverage Manufacturing industry group isolated the greatest 10-year employment recruitment challenges to be addressed. Of these, two particular opportunity occupations require the CRISP consortium's attention: ***Industrial Maintenance Technician and Commercial Truck Driver***. These two occupations alone are most critical to production output and delivery to market.

Our investigation confirms that **current shortages in these two occupations will continue to grow for the CRISP region through 2020** carrying a significant risk to the success of a key manufacturing sector in the region. The economic consequences of failing to find effective solutions are magnified by the concentration of employment in the regional Food and Beverage Manufacturing sector, and the primary importance of this sector to our regional economy. Employers unable to recruit and develop the necessary talent will forfeit the opportunity for growth in customer orders or not receive appropriate return on investment. Without a competent, professional maintenance staff, equipment could sit idle causing production lines to halt. Productive workforce hours would diminish or temporarily cease, quality could be affected, and production costs would rise steeply.

Food and Beverage Manufacturing companies looking to increase their market share by investing in expanding operations and/or new equipment purchase might determine that these investments are too uncertain given the risk of operating or capital expense loss due to an insufficient cadre of qualified staff. Economic development agencies might find it increasingly difficult to attract new businesses to the region when prospects find that staffing in these critical occupations is underserved.

Our investigation confirms that individual employers in the region have not been successful in meeting their needs for skilled Industrial Maintenance Technician and Commercial Truck Driver talent on their own and are unlikely to do so in the near future. The CRISP consortium is well positioned to assist employers in coming together to work on cooperative solutions through industry partnerships, regional employer/training provider alliances, professional organizations for the development and marketing of career pathways, and alignment with local, state, and federal resources to assist in funding. This strategic workforce development focus will in turn enhance regional economic development in the Food and Beverage Manufacturing sector by attracting US and international companies who consider the region as an appealing labor shed.

## CRISP REGIONAL BACKGROUND

The partnership, designated “Crescent Regional Industry Sector Partnership” (CRISP) led by the Lehigh Valley Workforce Development Board and funded by a PA Department of Labor & Industry grant, is charged with identifying clusters important to the economic competitiveness of the region and is conducting this research project to investigate the occupational demand vs. supply in this labor sharing region.

The CRISP region of Pennsylvania includes the Berks, Lancaster, and Lehigh Valley Workforce Development Areas encompassing the counties of Berks, Lancaster, Lehigh, and Northampton. As of 2016Q2, total employment for the CRISP Region was 753,242 (based on a four-quarter moving average). Over the year ending 2016Q2, employment increased 1.6% in the region. Over the next 10 years, employment in the CRISP Region is projected to expand by 29,967 jobs<sup>1</sup>.

All three areas are similar in demographics, such as age (average age 45 years or older - 42.2%), race (average - 84.6% white, 13.2% Hispanic or Latino) and annual population growth (average 0.7%); in economic values, such as household income (average median \$57,198) and poverty levels (average 12%); in educational attainment (average 88.7% - High School Degree or better); and in social characteristics, such as family makeup (average 31.4% - single parent family) and language skills (average 6.5% - English spoken less than well). The CRISP region also shares a cost of living index equal to 98.5% of the national average.

During the period of July through October, 2016, representatives of the three partnering Workforce Development Areas reviewed preliminary data to identify industry clusters that show comparative influence on the economies and workforce of each individual Workforce Development Area (WDA) and the region as a whole. As a result of this review, an industry cluster research strategy has been adopted (Exhibit 2).

Cluster analysis of the top five industries by workforce area was performed by studying Location Quotients (LQ), current employment, and projected new job growth and replacement job demands using data derived from Chmura JobsEQ datasets. The five industry clusters examined were Management of Companies and Enterprises, Manufacturing, Transportation and Warehousing,

### **Exhibit 2: Research Strategy**

#### **Construct spreadsheets for Berks, Lancaster, and Lehigh Valley for Manufacturing, Transportation & Logistics Clusters**

1. 6 Digit NAICS Code Location Quotient (highest to lowest)
2. Employment
3. Job Growth/Replacements

#### **CRISP NAICS comparatives**

1. Identify 6 Digit NAICS Targeted sub-industries (top CRISP regional priorities)
2. Review industry cluster analysis bubble chart for commonalities

#### **Identify Projected Occupation Staffing Gaps**

1. EMSI or JobsEQ occupational data
2. Employer Survey to gauge relevance and accuracy of data
3. Employer anecdotes from boots-on-the-ground interviews

#### **Develop Conclusions**

#### **Propose Solutions**

Healthcare and Social Assistance, and Other Services (except Public Administration).

**Exhibit 3: CRISP Region Top Five Industry Clusters by LQ**

NAICS	Industry	Employment	Location Quotient	10 yr. Total Approx. Replacement Demand	10 yr. Total Growth Demand	Avg. Annual Growth Percent
55	Management of Companies and Enterprises	17,797	1.62	3,784	240	0.1%
31	Manufacturing	100,914	1.61	22,256	-9,955	-1.0%
48	Transportation and Warehousing	42,934	1.40	11,071	-613	-0.1%
62	Health Care and Social Assistance	122,499	1.16	25,551	24,641	1.8%
81	Other Services (except Public Administration)	36,428	1.09	9,199	904	0.2%

By virtue of their respective employment size and concentration, three particular clusters, as shown on Exhibit 3, warranted further comparative analysis: Manufacturing, Healthcare, and Transportation and Warehousing.

The major occupational groups with the largest LQs in the region are Production Occupations (LQ = 1.49), Transportation and Material Moving Occupations (1.30), and Healthcare Support Occupations (1.16).

Analysis of per annum gaps for in-demand occupations in each of the industry clusters showed that the fastest growing cluster in the region is expected to be Health Care and Social Assistance with a +1.9% year-over-year rate of growth<sup>2</sup>.

However, while the strongest forecast by number of jobs over the ten year period is expected for Healthcare Practitioners and Technical Occupations (+6,957 jobs) and Healthcare Support Occupations (+6,189), our analysis indicates that the supply side for the most in-demand occupations in this sector are projected to be at an equilibrium with demand. In fact, these occupations often show a potential surplus (see Exhibit 4, page 36) signifying a self-sustaining employment trend.

This evidence led to a partnership agreement to focus on High Priority Occupations in the Manufacturing and Transportation and Warehousing clusters. Using regional cluster analysis, workforce characteristics analysis, and employer feedback, we focused on one critical industry sub-cluster that closely aligns the three WDAs in economic impact and employment issues: Food and Beverage Manufacturing.

The following Scope of Report section will illustrate the economic and workforce development rationale for this targeted industry focus.

# SCOPE OF REPORT

## 1. CLUSTER ANALYSIS

### 1.1. INTRODUCTION

The next step in determining agreement for a regional industry focus was a side-by-side comparison of the Manufacturing and Transportation and Warehousing from an industry clusters perspective.

A cluster is a regional concentration of related industries in a particular location. Clusters are a striking feature of economies, making regions uniquely competitive for jobs and private investment. They consist of companies, suppliers, and service providers, as well as government agencies and other institutions that provide specialized training and education, information, research, and technical support. (A Governor's Guide to Cluster-Based Economic Development 2002)

A project by Harvard Business School's Institute for Strategy and Competitiveness in partnership with the U.S. Department of Commerce and U.S. Economic Development Administration builds on the regional cluster concept and advises that regional economies are made up of two types of clusters, each with different patterns of geographic presence and different competitive dynamics. The first cluster type is defined as "**traded clusters**" which are groups of related industries that serve markets beyond the region in which they are located. Firms in traded clusters are generally free to choose their location of operation (unless the location of natural resources drives where they can be) and are highly concentrated in a few regions, tending to locate and thrive in regions that afford specific competitive advantages. Since traded clusters compete in cross-regional markets, they are exposed to competition from other regions. The second cluster type is defined as a "**local clusters**" which is comprised of industries that serve the local market. They are prevalent in every region of the country, regardless of the competitive advantages of a particular location.

Once this comparison was completed, the partnership's consensus was to target one manufacturing industry sub-cluster that exhibits the greatest comparative concentration in employment for both manufacturing and transportation occupations, i.e. Food and Beverage Manufacturing. As part of our overall research strategy, the highest projected occupational needs within this industry sector based on Standard Occupation Classification (SOC) System codes were identified (see section 2).

### 1.2. METHODOLOGY (FROM US CLUSTER MAPPING PROJECT)

Cluster analysis will apply the methodologies and cluster algorithm derived from the U.S. Cluster Mapping Project to develop the CRISP region cluster model. This cluster model will result in a dataset depicting the presence of clusters across CRISP region, based on a standardized set of benchmark cluster definitions that group individual industries uniquely into cluster categories and types.

Location quotients (LQs) as well as the LQ percent growth change over the past five years will be used to evaluate the relative importance of the industry clusters in a regional economy.

Location quotients provide a method to derive a concentration ratio by comparing the share of any cluster in the regional economy with the share of the same cluster in the U.S. economy. Location Quotients provide a preliminary idea of which clusters are important in a region, and which might have a comparative advantage in comparison to the nation. This study computed LQs based on employment and a location quotient of 1.2 or more is taken as an indicator of specialization in the economy; a location quotient of 1 means that a cluster's share of the regional economy is the same as that of the national economy; and a location quotient of less than one means that the cluster has a smaller share of the regional economy than it has at the national level (i.e. it is not specialized).

Figure 2 shows a positive job change of 11.9% for Food Processing and Manufacturing in the years 2010 vs. 2015, indicating employment growth well above the 1.8% for all regionally traded clusters combined.

### 1.3. TRADED & LOCAL CLUSTER EMPLOYMENT

The graph below (Figure 1) shows the relative employment size for each cluster category (name) and type (Traded or Local) for the CRISP region.

Figures 2 & 3 detail the number of jobs in each of the regional clusters in 2010 and 2015 to arrive at the percent change in employment that occurred in this 5-year period.

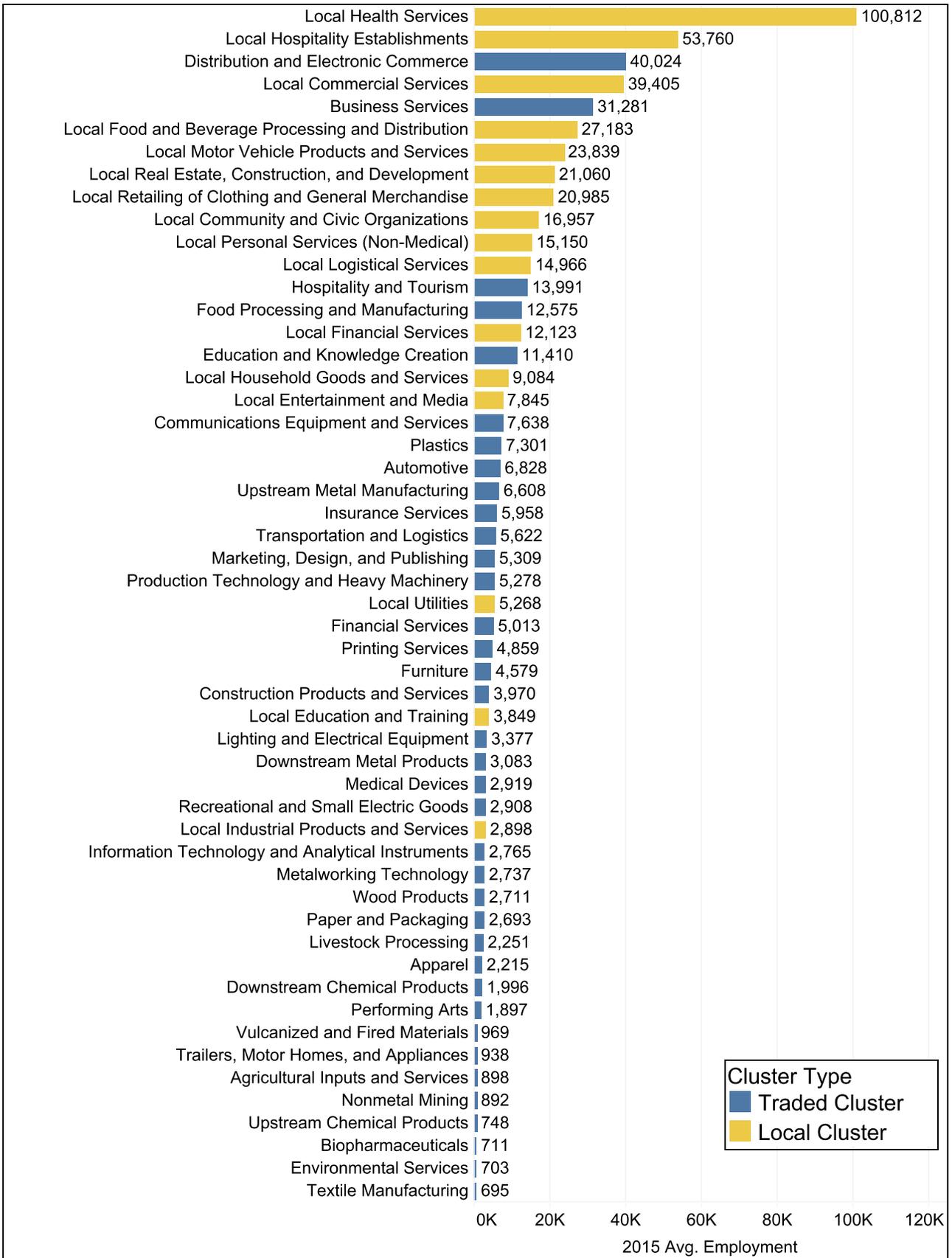
The 2015 CRISP regional clusters are comprised of 65 industry specific categories broken down by if the cluster is considered a traded or local cluster type. Recall that **traded clusters** consist of industry groups which are related industries that serve markets beyond the region in which they are located and **local cluster** groups are comprised of industries that serve the local market.

For example, the Local Food and Beverage Processing and Distribution Cluster contains firms that sell food and beverages at the local wholesale and retail levels. Products sold include meat, seafood, fruit and vegetables, general groceries, tobacco, alcoholic beverages, and specialty foods. The cluster also includes related distribution methods such as vending and direct selling.

By contrast, the **Food Processing and Manufacturing** traded cluster contains firms involved in the processing of raw food materials and the manufacturing of downstream food products for end users beyond the regional base. This includes millers and refineries of rice, flour, corn, sugar, and oilseeds. These upstream products contribute in part to producing specialty foods, animal foods, baked goods, candies, teas, coffees, beers, wines, other beverages, meats, packaged fruits and vegetables, and processed dairy products.

These 65 identified regional industry clusters account for 592,992 private sector jobs of which 217,808 (37%) jobs are considered part of the traded cluster type and 375,184 (63%) jobs considered part of the local cluster. Taking a closer look at the traded cluster results (figure 2), Food Processing and Manufacturing is the region's fourth largest employer (12,575) growing nearly 12% since 2010. Transportation and Logistics ranked 9<sup>th</sup> employing nearly 5,000 workers and growing at 17.6%.

Figure 1: 2015 Cluster Mapping Employment CRISP Region



Source: JobsEq & U.S. Cluster Mapping Project

Figure 2: CRISP Region Traded Cluster Employment Size and Change in Employment

		2010 JOBS	2015 JOBS	JOB Change	Percent Job Change
Traded	Distribution and Electronic Commerce	30,631	40,024	9,392	30.7%
	Business Services	29,114	31,281	2,167	7.4%
	Hospitality and Tourism	11,979	13,991	2,012	16.8%
	Automotive	4,908	6,828	1,920	39.1%
	Food Processing and Manufacturing	11,237	12,575	1,338	11.9%
	Communications Equipment and Services	6,590	7,638	1,049	15.9%
	Financial Services	3,986	5,013	1,027	25.8%
	Wood Products	1,774	2,711	938	52.9%
	Transportation and Logistics	4,782	5,622	840	17.6%
	Furniture	3,768	4,579	811	21.5%
	Trailers, Motor Homes, and Appliances	285	938	653	229.6%
	Upstream Metal Manufacturing	6,039	6,608	569	9.4%
	Plastics	6,802	7,301	499	7.3%
	Recreational and Small Electric Goods	2,412	2,908	496	20.6%
	Paper and Packaging	2,230	2,693	463	20.8%
	Information Technology and Analytical Instruments	2,350	2,765	415	17.7%
	Marketing, Design, and Publishing	4,935	5,309	374	7.6%
	Performing Arts	1,594	1,897	302	18.9%
	Metalworking Technology	2,483	2,737	254	10.2%
	Agricultural Inputs and Services	667	898	231	34.6%
	Downstream Chemical Products	1,823	1,996	172	9.4%
	Education and Knowledge Creation	11,278	11,410	132	1.2%
	Environmental Services	573	703	130	22.6%
	Vulcanized and Fired Materials	843	969	126	15.0%
	Upstream Chemical Products	647	748	101	15.5%
	Downstream Metal Products	3,061	3,083	23	0.7%
	Aerospace Vehicles and Defense	283	304	22	7.8%
	Livestock Processing	2,235	2,251	15	0.7%
	Oil and Gas Production and Transportation	408	416	8	1.9%
	Leather and Related Products	94	100	6	6.5%
	Tobacco	14	10	-4	-26.7%
	Video Production and Distribution	183	165	-18	-10.0%
	Jewelry and Precious Metals	53	27	-26	-48.7%
	Forestry	68	42	-26	-38.5%
	Water Transportation	33	5	-28	-84.1%
	Production Technology and Heavy Machinery	5,351	5,278	-73	-1.4%
	Nonmetal Mining	967	892	-74	-7.7%
	Music and Sound Recording	89	1	-89	-99.2%
	Footwear	176	15	-160	-91.4%
	Electric Power Generation and Transmission	540	373	-167	-30.9%
	Lighting and Electrical Equipment	3,602	3,377	-225	-6.3%
	Textile Manufacturing	934	695	-240	-25.6%
	Apparel	2,503	2,215	-288	-11.5%
	Biopharmaceuticals	1,320	711	-608	-46.1%
	Construction Products and Services	4,601	3,970	-631	-13.7%
	Medical Devices	3,676	2,919	-757	-20.6%
	Printing Services	6,403	4,859	-1,544	-24.1%
	Insurance Services	7,683	5,958	-1,725	-22.5%
Grand Total		198,007	217,808	19,801	1.8%

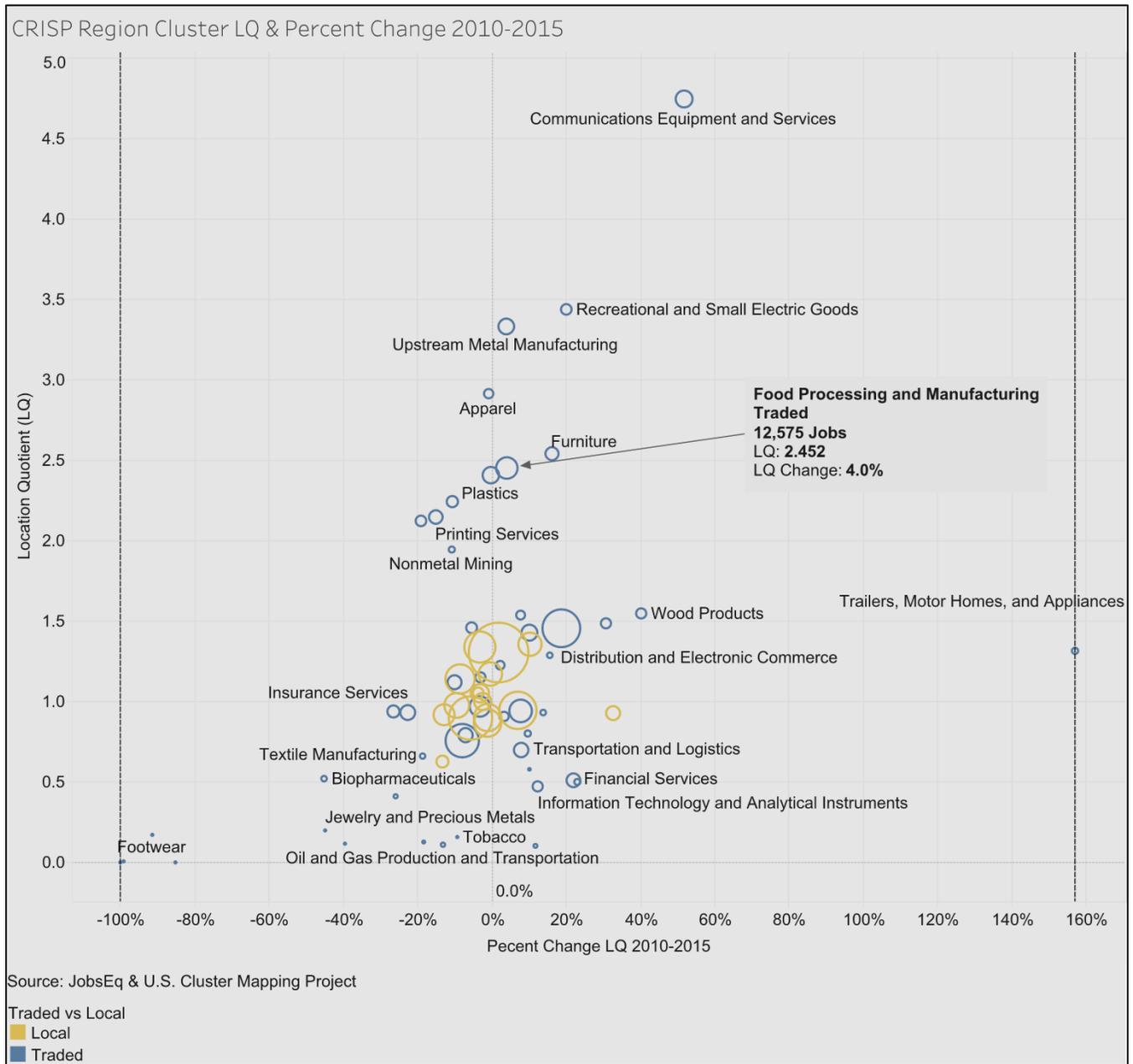
Source: JobsEq & U.S. Cluster Mapping Project

Figure 3: CRISP Region Local Cluster Employment Size and Change in Employment

		2010 JOBS	2015 JOBS	JOB Change	Percent Job Change
Local	Local Health Services	93,625	100,812	7,187	7.7%
	Local Commercial Services	32,327	39,405	7,078	21.9%
	Local Hospitality Establishments	49,896	53,760	3,864	7.7%
	Local Logistical Services	11,942	14,966	3,024	25.3%
	Local Community and Civic Organizations	14,115	16,957	2,842	20.1%
	Local Real Estate, Construction, and Development	19,649	21,060	1,412	7.2%
	Local Personal Services (Non-Medical)	14,003	15,150	1,147	8.2%
	Local Utilities	4,225	5,268	1,043	24.7%
	Local Food and Beverage Processing and Distribution	26,534	27,183	648	2.4%
	Local Motor Vehicle Products and Services	23,429	23,839	410	1.7%
	Local Household Goods and Services	8,674	9,084	410	4.7%
	Local Retailing of Clothing and General Merchandise	20,849	20,985	136	0.7%
	Local Industrial Products and Services	2,780	2,898	118	4.3%
	Local Education and Training	4,173	3,849	-324	-7.8%
	Local Entertainment and Media	8,495	7,845	-650	-7.6%
	Local Financial Services	13,454	12,123	-1,332	-9.9%
Grand Total		348,171	375,184	27,013	7.0%

Source: JobsEq & U.S. Cluster Mapping Project

## 1.4. LOCATION QUOTIENTS AND PERCENT CHANGE 2010-2015 CLUSTER MAP



The above cluster mapping graph shows that the CRISP region is home to numerous, varied industry clusters, all of which are vital to the economic sustainability of the region. Each “bubble” represents a comparative regional presence for that industry in the three workforce areas that comprise the CRISP region. It is obvious that Food and Beverage Manufacturing is one of the strongest comparative industries with an LQ of 2.45 and +4% growth in 2010-2015.

## 1.5. CLUSTER SELECTION AND PRIORITIZATION

In July, 2016, preliminary research data was presented to the CRISP leadership in order to target this project into a cohesive industry sector analysis relevant to all three workforce development areas that comprise the CRISP region. Exhibit 5 shows the comparative ranking of the industries within the CRISP region that was included in the preliminary data and shared during the presentation.

**Exhibit 5**

Berks				Lancaster				Lehigh Valley			
NAICS		Employ	LQ	NAICS		Employ	LQ	NAICS		Employ	LQ
31	#1 Manufacturing	31,278	2.04	31	#1 Manufacturing	37,862	1.77	55	#1 Management of Companies and Enterprises	10,037	1.87
55	#2 Management of Companies and Enterprises	4,935	1.83	11	#2 Agriculture, Forestry, Fishing and Hunting	5,363	1.43	48	#2 Transportation and Warehousing	25,692	1.72
11	#3 Agriculture, Forestry, Fishing and Hunting	3,598	1.33	23	#3 Construction	18,988	1.37	62	#3 Health Care and Social Assistance	64,209	1.25
22	#4 Utilities	1,274	1.28	81	#4 Other Services (except Public Administration)	15,058	1.32	31	#4 Manufacturing	36,879	1.20
62	#5 Health Care and Social Assistance	29,483	1.14	42	#5 Wholesale Trade	12,890	1.26	44	#5 Retail Trade	42,873	1.07
48	#9 Transportation and Warehousing	12,435	1.09	48	#6 Transportation and Warehousing	12,435	1.19	11	#19 Agriculture, Forestry, Fishing and Hunting	1,914	0.36
				62	#9 Health Care and Social Assistance	38,233	1.06				

Based on this preliminary research, it was agreed that further investigation be made into the comparative nature of the manufacturing cluster within the CRISP region. It was at this point that a formal CRISP cluster analysis was conducted with the intent to “fine-tune” the identification of manufacturing industry sub-clusters that were alike or similar in employment makeup in the three workforce areas.

Having explored the aspects of manufacturing industry sub-clusters, it became evident that while manufacturing, as a whole, is vital to all three areas, the concentration of industry sub-clusters is somewhat fragmented:

- Lehigh Valley’s manufacturing is diverse and the largest employment concentrations are spread among industries related to food/beverage, motor vehicle, plastics products, medical & electrical equipment, paper product, apparel, other miscellaneous manufacturing and foundries.
- Berks County is heavily concentrated in electrical equipment & component (storage battery), metals & metals fabrication, plastic product, cabinetry/furniture, medical equipment, motor vehicle body, and food manufacturing.

- Lancaster County’s largest manufacturing employment is in printing-related product, plastic product, cabinetry/furniture, other wood product, metals & metal fabrication, food manufacturing and foundries.

Based on the cluster analysis of CRISP employment location quotients, Food and Beverage Manufacturing stood out by nature of its comparative regional industry crossover, labor sharing occupational crossover, and a significant regional location quotient of 2.45. This conclusion was submitted to the CRISP leadership and, with their directive, this sector strategy research project took a defined focus.

The Food and Beverage Manufacturing “Industry Group” is comprised of the following regionally comparable industries within the manufacturing sub-cluster:

**NAICS:**

- 3111 Animal Food Manufacturing
- 3112 Grain and Oilseed Milling
- 3113 Sugar and Confectionery Product Manufacturing
- 3114 Fruit and Vegetable Preserving and Specialty Food Manufacturing
- 3115 Dairy Product Manufacturing
- 3116 Animal Slaughtering and Processing
- 3118 Bakeries and Tortilla Manufacturing
- 3119 Other Food Manufacturing
- 3121 Beverage Manufacturing

Recognizing the employment impact of this “Industry Group,” of equal validation for the significance of this industry sub-cluster to the CRISP region is the economic value the Food and Beverage Manufacturing Industry generates. Using JobsEQ Economic Impact modeling, analysis of the industry’s direct economic impact estimates the regional sales output for this industry exceeds \$3.3 billion annually. Indirect impact of the sales output from companies supplying goods and services to the industry contributes almost \$2.5 billion and the induced impact of sales created when industry employees spend their wages locally contributes an additional \$500 million resulting in a total Food and Beverage Manufacturing industry regional annual economic impact of greater than \$6 billion (Exhibit 6).

**Exhibit 6**

CRISP Region Annual Impact of Food Processing and Manufacturing Cluster (Event Size = 12575 ) <span style="float: right;">📄 Export</span>				
	Direct	Indirect	Induced	Total
Employment	12,575	17,821	5,178	35,574
Sales/Output	\$3,325,349,042	\$2,455,929,898	\$496,271,429	\$6,277,550,370
<small>Source: JobsEQ® Data as of 2016Q2</small>				

## Exhibit 7

The PA Department of Agriculture Special Assistant for Workforce Development confirms that these occupations align with the department's workforce development initiative. The department has assessed the present state-wide employment picture in food-related manufacturing industries, and it has developed an employment forecast for these occupations for the next 10 years:

Food Batchmakers  
Packaging Machine Operators  
Bakers  
Butchers  
Slaughterers & Meat Packers  
Meat Trimmers  
Inspectors, Testers, Samplers, & Weighers  
Industrial Machinery Mechanics  
General Maintenance & Repair Workers  
Heavy Tractor Trailer Truck Driver  
Forklift Driver

Source: PA Dept. of Agriculture  
"Fast Facts on Agriculture and Food Careers in Pennsylvania"

<http://www.agriculture.pa.gov/Encourage/Pages/Workforce-Development-for-the-Agriculture-and-Food-Industry-in-Pennsylvania.aspx>

## 2. REGIONAL OCCUPATION CHARACTERISTICS

Based on JobsEQ and Economic Modeling Specialist Inc. (EMSI) data, the five projected occupation job families to be in greatest CRISP regional demand for Food and Beverage Manufacturing during the 2016 through 2025 timeframe were assessed by workforce area.

It is interesting to note that these five occupation job families align with the statewide food-related manufacturing industry in-demand occupations identified by the PA Department of Agriculture (Exhibit 7).

These occupations are:

- Food Batchmakers (51-3092)
- Packaging & Filling Machine Operators (51-9111)
- Industrial Truck & Tractor Operators (53-7052) & Freight, Stock & Material Hand Movers (53-7062)
- Industrial Maintenance Technicians (49-9041, 49-9043, 49-9071)
- Heavy & Tractor –Trailer Truck Drivers (53-3032)

While the US Census Bureau compiles occupational age demographic information, it becomes problematic when attempting to identify the demographic in occupations within a specific industry sub-cluster.

The following subsections will illustrate the current status of the employment in these occupations and the outlook for the Food and Beverage Manufacturing workforce in the CRISP region.

### 2.1 AGE DEMOGRAPHIC BY OCCUPATION

The following tables<sup>3</sup> show employment in each occupation by estimated age demographic. Each table is organized by WDA and then compared with the CRISP region. Jobs are based on 2016 estimates. There are 3 datasets to consider:

**A. Occupational Jobs across all Industries:** Table 1 shows the age breakdown for jobs in the requested occupations. The data is for jobs across all industries. Certain occupations are identified individually but are also grouped together based as a "job family" (e.g., Industrial Maintenance Technicians; 49-9041, 49-9043, 49-9071).

**B. CRISP Food/Beverage Industry Group Jobs:** Table 2 shows the age breakdown for jobs in the "Industry Group" (all 9 industries identified in section 1.5 together) regionally.

C. **Occupational Jobs in Industry Group:** Tables 3 through 5 show estimates of the age demographic breakdown for the assessed number of occupational jobs in the Food and Beverage Manufacturing “Industry Group”, by workforce area, calculated using the following methodology.

First, inverse staffing patterns for each occupation or grouping of occupations within each WDA and the region were culled. An inverse staffing pattern identifies all industries in which occupational jobs are found for the occupation.

Second, the occupational jobs that were found in the 9 industries (i.e., the industry group) were added together. This resulted in the number and percentage of occupational jobs found in the industry group. The percentage was applied to the total number of occupational jobs across all industries and the age breakdown.

*Thus, we can extrapolate that the age breakdown of jobs in an occupation is the same regardless of the industry.*

**Exhibit 8 Occupation Age Demographic Calculation Example (Berks County WDA, Table 3)**

For Berks County, there are 585 Industrial Machinery Mechanics (49-9041). You can see the age breakdown in the “Occupational Jobs across all Industries” table (Exhibit 8, page 37).

Total Occupational Jobs	585	6.6%	604
Occupational Jobs in Industry Group	39		29

In the “Occupational Jobs in the Industry Group” section of Table 3, we see there are 39 Industrial Machinery Mechanics (49-9041) in the 9 combined Food & Beverage Manufacturing industries (named the “Industry Group” - section 1.5, page 16). This means 6.6% of all Industrial Machinery Mechanics are in this industry group in Berks County.

This 6.6% is simply then applied to the age breakdown from the “Occupational Jobs across all Industries” in Berks County.

Note that the age breakdown percentages are the same, but the number of jobs changes. For example, 33.7% of all Industrial Machinery Mechanics are ages 45-54 in Berks County. This represents 197 jobs across all industries, and 13 jobs in the industry group.

This is done for each occupation in each WDA and the region.

Table 1

Berks County, Lancaster County, and Lehigh Valley Workforce Development Areas																				
Occupational Jobs across All Industries																				
Age Group	49-9041		49-9043		49-9071		Industrial Maintenance Technicians		51-3092		51-9111		53-3032		53-7051		53-7062		Industrial Truck and Tractor Operators & Laborers and Freight, Stock, and Material Movers, Hand	
	Industrial Machinery Mechanics	Maintenance Workers, Machinery	Maintenance and Repair Workers, General	Food Batchmakers	Packaging and Filling Machine Operators and Tenders	Heavy and Tractor-Trailer Truck Drivers			Industrial Truck and Tractor Operators	Laborers and Freight, Stock, and Material Movers, Hand										
Age 14-18	6	0.2%	3	0.2%	31	0.4%	40	0.3%	39	2.4%	33	1.1%	26	0.2%	16	0.2%	604	2.6%	619	2.1%
Age 19-21	27	1.0%	22	1.8%	127	1.6%	176	1.5%	88	5.4%	162	5.3%	143	1.1%	213	3.3%	1,901	8.1%	2,114	7.1%
Age 22-24	58	2.3%	46	3.8%	219	2.7%	323	2.7%	94	5.7%	194	6.4%	338	2.6%	442	6.8%	2,186	9.3%	2,628	8.8%
Age 25-34	331	13.0%	177	14.5%	1,069	13.3%	1,578	13.3%	306	18.6%	617	20.2%	1,784	14.0%	1,746	26.7%	5,448	23.2%	7,193	24.0%
Age 35-44	494	19.4%	225	18.4%	1,503	18.7%	2,222	18.8%	344	20.9%	648	21.3%	2,815	22.1%	1,455	22.3%	4,385	18.7%	5,841	19.5%
Age 45-54	828	32.6%	389	31.8%	2,443	30.3%	3,660	31.0%	422	25.7%	776	25.5%	3,807	29.8%	1,557	23.9%	4,832	20.6%	6,389	21.3%
Age 55-64	693	27.2%	319	26.1%	2,078	25.8%	3,089	26.1%	287	17.5%	509	16.7%	2,927	23.0%	976	14.9%	3,193	13.6%	4,169	13.9%
Age 65+	107	4.2%	41	3.3%	588	7.3%	736	6.2%	63	3.8%	108	3.6%	916	7.2%	125	1.9%	895	3.8%	1,019	3.4%
<b>Total Jobs</b>	<b>2,545</b>	<b>100%</b>	<b>1,222</b>	<b>100%</b>	<b>8,057</b>	<b>100%</b>	<b>11,823</b>	<b>100%</b>	<b>1,642</b>	<b>100%</b>	<b>3,048</b>	<b>100%</b>	<b>12,756</b>	<b>100%</b>	<b>6,529</b>	<b>100%</b>	<b>23,444</b>	<b>100%</b>	<b>29,973</b>	<b>100%</b>

Jobs based on 2016 estimates

Table 2

Berks County, Lancaster County, and Lehigh Valley Workforce Development Areas																				
Occupational Jobs in Industry Group (9 Industries)																				
Total Occupational Jobs	2,545		1,222		8,057		11,823		1,642		3,048		12,756		6,529		23,444		29,973	
	Occupational Jobs in Industry Group	451	17.7%	172	14.0%	388	4.8%	1,016	8.6%	1,472	89.6%	1,374	45.1%	304	2.4%	499	7.6%	850	3.6%	1,349
Age Group ESTIMATES	49-9041		49-9043		49-9071		Industrial Maintenance Technicians		51-3092		51-9111		53-3032		53-7051		53-7062		Industrial Truck and Tractor Operators & Laborers and Freight, Stock, and Material Movers, Hand	
	Industrial Machinery Mechanics	Maintenance Workers, Machinery	Maintenance and Repair Workers, General	Food Batchmakers	Packaging and Filling Machine Operators and Tenders	Heavy and Tractor-Trailer Truck Drivers			Industrial Truck and Tractor Operators	Laborers and Freight, Stock, and Material Movers, Hand										
Age 14-18	1	0.2%	0	0.2%	1	0.4%	3	0.3%	35	2.4%	15	1.1%	1	0.2%	1	0.2%	22	2.6%	28	2.1%
Age 19-21	5	1.0%	3	1.8%	6	1.6%	15	1.5%	79	5.4%	73	5.3%	3	1.1%	16	3.3%	69	8.1%	95	7.1%
Age 22-24	10	2.3%	6	3.8%	11	2.7%	28	2.7%	84	5.7%	88	6.4%	8	2.6%	34	6.8%	79	9.3%	118	8.8%
Age 25-34	59	13.0%	25	14.5%	51	13.3%	136	13.3%	274	18.6%	278	20.2%	43	14.0%	133	26.7%	198	23.2%	324	24.0%
Age 35-44	88	19.4%	32	18.4%	72	18.7%	191	18.8%	308	20.9%	292	21.3%	67	22.1%	111	22.3%	159	18.7%	263	19.5%
Age 45-54	147	32.6%	55	31.8%	118	30.3%	315	31.0%	378	25.7%	350	25.5%	91	29.8%	119	23.9%	175	20.6%	288	21.3%
Age 55-64	123	27.2%	45	26.1%	100	25.8%	266	26.1%	257	17.5%	230	16.7%	70	23.0%	75	14.9%	116	13.6%	188	13.9%
Age 65+	19	4.2%	6	3.3%	28	7.3%	63	6.2%	56	3.8%	49	3.6%	22	7.2%	10	1.9%	32	3.8%	46	3.4%
<b>Total Jobs</b>	<b>451</b>	<b>100%</b>	<b>172</b>	<b>100%</b>	<b>388</b>	<b>100%</b>	<b>1,016</b>	<b>100%</b>	<b>1,472</b>	<b>100%</b>	<b>1,374</b>	<b>100%</b>	<b>304</b>	<b>100%</b>	<b>499</b>	<b>100%</b>	<b>850</b>	<b>100%</b>	<b>1,349</b>	<b>100%</b>

Jobs based on 2016 estimates

Table 3

Berks County Workforce Development Area																				
Occupational Jobs in Industry Group (9 Industries)																				
Total Occupational Jobs	585		604		1,829		3,018		325		413		2,406		1,756		5,417		7,173	
Occupational Jobs in Industry Group	39	6.6%	29	4.8%	66	3.6%	220	7.3%	287	88.3%	166	40.3%	0	0.0%	157	8.9%	225	4.2%	382	5.3%
Age Group ESTIMATES	49-9041		49-9043		49-9071		Industrial Maintenance Technicians		51-3092		51-9111		53-3032		53-7051		53-7062		Industrial Truck and Tractor Operators & Laborers and Freight, Stock, and Material Movers, Hand	
	Industrial Machinery Mechanics	Maintenance Workers, Machinery	Maintenance and Repair Workers, General	Food Batchmakers	Packaging and Filling Machine Operators and Tenders	Heavy and Tractor-Trailer Truck Drivers	Industrial Truck and Tractor Operators	Laborers and Freight, Stock, and Material Movers, Hand												
Age 14-18	0	0.0%	0	0.0%	0	0.3%	0	0.2%	4	1.2%	1	0.7%	0	--	0	0.2%	5	2.3%	7	1.8%
Age 19-21	0	0.7%	1	1.8%	1	1.6%	3	1.4%	10	3.4%	8	4.5%	0	--	5	3.4%	19	8.2%	27	7.1%
Age 22-24	1	2.0%	1	4.2%	2	2.8%	6	2.9%	15	5.1%	10	6.1%	0	--	10	6.2%	20	8.8%	31	8.1%
Age 25-34	5	12.2%	4	13.9%	9	13.2%	29	13.2%	53	18.3%	32	19.1%	0	--	36	22.7%	48	21.2%	82	21.6%
Age 35-44	7	18.6%	5	17.3%	12	18.8%	41	18.5%	63	21.8%	34	20.3%	0	--	34	21.7%	42	18.5%	74	19.3%
Age 45-54	13	33.7%	9	32.7%	20	31.0%	70	31.9%	84	29.3%	46	27.6%	0	--	41	26.3%	49	21.9%	88	23.0%
Age 55-64	11	28.8%	8	26.8%	17	25.5%	58	26.4%	49	16.9%	29	17.5%	0	--	27	17.1%	34	15.0%	59	15.5%
Age 65+	1	3.7%	1	3.2%	5	6.8%	12	5.5%	11	3.9%	7	4.1%	0	--	4	2.3%	9	4.1%	14	3.7%
<b>Total Jobs</b>	<b>39</b>	<b>100%</b>	<b>29</b>	<b>100%</b>	<b>66</b>	<b>100%</b>	<b>220</b>	<b>100%</b>	<b>287</b>	<b>100%</b>	<b>166</b>	<b>100%</b>	<b>0</b>	<b>--</b>	<b>157</b>	<b>100%</b>	<b>225</b>	<b>100%</b>	<b>382</b>	<b>100%</b>

Jobs based on 2016 estimates

Table 4

Lancaster County Workforce Development Area																				
Occupational Jobs in Industry Group (9 Industries)																				
Total Occupational Jobs	882		215		2,991		4,088		885		937		4,706		1,332		6,373		7,705	
Occupational Jobs in Industry Group	199	22.6%	11	5.0%	190	6.3%	464	11.4%	818	92.4%	522	55.7%	118	2.5%	147	11.0%	363	5.7%	516	6.7%
Age Group ESTIMATES	49-9041		49-9043		49-9071		Industrial Maintenance Technicians		51-3092		51-9111		53-3032		53-7051		53-7062		Industrial Truck and Tractor Operators & Laborers and Freight, Stock, and Material Movers, Hand	
	Industrial Machinery Mechanics	Maintenance Workers, Machinery	Maintenance and Repair Workers, General	Food Batchmakers	Packaging and Filling Machine Operators and Tenders	Heavy and Tractor-Trailer Truck Drivers	Industrial Truck and Tractor Operators	Laborers and Freight, Stock, and Material Movers, Hand												
Age 14-18	1	0.3%	0	0.5%	1	0.6%	2	0.5%	29	3.5%	8	1.6%	0	0.4%	1	0.5%	16	4.3%	19	3.6%
Age 19-21	3	1.4%	0	2.3%	3	1.8%	8	1.7%	58	7.1%	35	6.7%	2	1.4%	5	3.5%	30	8.4%	39	7.5%
Age 22-24	5	2.6%	0	3.3%	5	2.8%	13	2.7%	51	6.3%	31	6.0%	3	2.9%	9	6.1%	31	8.5%	42	8.1%
Age 25-34	26	13.2%	2	15.1%	25	13.1%	61	13.2%	150	18.3%	92	17.7%	16	13.9%	35	24.1%	76	20.9%	111	21.5%
Age 35-44	39	19.4%	2	18.5%	35	18.2%	86	18.5%	164	20.0%	102	19.6%	24	20.7%	32	21.6%	64	17.5%	94	18.2%
Age 45-54	63	31.5%	3	30.2%	55	29.1%	138	29.7%	202	24.7%	135	25.9%	34	28.5%	37	25.0%	75	20.7%	111	21.4%
Age 55-64	53	26.5%	3	25.8%	49	26.0%	121	26.1%	134	16.3%	94	18.1%	27	23.0%	25	16.8%	53	14.7%	78	15.1%
Age 65+	10	5.0%	0	4.2%	16	8.5%	35	7.5%	31	3.8%	23	4.5%	11	9.2%	4	2.5%	18	4.9%	23	4.5%
<b>Total Jobs</b>	<b>199</b>	<b>100%</b>	<b>11</b>	<b>100%</b>	<b>190</b>	<b>100%</b>	<b>464</b>	<b>100%</b>	<b>818</b>	<b>100%</b>	<b>522</b>	<b>100%</b>	<b>118</b>	<b>100%</b>	<b>147</b>	<b>100%</b>	<b>363</b>	<b>100%</b>	<b>516</b>	<b>100%</b>

Jobs based on 2016 estimates

Table 5

Lehigh Valley Workforce Development Area																				
Occupational Jobs in Industry Group (9 Industries)																				
Total Occupational Jobs	1,077		404		3,236		4,717		432		1,697		5,644		3,440		11,654		15,094	
Occupational Jobs in Industry Group	146	13.6%	36	9.0%	83	2.6%	303	6.4%	340	78.7%	658	38.8%	122	2.2%	158	4.6%	228	2.0%	419	2.8%
Age Group ESTIMATES	49-9041		49-9043		49-9071		Industrial Maintenance Technicians		51-3092		51-9111		53-3032		53-7051		53-7062		Industrial Truck and Tractor Operators & Laborers and Freight, Stock, and Material Movers, Hand	
	Industrial Machinery Mechanics		Maintenance Workers, Machinery		Maintenance and Repair Workers, General				Food Batchmakers		Packaging and Filling Machine Operators and Tenders		Heavy and Tractor-Trailer Truck Drivers		Industrial Truck and Tractor Operators		Laborers and Freight, Stock, and Material Movers, Hand			
Age 14-18	0	0.2%	0	0.2%	0	0.2%	1	0.2%	3	0.9%	6	0.9%	0	0.1%	0	0.2%	4	1.8%	6	1.4%
Age 19-21	1	0.8%	1	1.7%	1	1.4%	4	1.3%	11	3.3%	31	4.7%	1	0.9%	5	3.1%	18	7.9%	28	6.8%
Age 22-24	3	2.2%	1	3.3%	2	2.6%	8	2.6%	17	5.1%	44	6.6%	3	2.5%	12	7.3%	23	10.0%	39	9.4%
Age 25-34	20	13.3%	5	15.1%	11	13.5%	41	13.6%	66	19.5%	144	21.9%	18	14.7%	47	29.8%	58	25.4%	111	26.4%
Age 35-44	29	19.8%	7	20.1%	16	19.0%	58	19.3%	75	22.1%	147	22.4%	28	23.3%	36	22.9%	44	19.4%	85	20.2%
Age 45-54	48	32.8%	11	31.4%	26	31.1%	95	31.5%	85	25.1%	163	24.7%	37	30.6%	35	22.1%	46	20.0%	86	20.5%
Age 55-64	40	27.0%	9	25.1%	21	25.8%	79	26.0%	68	20.1%	104	15.8%	27	22.4%	21	13.1%	28	12.4%	53	12.6%
Age 65+	6	3.9%	1	3.1%	5	6.5%	17	5.6%	13	3.9%	19	2.9%	7	5.5%	2	1.5%	7	3.1%	11	2.7%
<b>Total Jobs</b>	<b>146</b>	<b>100%</b>	<b>36</b>	<b>100%</b>	<b>83</b>	<b>100%</b>	<b>303</b>	<b>100%</b>	<b>340</b>	<b>100%</b>	<b>658</b>	<b>100%</b>	<b>122</b>	<b>100%</b>	<b>158</b>	<b>100%</b>	<b>228</b>	<b>100%</b>	<b>419</b>	<b>100%</b>

Jobs based on 2016 estimates

## 2.2 OCCUPATIONAL BREAKDOWN

### Packaging & Filling Machine Operators Jobs

(e.g. Adjuster/Packer, Portioner, Wrapper & Case Packer, Bundler, Closing Machine Operator, Filler Operator, Packaging Operator, Packing Machine Operator, etc.)

Packaging & Filling Machine Operators and Tenders are considered to be entry-level positions requiring moderate on-the-job training. Packaging & Filling Machine Operators (SOC 51-9111) represent the largest employment within the industry sub-cluster at a 9% share (see Appendix B). Job growth and replacement projections for these occupations show a total regional industry group demand of 32% for these occupations within the CRISP region through the next ten years.

Based on the age demographic in the table 2 shown above, 45.8 percent of the Food and Beverage Manufacturing workforce occupying these positions are included in the demographic categories of 45 years or older. **20% of the current workforce in these occupations is 55 years or older and will be near, at, or above retirement age by 2025.**

Historical EMSI/CareerBuilder data shows that in the years 2013-16, there was an average of 229 monthly job postings for these occupations in the CRISP region, of which, 35 were unique

or non-duplicated postings. **In 2016 alone there were 381 average monthly job postings, 50 being unique or non-duplicated.**

Employers that participated in an employer staffing survey (see Appendix C), have responded that on a scale of 1 to 5, 1 being the greatest difficulty, recruitment for these occupations receive a 3 to 4 rating indicating that there is **moderate to low difficulty** in filling open positions.

### **Food/Beverage Batchmakers Jobs**

(e.g. Batching Operator, Blender, Brewing Technician, Compounder, Scaler and Mixer, Machine Operator, Mixer, Process Operator, Syrup Maker, etc.)

Food/Beverage Batchmakers are considered to be entry-level positions requiring moderate on-the-job training. Food/Beverage Batchmakers (SOC 51-3092) represent the second largest employment within the industry sub-cluster at an 8% share (see Appendix B). Job growth and replacement projections for these occupations show a total regional industry group demand of 21% for these occupations within the CRISP region through the next ten years.

Based on the age demographic in the table 2 shown above, 47 percent of the Food and Beverage Manufacturing workforce occupying these positions are included in the demographic categories of 45 years or older. **21% of the current workforce in these occupations is 55 years or older and will be near, at, or above retirement age by 2025.**

Historical EMSI/CareerBuilder data shows that in the years 2013-16, there was an average of 6 monthly job posting for these occupations in the CRISP region, of which, 2 were unique or non-duplicated postings. **In 2016 alone there were 10 average monthly job postings, 2 being unique or non-duplicated.**

Employers that participated in an employer staffing survey (see Appendix C), have responded that on a scale of 1 to 5, 1 being the greatest difficulty, recruitment for these occupations receives a 2 to 3 rating indicating that there is **moderate difficulty** in filling open positions.

### **Material & Stock Handling Jobs**

(e.g. Freight, Stock & Material Hand Movers, Forklift, etc.)

Material & Stock Handling positions are considered to be entry-level positions requiring short term on-the-job training that may require some certification. Food/Beverage Material and Handling jobs (SOCs 53-7051/7062) account for a 6% share of total employment within the industry sub-cluster (Appendix B). Job growth and replacement projections for these occupations show a total regional industry group demand of 26% for these occupations within the CRISP region through the next ten years.

Based on the age demographic in the table 2 shown above, approximately 40 percent of the aggregated Food and Beverage Manufacturing workforce occupying these positions are included in the demographic categories of 45 years or older. **17% of the current workforce in these occupations is 55 years or older and will be near, at, or above retirement age by 2025.**

Historical EMSI/CareerBuilder data shows that in the years 2013-16, there was an average of 1,762 monthly job postings for these occupations in the CRISP region, of which, 358 were unique or non-duplicated postings. **In 2016 alone there were 3,484 average monthly job postings, 649 being unique or non-duplicated.**

Of the employers that participated in an employer staffing survey (see Appendix C), most have responded that on a scale of 1 to 5, 1 being the greatest difficulty, recruitment for these occupations receives a 3 to 4 rating indicating that there is **moderate to low difficulty** in filling open positions.

### **Industrial Maintenance Technicians Jobs**

(e.g. Industrial Machinery Mechanics, Maintenance & Repair Workers, Machinery, Industrial Mechatronics Technician, etc.)

Industrial Maintenance Technicians are considered to be skilled professionals requiring mechanical aptitude and experience and/or educational attainment (industry recognized credentialing) but also moderate to long term on-the-job training. Many manufacturing employers are now requiring the attainment of an Associate's Degree at the time of hire into these positions. Industrial Maintenance Technician jobs (SOCs 49-9041/9071) account for a 4.5% share of total employment within the Food/Beverage Manufacturing industry sub-cluster (Appendix B). Job growth and replacement projections for these occupations show a total regional industry group demand of 31% for these occupations within the CRISP region through the next ten years.

Based on the age demographic in the table 2 shown above, approximately 64 percent of the aggregated Food and Beverage Manufacturing workforce occupying these positions are included in the demographic categories of 45 years or older. **32% of the current workforce in these occupations is 55 years or older and will be near, at, or above retirement age by 2025.**

Historical EMSI/CareerBuilder data shows that in the years 2013-16, there was an average of 1,628 monthly job postings for these occupations in the CRISP region, of which, 368 were unique or non-duplicated postings. **In 2016 alone there were 2,224 average monthly job postings, 486 being unique or non-duplicated.**

Of the employers that participated in an employer staffing survey (see Appendix C), most have responded that on a scale of 1 to 5, 1 being the greatest difficulty, recruitment for these occupations receives a 1 to 2 rating indicating that there is **high difficulty** in filling open positions.

### **Transport & Delivery Jobs (Commercial Truck Drivers)**

Commercial Truck Drivers are considered to be skilled professionals requiring post-secondary educational attainment (industry recognized licensing and endorsements) but also moderate to long term on-the-job training. Commercial Truck Driving jobs (SOC 53-3032) account for a 4.5% share of total employment within the Food/Beverage Manufacturing industry sub-cluster (Appendix B). Job growth and replacement projections for these occupations show a total

regional industry group demand of 31% for these occupations within the CRISP region through the next ten years.

Based on the age demographic in the table 2 shown above, approximately 60 percent of the aggregated Food and Beverage Manufacturing workforce occupying these positions are included in the demographic categories of 45 years or older. **30% of the current workforce in these occupations is 55 years or older and will be near, at, or above retirement age by 2025.**

Historical EMSI/CareerBuilder data shows that in the years 2013-16, there was an average of 76,074 monthly job postings for this occupation in the CRISP region, of which, 6,763 were unique or non-duplicated postings. **In 2016 alone there were 146,357 average monthly job postings, 10,917 being unique or non-duplicated.**

Of the employers that participated in an employer staffing survey (see Appendix C), most have responded that on a scale of 1 to 5, 1 being the greatest difficulty, recruitment for these occupations receives a 1 to 3 rating indicating that there is **high to moderate difficulty** in filling open positions.

### **3. PIPELINE**

As explained in the previous section, Packaging & Filling Machine Operators, Food Batchmakers, and Materials & Stock Handlers are considered entry-level positions that require little more than short to moderate on-the-job training although prior work experience in the industry, which includes safety and quality familiarity, might be helpful and, in some instances, required. Literacy, numeracy, and English language proficiency requirements can also be a factor of concern for employers in recruitment for these occupations. According to the Bureau of Labor Statistics Occupation Outlook Handbook, nationally, employment of food processing workers is projected to grow 2 percent from 2014 to 2024, slower than the average for all occupations. The need to replace workers who leave the occupation should result in many job openings.

Industrial Maintenance/Mechatronics Technicians and Commercial Truck Drivers require much more involved post-secondary training in order to be qualified, effective, and competent in their work. In addition, these occupations will require extensive industry specific certifications and licensure in order to be sanctioned for job performance.

We look now at the supply versus demand balance within the CRISP region for these two highly in-demand and most difficult to recruit occupations.

#### **3.1 The following schools in the CRISP region offer programs in Industrial Maintenance and Mechatronics Technology:**

##### *Berks County*

**Berks Career & Technology Center** – Mechatronics Engineering Technology

**Reading/Muhlenberg Career & Technology Center** – Engineering & Automation Technology

**Reading Area Community College** - Advanced Manufacturing Integrated Systems Technology Program (AMIST); Mechatronics Engineering Technology A.A.S.

Lancaster County

**Lancaster County Career & Technology Center** – Electro-Mechanical Engineering Technology

**Thaddeus Stevens College of Technology** - Electro-Mechanical Technology A.A.S.

Lehigh Valley

**Lehigh Career & Technical Institute** – Electro-Mechanical/Mechatronics Technology

**Lehigh Carbon Community College (LCCC)** - Industrial Automation Certificate/A.A.S.

**Northampton Community College (NCC)** - Electromechanical Technology Automated Systems A.A.S.

When surveyed for their individual school’s five year projections for enrollment and graduation, school representatives responded with the following estimates:

BCTC Enrollment Year	Total Students Enrolled	Total Students Graduated
2016-17 (Projected)	36	15
2017-18 (Projected)	38	17
2018-19 (Projected)	39	18
2019-20 (Projected)	40	19
2020-21 (Projected)	41	20

RMCTC Enrollment Year	Total Students Enrolled	Total Students Graduated
2016-17 (Projected)	31	9
2017-18 (Projected)	40	14
2018-19 (Projected)	40	14
2019-20 (Projected)	40	14
2020-21 (Projected)	40	14

RACC Enrollment Year	Total Students Enrolled	Total Students Graduated*
2016-17 (Projected)	58	8
2017-18 (Projected)	60	8
2018-19 (Projected)	60	8
2019-20 (Projected)	62	8
2020-21 (Projected)	62	8

\*Note: Many students are full-time workers completing the courses of study in their off time so that the term required for full degree program completion could be prolonged.

LCCTC Enrollment Year	Total Students Enrolled	Total Students Graduated
2016-17 (Projected)	52	30
2017-18 (Projected)	57	32
2018-19 (Projected)	60	35
2019-20 (Projected)	65	40
2020-21 (Projected)	70	45

LCTI Enrollment Year	Total Students Enrolled	Total Students Graduated
2016-17 (Projected)	142	38
2017-18 (Projected)	147	51
2018-19 (Projected)	152	46
2019-20 (Projected)	157	47
2020-21 (Projected)	162	47

Thaddeus Stevens Enrollment Year	Total Students Enrolled	Total Students Graduated
2016-17 (Projected)	25	20
2017-18 (Projected)	25	20
2018-19 (Projected)	25	20
2019-20 (Projected)	25	20
2020-21 (Projected)	25	20

Lehigh Carbon Community College reports that for their Industrial Automation, A.A.S. degree program, between 10 and 12 enrollees are presently entering each year and enrollment is growing. Enrollment in certificate programs is also trending upward. Both the A.A.S. degree and certificate programs take students, on average, two years to complete all elements of the curriculum. Northampton Community College reports 11 completers of the A.A.S. program in 2015 and expects a growth rate of 5-10% in the program going forward.

The need to keep increasingly sophisticated machinery functioning and efficient will continue to drive demand for these graduates.

**3.2** There are several training providers for Commercial Driver License (CDL) training within the CRISP region:

Berks County

**Berks Career & Technology Center**

**Berks Technical Institute**

Lancaster County

**Lancaster County Career & Technology Center**

Lehigh Valley

**Lehigh Career & Technical Institute**

**Lehigh Carbon Community College**

**McCann School of Business & Technology**

**Northampton Community College**

**Roadmaster Drivers School**

These providers estimate the average number of successful completers of CDL programs to be, at least, 500 annually in the region. These numbers are expected to stay strong as more and more individuals seek to enter the profession. CDL training continues to trend as the

topmost requested career instruction for individual training accounts in all three Workforce Development Areas.

While the projections for completers of these programs appear sound and able to match an anticipated annual demand for Industrial Maintenance Technician and Commercial Truck Driver occupations over time, it is important to be mindful that employer recruitment for this talent pool will be increasingly competitive since these occupations are valuable in all manufacturing as well across other industries.

#### 4. EMPLOYER FEEDBACK

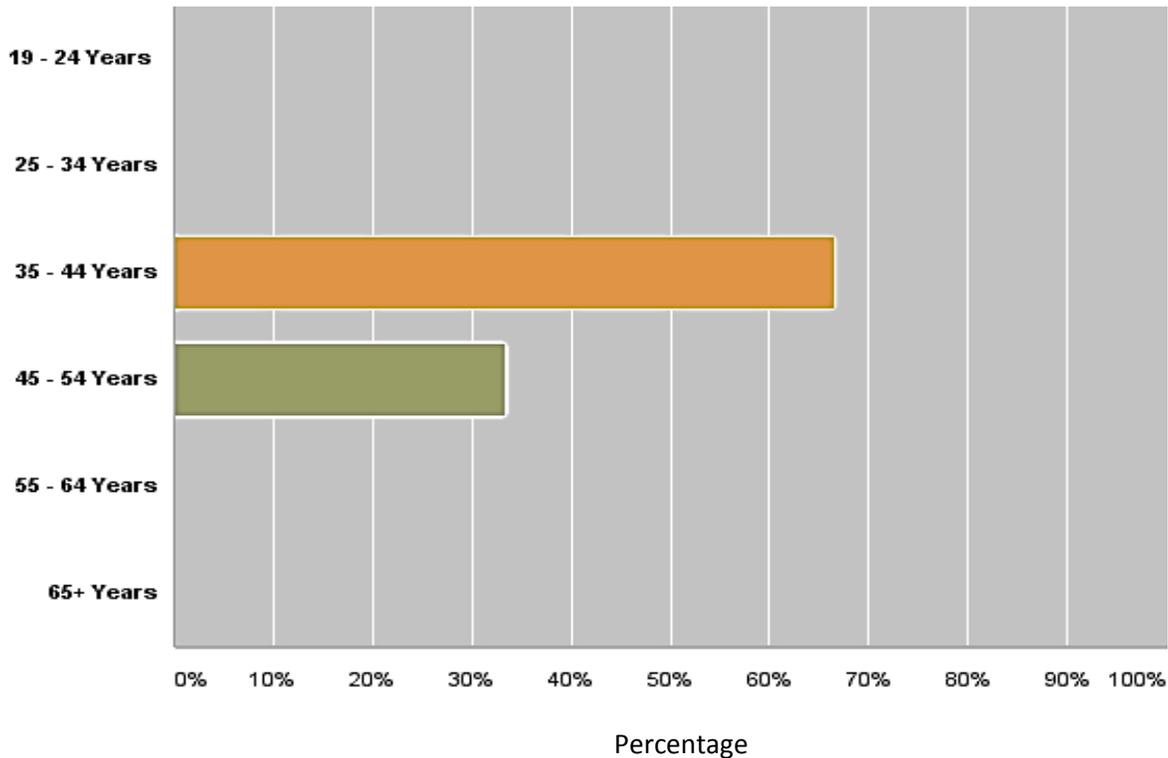
Employers engaged in the manufacture of Food and Beverage within the three WDA regions were surveyed for specific characteristics of their current work force. Twelve respondents or 25% of those surveyed, provided the following information regarding employment and age demographics. The expressed total employment of those employers responding is 3,091 full-time employees. This averages to approximately 18% of the Food and Beverage Manufacturing industry sub-cluster jobs in the CRISP region. Employer survey results can be viewed in whole in Appendix C of this report.

***Question: What are the Food & Beverage Manufacturing Occupations that you currently employ?***

Answer Choices	Average Number	Total Number	Responses
Food/Beverage Processing Jobs (e.g. Batching Operator, Blender, Brewing Technician, Compounder, Scaler and Mixer, Machine Operator, Mixer, Process Operator, Syrup Maker, etc.)	57	572	10
Packaging & Filling Machine Operators Jobs (e.g. Adjuster/Packer, Portioner, Wrapper & Case Packer, Bundler, Closing Machine Operator, Filler Operator, Packaging Operator, Packing Machine Operator, etc.)	72	794	11
Industrial Maintenance Technicians Jobs (e.g. Industrial Machinery Mechanics, Maintenance & Repair Workers, Machinery, Industrial Mechatronics Technician, etc.)	27	300	11
Material & Stock Handling Jobs (Freight, Stock & Material Hand Movers, Forklift, etc.)	30	300	10
Transport & Delivery Jobs (Commercial Truck Drivers)	9	103	12
<b>Total Respondents: 12</b>			

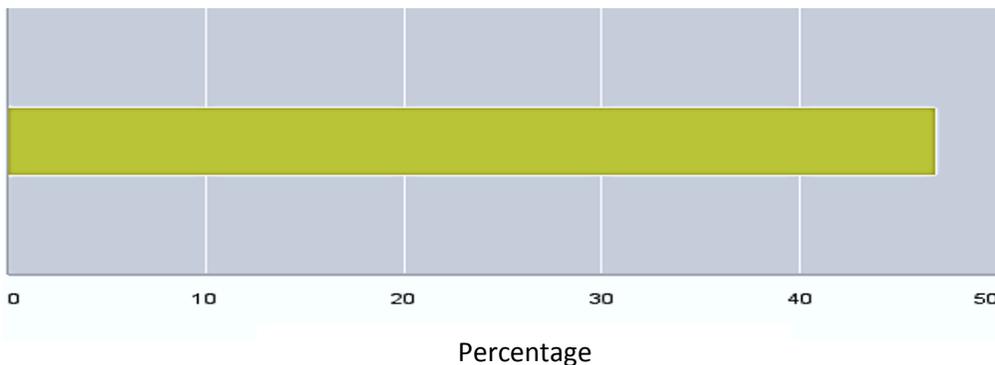
The average number is the employment in each occupation averaged by the number of responding employers. The total number is the total employment in each occupation by all responding employers combined.

**Question: “Roughly 50% of the current Food & Beverage Manufacturing workforce is aged 45 or older. What is the Average Age of your employees?”**



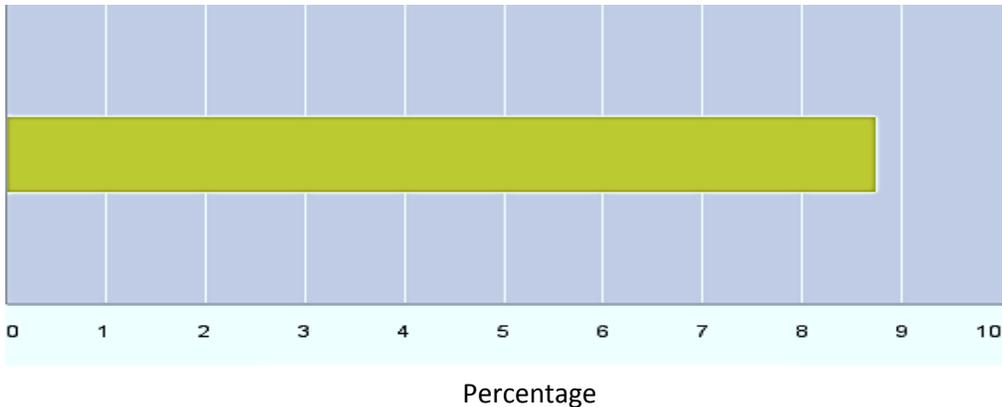
One-third of employers responding to the question of average age of their employees indicated that their current workforce falls within the 45 to 55 year age demographic.

**Question: “What Percentage of employees is over age 45?”**



In order to ascertain a clearer understanding of their workforce characteristics, employers were also asked to gauge the percentage of their current workforce over age 45. The twelve employers responded that 47% of their workers are included in this distribution confirming the relevance of this baseline age demographic.

**Question: “What Percentage of employees is under age 25?”**



Compounding the age issue is the number of younger new entrants into the Food and Beverage Manufacturing workforce. When asked to gauge the percentage of their current workforce age 25 years or younger, the same twelve employers responded that slightly less than 9% fall into this younger, entry-level age demographic.

**Question: “Based on the degree of difficulty you have indicated in filling positions, please share any anecdotal information you may have on the job readiness issues you have faced or anticipate facing in new-hire recruitment and/or forecasted replacements?”**

**Anecdotal Responses:**

- “We can't find people with the required experience and have begun to develop internal training programs.”
- “We have lots of applicants with no manufacturing, farming, military, or similar experience”
- “There is alot (sic) of competition in the trades although there is no one going into the trades anymore.”
- “It's difficult right now finding individuals with good work ethics”
- “CDL Shortage, Qualified/Certified mechanical experience”
- (Candidates lack) “solid work history”
- “People don't want to work weekends or holidays or the majority wants 8 to 5 schedule. Specially (sic) the millennium generation.”
- “Shortage of candidates with required mechanical and electro-mechanical skills; lack of adequate basic math skills; lack of valid driver's license.”

**Question: “In the past two years, have you made any significant changes to pay and/or benefits in order to attract or retain talent in the survey occupations?”**

### **Anecdotal Responses**

- “Yes - we have increased the rates for mechanics and compounders to attract and retain qualified candidates and employees.”
- “We have lowered the required time in the above (minimum experience required) to 6 months and have opened up to include ‘or similar experience’”
- “We have a union contract”
- “No, other than annual increases”
- “Increased wages in Shipping and Utility departments”
- “No”
- “Entry level pay increases for all positions.”
  
- Employer “A” responded that his company has increased overtime due to a customer request to increase product shipment in order to avoid the possibility of stock depletion in anticipation of the seasonal demand for their product line. This has put a strain on their current production workforce. OJT for new employees is not feasible due to increased production requirements so that new employees must have some essential skills at the time of hire. Maintenance activity is at a lion’s pace in order to insure rapid changeover and equipment functionality. This strain is also being felt by their upstream suppliers to increase speed and capacity of packaging product required for downstream delivery.

## 5. CONCLUSIONS

The purpose of this strategic report is to provide research into and analysis of common workforce strengths and critical talent challenges in the four county Crescent Regional Industry Sector Partnership (CRISP) region.

Traded (a/k/a basic) industries are critical to economic development because they bring in revenues from outside customers and support local non-basic businesses. In short, they draw wealth from outside the region promoting economic expansion and prosperity within the region. A regional cost of living index 1.5% lower than the national average, competitive wages compared to southeast Pennsylvania and the nation, a strong In-Region Supplier Location Quotient<sup>4</sup> of 1.75 (34%), and its close geographic proximity to a customer market of over 100 million consumers showcases the CRISP region as one that has the potential for attracting new businesses to its traded manufacturing industries. Such industry attraction and continued industry retention provide greater economic strength that will positively affect growth in employment, private sector investments, and urban development that can increase local tax bases.

The CRISP consortium has a common, high-demand industry sector strength in **Food and Beverage Manufacturing**. As the most significant traded cluster shared across the region with nearly 13,000 high paying manufacturing jobs, the Food and Beverage Manufacturing Industry accounts for 16% of the total annual economic impact from all manufacturing in the CRISP region. In addition to its wealth generating potential, a Location Quotient almost 2½ times the national industry average demonstrates this cluster's importance to the employment base across the three Workforce Development Areas.

However, with this strength also comes some common industry supply versus demand occupational job placement challenges. Within the Food and Beverage Industry Sector there are high demand occupations which are critical to the sector and currently are going unfilled.

Recruitment of targeted high-priority occupations, particularly **Industrial Maintenance Technician** and **Commercial Truck Driving** occupations is especially challenging to employers as evidenced by the recruiting and hiring degree of difficulty ratings expressed in this report. The talent pipeline for new entrants into these occupations currently falls short and is not projected to meet employer demand at the increasingly rapid pace that new technology and expanding markets will require. For example, it is estimated that for every company making a capital expenditure of \$1 million investing in new automated equipment, the addition of up to four workers to run and maintain the equipment is required<sup>5</sup>.

Compounding this issue is the need to focus on sustaining the current industry occupational employment that will be affected by projected natural attrition of the CRISP Food and Beverage Manufacturing workforce that will be near, at, or above retirement age in the next 10 years. Employers responding to our cluster research survey with their projected job opening numbers through 2020 indicate that 90% of Industrial Maintenance Technician and 100% of Commercial Truck Driver job openings will be replacement jobs.

4. Source: JobsEQ® Supply Chain. Food/Beverage Manufacture in-region supplier LQ equals 2.20 combined. 52% of the CRISP Food Manufacture supply chain is purchased from in-region firms.

5. Source: JobsEQ® Economic Impact Model

- While the region is well resourced with training programs and providers, enrollment challenges and method of delivery flexibility issues exist with regard to quality and quantity. Development of alternative training solutions, such as flexible schedule and shorter-term, accelerated training leading to credentialing, and hybrid educational systems could shorten the learning curve resulting in more rapid placement of qualified new entrants and address the “off-the- job release time” necessary for the up-skill training or retraining of incumbent workers. In alignment to skills levels needed by employers in this industry, micro-credential training and digital badges may be an option to satisfy a need for short-term training. This will require a more cohesive employer/educator involvement in career promotion to fill current open seat capacity with more and better matched students/trainees.
- Workforce and economic development agencies must continuously and systematically analyze the availability of key manufacturing skills in the region by engaging the involvement and input of employers through Manufacturing Sector Industry Partnerships. A regional Food and Beverage Manufacturing Industry Partnership initiative could prove advantageous to the competitive growth of this CRISP industry and its recognition as a national pantry for food and beverage related production.

These agencies should showcase career pathways in critical occupations within the industry so that adults, dislocated workers, youth, workforce system professionals, training providers, educational institutions and the community are aware of high-demand occupations and the training they require, whether the training consists of OJT, credentials, certificates, and other innovative, non-traditional accelerated training.

- Viewing the CRISP consortium as a regional enterprise, it is important to build on the success of initiatives that the Workforce Development Boards have already inaugurated, such as...
  - The largest of the three Workforce Development Areas by population and economic output, the Lehigh Valley crests the CRISP region.

The **Lehigh Valley Workforce Development Board** has implemented several career pathways and job readiness initiatives to build a workforce pipeline. Examples include the Rotational Internship Network where students rotate between multiple companies in paid internships to gain real-world work experience leading to employment, apprenticeships, and continuing education. Career Pathways, including toolkits developed for Manufacturing and Logistics, are used by the workforce system to advise job seekers, by education to align curriculum, and by youth programming to increase career awareness. Furthermore, career pathways have been institutionalized throughout Lehigh Valley's school districts. One effort to operationalize career pathways occurred when teachers and guidance counselors stepped into businesses through the Summer Educator Externship Program and then developed curriculum as a result of their experiences.

Lehigh Valley employers have stepped into education by teaching careers classes in high schools as evidenced by the B. Braun Medical Inc. partnership with Catasauqua

High School, hosting plant tours, job shadowing, mentoring and serving on Occupational Advisory Councils, to name a few. These initiatives continue to be facilitated by the Lehigh Valley Workforce Development Board as the business engagement intermediary.

LWVDB partnered with Lehigh Career & Technical Institute, Lehigh Carbon Community College and Bloomsburg University to create a Bachelors of Applied Science in Technical Leadership (BASTL). Through program articulation, students earn college credit towards an Associate's degree in Applied Science while in high school. Once the AAS degree is received, students are guaranteed admission to Bloomsburg University and transfer at least 60 credit hours of study from any of over 50 majors. The BASTL program makes career and technical education a seamless college prep track of education.

Under the recently-awarded Strategic Innovation Grant, LWVDB is developing a common Career Pathways Model for businesses and training and community service providers, piloting a Careers Class and a Career Readiness Credential with Digital Badges, developing a Regional Workforce Supply and Demand Data Analysis of Lehigh Valley's workforce and talent supply, and establishing an Employer Engagement Center at PA CareerLink® Lehigh Valley.

To close skills gaps within the Transportation Sector, LWVDB held a CDL Roundtable attended by more than 60 employers to discuss regulations impacting the industry and strategies to attract, recruit and retain workers for this high-demand occupation. Outcomes included the need for clearer expectations and awareness of transportation jobs and career pathways, improved image of the industry, increased hands-on work experience, alignment of curricula to industry standards, increased employer engagement in education and workforce development, and development of a day-in-the-life video for job seekers.

More than 4,000 high school students, including those attending career and technical schools, have participated in LWVDB's CareerLinking Academy, a weeklong career awareness and preparation model designed to provide high school students a structured program of career exploration and interests to directly link students to the world of work, continuing education and training in high priority occupations within targeted industry clusters. The CareerLinking Academy is a flexible career awareness model that is either implemented as a weeklong summer program for rising high school seniors, or can be integrated throughout the year in the school's curriculum such as business classes.

The CareerLinking Academy curriculum includes career awareness activities, interest assessments, continuing education options, leadership skills, job and labor market information, mock interviewing skills and resume preparation, cover letters, briefs, job applications, interviewing techniques, interests, employer needs and expectations, company tours, job shadowing opportunities, tours of career and technical schools and colleges, and PA CareerLink® registration. The award-winning CareerLinking Academy

is aligned to the Pennsylvania Department of Education's Academic Standards in Career Education and Work, adheres to federal, state, and local career education initiatives, is approved by school districts to be used as a class or senior graduation project, and is an Educational Improvement Tax Credit program.

To align industry needs with education to develop a pipeline of workers, LVWDB continues to engage businesses to serve on education's Occupational Advisory Committees to provide industry guidance on curriculum for training in high demand sectors such as manufacturing and transportation. When career and technical schools apply for Equipment Grants from the state, LVWDB signs off on the equipment requests to ensure that they are aligned to industry needs.

- Based on its location at the center of the CRISP region, Berks County is a keystone at the arc of the crescent.

The **Berks County Workforce Development Board** has initiated the development of career pathway flowcharts that are directly relational to career advancement and wage progression for defined High Priority Occupations. These career pathways are now in use by the CareerLink Business Services and Young Adult Teams to assist employers providing OJT and work experience with mapping their own internal career paths.

The Berks and Reading/Muhlenberg CTCs, with the strong support of the Berks County WDB, have entered into articulation agreements with Reading Area Community College (RACC) that created Mechatronics Technical Academies, whereby, Berks County CTC students can earn 27 college credits in RACC's Mechatronics Engineering Technology A.A.S. program while still in high school. Enrollment in the Mechatronics Technical Academies has grown steadily since their launch five years ago. The RACC/CTC technical academy pathway provides a 2+2+2 articulation model that allows students to progress seamlessly from the secondary CTC, to RACC's Associate of Applied Science, to Bloomsburg University's Technical Leadership B.A.S. (BASTL) or California University of PA's Technology Management B.S. degree programs, as well as separate articulated agreements in Bachelor of Science engineering programs at Penn State University and Purdue University-Calumet.

The Berks County Advanced Manufacturing Industry Partnership (AM IP) has acknowledged Industrial Maintenance Technician as a critical occupation warranting greater youth talent pipeline awareness and many industry partners are actively involved in the educational/industry alignment. As part of a long-term industry partnership training plan, the AM IP adopted Industrial Maintenance/Mechatronics training as one of its paramount priority incumbent worker upskilling strategies.

Berks Career & Technology Center, one of two local Berks Commercial Driver License (CDL) training providers recognizing the severe shortages of licensed professional drivers, has heard the pleas of transportation industry employers and augmented their CDL program with the 2016 launch of a Spanish speaking curriculum that can tap into the significant local Latino population as a source for filling the CDL occupation gap.

Using Strategic Innovation Grants, the Greater Reading-Lancaster Partnership for Youth Careers provides paid summer internships for Berks, Reading/Muhlenberg, and Lancaster Career & Technology Center (CTC) students to gain valuable workplace experience in jobs related to their field of study, including mechatronics, during the summer of 2016. Following the pilot program's great success, the partnership has received additional grant funds to sustain this work-based learning initiative in the coming year that will also expand the initiative to enable CTC students to move up targeted career/education pathways by assisting students with the cost of college credits at Reading Area Community College, Thaddeus Stevens College, and Harrisburg Area Community College while still in high school.

- Slightly larger than Berks in size and population, Lancaster County anchors the southern edge of the CRISP region. The **Lancaster County Workforce Development Board** offers many of the same resources as the Lehigh Valley and Berks WDBs.

Partnerships with local training providers and high schools allow for work experience and career exposure activities for high school students. High Schools employ exposure to career pathways and many local employers use career pathways in their recruitment process.

Participation in the Strategic Innovation Grants in conjunction with the Berks County WDB has afforded local youth with work experience and career readiness. The Business Education Partnership Grant allowed high school seniors to participate in Ready2Work as well as occupational skill training that led to employment for five students who otherwise had no post-high school plan.

- On a larger scale, local and regional alignment with PA Department of Agriculture state-wide food manufacturing High Priority Occupation career awareness initiatives should be investigated with the intent to tap into Commonwealth resources that will support skilled-occupation education for entry level candidates and up-skilling of incumbent workers.

Collaboration in and coordination of initiatives like the examples of local Workforce Development Board activities shown above, along with new and innovative ways of engaging workforce and economic stakeholders in the effort, can serve to ameliorate employer success across all three Workforce Development Areas who continue to be challenged in meeting their needs for skilled Industrial Maintenance Technician and Commercial Truck Driver talent on their own.

Food and Beverage Manufacturing employers unable to recruit and develop the necessary talent will forfeit the opportunity for growth in customer orders or not receive appropriate return on investment in new technology and equipment. Even worse, existing companies may choose to relocate in search of the economic and workforce support that will sustain their competitiveness.

The CRISP regional consortium has the ability to improve the workforce outlook of the Food and Beverage Manufacturing Industry Sector. This strategic workforce development focus will,

in turn, enhance regional economic development in this manufacturing sector by attracting US and international companies who consider the region as an appealing labor shed.

This report has amplified specific and revealing conclusions including the most conspicuous finding, that the Food and Beverage Manufacturing Industry merits even more examination into its status within regional, state, national, and global markets.

Exhibit 4.1: Health Diagnosing and Treating Practitioner Occupation Gaps per Annum

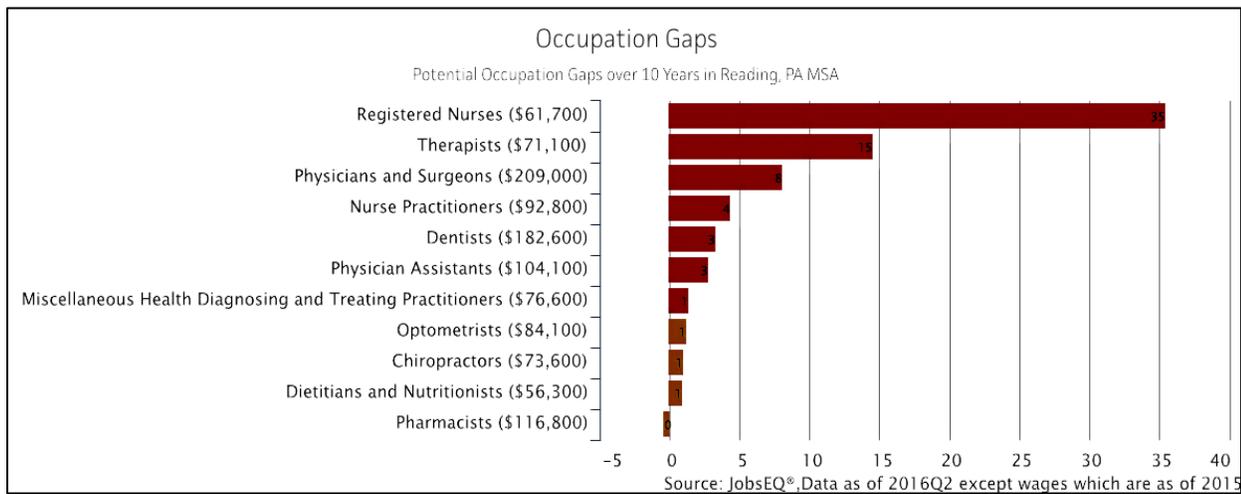


Exhibit 4.2: Health Technologist and Technician Occupation Gaps per Annum

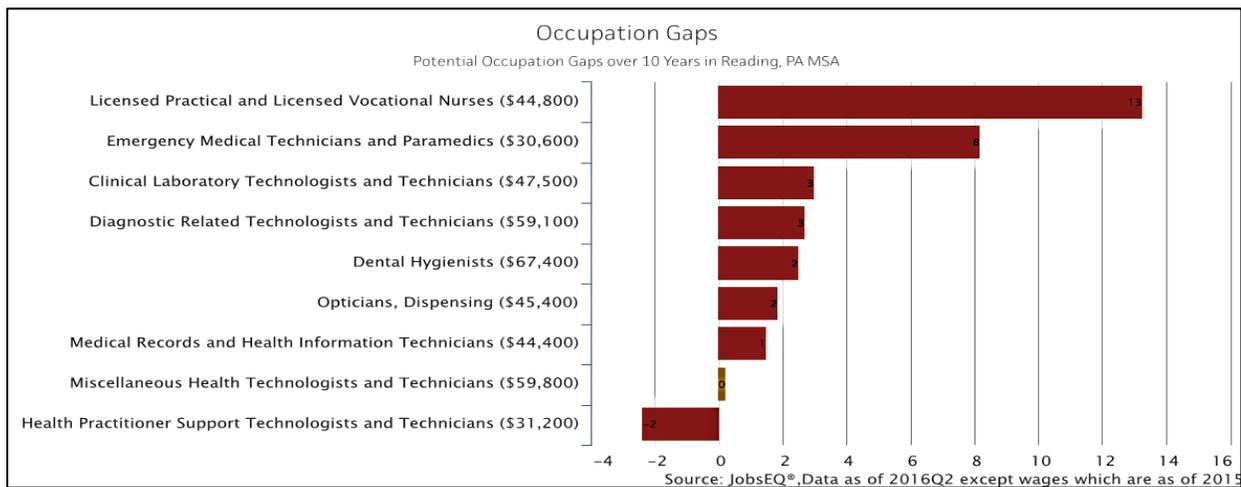
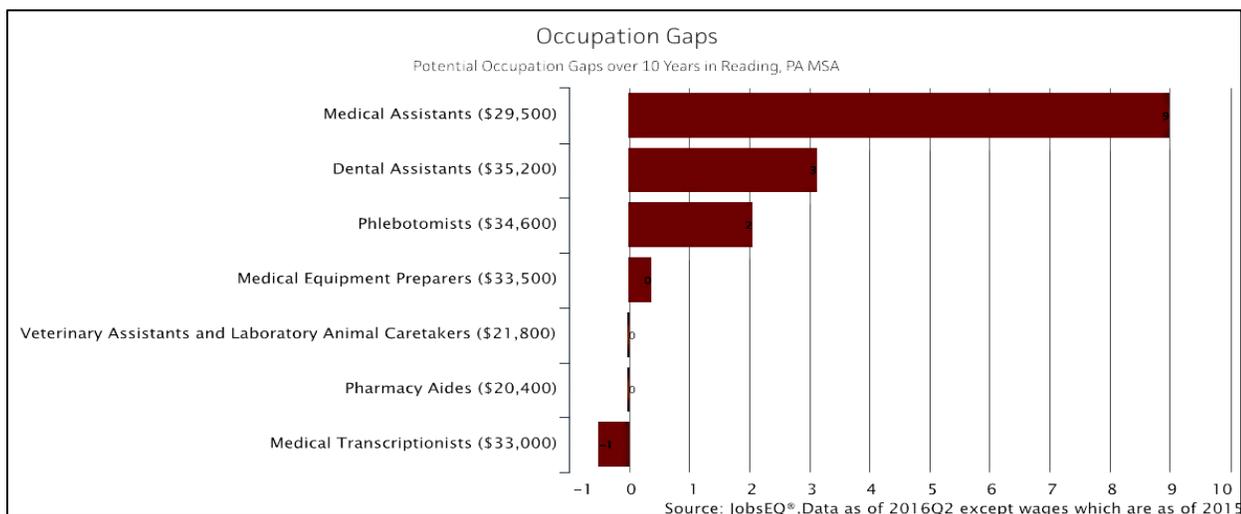


Exhibit 4.3: Healthcare Support Occupation Gaps per Annum



**Berks County Workforce Development Area**

**Occupational Jobs across All Industries**

Age Group	49-9041		49-9043		49-9071		Industrial Maintenance Technicians		51-3092		51-9111		53-3032		53-7051		53-7062		Industrial Truck and Tractor Operators & Laborers and Freight, Stock, and Material Movers, Hand	
	Industrial Machinery Mechanics		Maintenance Workers, Machinery		Maintenance and Repair Workers, General				Food Batchmakers		Packaging and Filling Machine Operators and Tenders		Heavy and Tractor-Trailer Truck Drivers		Industrial Truck and Tractor Operators		Laborers and Freight, Stock, and Material Movers, Hand			
Age 14-18	0	0.0%	0	0.0%	6	0.3%	6	0.2%	4	1.2%	3	0.7%	3	0.1%	3	0.2%	124	2.3%	127	1.8%
Age 19-21	4	0.7%	11	1.8%	29	1.6%	43	1.4%	11	3.4%	19	4.5%	25	1.1%	60	3.4%	447	8.2%	507	7.1%
Age 22-24	12	2.0%	25	4.2%	51	2.8%	88	2.9%	17	5.1%	25	6.1%	57	2.4%	109	6.2%	475	8.8%	584	8.1%
Age 25-34	71	12.2%	84	13.9%	242	13.2%	397	13.2%	59	18.3%	79	19.1%	300	12.4%	399	22.7%	1,149	21.2%	1,548	21.6%
Age 35-44	109	18.6%	105	17.3%	344	18.8%	558	18.5%	71	21.8%	84	20.3%	530	22.0%	381	21.7%	1,001	18.5%	1,383	19.3%
Age 45-54	197	33.7%	197	32.7%	567	31.0%	961	31.9%	95	29.3%	114	27.6%	740	30.8%	463	26.3%	1,187	21.9%	1,650	23.0%
Age 55-64	168	28.8%	162	26.8%	466	25.5%	796	26.4%	55	16.9%	72	17.5%	578	24.0%	300	17.1%	810	15.0%	1,110	15.5%
Age 65+	22	3.7%	19	3.2%	125	6.8%	166	5.5%	13	3.9%	17	4.1%	172	7.2%	40	2.3%	224	4.1%	264	3.7%
<b>Total Jobs</b>	<b>585</b>	<b>100.0%</b>	<b>604</b>	<b>100.0%</b>	<b>1,829</b>	<b>100.0%</b>	<b>3,018</b>	<b>100.0%</b>	<b>325</b>	<b>100.0%</b>	<b>413</b>	<b>100.0%</b>	<b>2,406</b>	<b>100.0%</b>	<b>1,756</b>	<b>100.0%</b>	<b>5,417</b>	<b>100.0%</b>	<b>7,173</b>	<b>100.0%</b>

Jobs based on 2016 estimates

**Lancaster County Workforce Development Area**

**Occupational Jobs across All Industries**

Age Group	49-9041		49-9043		49-9071		Industrial Maintenance Technicians		51-3092		51-9111		53-3032		53-7051		53-7062		Industrial Truck and Tractor Operators & Laborers and Freight, Stock, and Material Movers, Hand	
	Industrial Machinery Mechanics		Maintenance Workers, Machinery		Maintenance and Repair Workers, General				Food Batchmakers		Packaging and Filling Machine Operators and Tenders		Heavy and Tractor-Trailer Truck Drivers		Industrial Truck and Tractor Operators		Laborers and Freight, Stock, and Material Movers, Hand			
Age 14-18	3	0.3%	1	0.5%	17	0.6%	21	0.5%	31	3.5%	15	1.6%	18	0.4%	6	0.5%	274	4.3%	280	3.6%
Age 19-21	12	1.4%	5	2.3%	54	1.8%	71	1.7%	63	7.1%	63	6.7%	68	1.4%	47	3.5%	534	8.4%	581	7.5%
Age 22-24	23	2.6%	7	3.3%	82	2.8%	112	2.7%	55	6.3%	56	6.0%	138	2.9%	81	6.1%	544	8.5%	624	8.1%
Age 25-34	116	13.2%	32	15.1%	391	13.1%	540	13.2%	162	18.3%	166	17.7%	652	13.9%	321	24.1%	1,335	20.9%	1,655	21.5%
Age 35-44	171	19.4%	40	18.5%	544	18.2%	755	18.5%	177	20.0%	183	19.6%	972	20.7%	288	21.6%	1,118	17.5%	1,406	18.2%
Age 45-54	278	31.5%	65	30.2%	870	29.1%	1,213	29.7%	219	24.7%	242	25.9%	1,341	28.5%	334	25.0%	1,317	20.7%	1,651	21.4%
Age 55-64	234	26.5%	55	25.8%	778	26.0%	1,067	26.1%	145	16.3%	169	18.1%	1,084	23.0%	223	16.8%	937	14.7%	1,161	15.1%
Age 65+	44	5.0%	9	4.2%	254	8.5%	307	7.5%	33	3.8%	42	4.5%	432	9.2%	33	2.5%	314	4.9%	346	4.5%
<b>Total Jobs</b>	<b>882</b>	<b>100.0%</b>	<b>215</b>	<b>100.0%</b>	<b>2,991</b>	<b>100.0%</b>	<b>4,088</b>	<b>100.0%</b>	<b>885</b>	<b>100.0%</b>	<b>937</b>	<b>100.0%</b>	<b>4,706</b>	<b>100.0%</b>	<b>1,332</b>	<b>100.0%</b>	<b>6,373</b>	<b>100.0%</b>	<b>7,705</b>	<b>100.0%</b>

Jobs based on 2016 estimates

## Lehigh Valley Workforce Development Area

### Occupational Jobs across All Industries

Age Group	49-9041		49-9043		49-9071		Industrial Maintenance Technicians	51-3092		51-9111		53-3032		53-7051		53-7062		Industrial Truck and Tractor Operators & Laborers and Freight, Stock, and Material Movers, Hand		
	Industrial Machinery Mechanics		Maintenance Workers, Machinery		Maintenance and Repair Workers, General			Food Batchmakers		Packaging and Filling Machine Operators and Tenders		Heavy and Tractor-Trailer Truck Drivers		Industrial Truck and Tractor Operators		Laborers and Freight, Stock, and Material Movers, Hand				
Age 14-18	2	0.2%	1	0.2%	8	0.2%	11	0.2%	4	0.9%	15	0.9%	5	0.1%	6	0.2%	206	1.8%	212	1.4%
Age 19-21	9	0.8%	7	1.7%	44	1.4%	60	1.3%	14	3.3%	80	4.7%	49	0.9%	105	3.1%	921	7.9%	1,026	6.8%
Age 22-24	24	2.2%	13	3.3%	86	2.6%	123	2.6%	22	5.1%	112	6.6%	143	2.5%	252	7.3%	1,168	10.0%	1,420	9.4%
Age 25-34	144	13.3%	61	15.1%	436	13.5%	640	13.6%	84	19.5%	372	21.9%	832	14.7%	1,026	29.8%	2,964	25.4%	3,990	26.4%
Age 35-44	214	19.8%	81	20.1%	614	19.0%	909	19.3%	96	22.1%	380	22.4%	1,312	23.3%	786	22.9%	2,266	19.4%	3,052	20.2%
Age 45-54	353	32.8%	127	31.4%	1,006	31.1%	1,486	31.5%	108	25.1%	420	24.7%	1,726	30.6%	761	22.1%	2,328	20.0%	3,089	20.5%
Age 55-64	291	27.0%	101	25.1%	834	25.8%	1,226	26.0%	87	20.1%	268	15.8%	1,265	22.4%	452	13.1%	1,445	12.4%	1,898	12.6%
Age 65+	42	3.9%	13	3.1%	209	6.5%	263	5.6%	17	3.9%	50	2.9%	311	5.5%	52	1.5%	357	3.1%	409	2.7%
<b>Total Jobs</b>	<b>1,077</b>	<b>100.0%</b>	<b>404</b>	<b>100.0%</b>	<b>3,236</b>	<b>100.0%</b>	<b>4,717</b>	<b>100.0%</b>	<b>432</b>	<b>100.0%</b>	<b>1,697</b>	<b>100.0%</b>	<b>5,644</b>	<b>100.0%</b>	<b>3,440</b>	<b>100.0%</b>	<b>11,654</b>	<b>100.0%</b>	<b>15,094</b>	<b>100.0%</b>

Jobs based on 2016 estimates

## Berks County, Lancaster County, and Lehigh Valley Workforce Development Areas

### Occupational Jobs across All Industries

Age Group	49-9041		49-9043		49-9071		Industrial Maintenance Technicians	51-3092		51-9111		53-3032		53-7051		53-7062		Industrial Truck and Tractor Operators & Laborers and Freight, Stock, and Material Movers, Hand		
	Industrial Machinery Mechanics		Maintenance Workers, Machinery		Maintenance and Repair Workers, General			Food Batchmakers		Packaging and Filling Machine Operators and Tenders		Heavy and Tractor-Trailer Truck Drivers		Industrial Truck and Tractor Operators		Laborers and Freight, Stock, and Material Movers, Hand				
Age 14-18	6	0.2%	3	0.2%	31	0.4%	40	0.3%	39	2.4%	33	1.1%	26	0.2%	16	0.2%	604	2.6%	619	2.1%
Age 19-21	27	1.0%	22	1.8%	127	1.6%	176	1.5%	88	5.4%	162	5.3%	143	1.1%	213	3.3%	1,901	8.1%	2,114	7.1%
Age 22-24	58	2.3%	46	3.8%	219	2.7%	323	2.7%	94	5.7%	194	6.4%	338	2.6%	442	6.8%	2,186	9.3%	2,628	8.8%
Age 25-34	331	13.0%	177	14.5%	1,069	13.3%	1,578	13.3%	306	18.6%	617	20.2%	1,784	14.0%	1,746	26.7%	5,448	23.2%	7,193	24.0%
Age 35-44	494	19.4%	225	18.4%	1,503	18.7%	2,222	18.8%	344	20.9%	648	21.3%	2,815	22.1%	1,455	22.3%	4,385	18.7%	5,841	19.5%
Age 45-54	828	32.6%	389	31.8%	2,443	30.3%	3,660	31.0%	422	25.7%	776	25.5%	3,807	29.8%	1,557	23.9%	4,832	20.6%	6,389	21.3%
Age 55-64	693	27.2%	319	26.1%	2,078	25.8%	3,089	26.1%	287	17.5%	509	16.7%	2,927	23.0%	976	14.9%	3,193	13.6%	4,169	13.9%
Age 65+	107	4.2%	41	3.3%	588	7.3%	736	6.2%	63	3.8%	108	3.6%	916	7.2%	125	1.9%	895	3.8%	1,019	3.4%
<b>Total Jobs</b>	<b>2,545</b>	<b>100%</b>	<b>1,222</b>	<b>100%</b>	<b>8,057</b>	<b>100%</b>	<b>11,823</b>	<b>100%</b>	<b>1,642</b>	<b>100%</b>	<b>3,048</b>	<b>100%</b>	<b>12,756</b>	<b>100%</b>	<b>6,529</b>	<b>100%</b>	<b>23,444</b>	<b>100%</b>	<b>29,973</b>	<b>100%</b>

Jobs based on 2016 estimates

## Appendix A: Food/Beverage Manufacturing, Covered Employment in CRISP Region

NAICS	Industry	Current	Forecast	Current	Forecast	Current	Forecast	Current	Forecast
		CRISP	10 Year	Berks	10 Year	Lancaster	10 Year	Lehigh Valley	10 Year
		Employment	Total Approx Repl Demand	Employment	Total Approx Repl Demand	Employment	Total Approx Repl Demand	Employment	Total Approx Repl Demand
311-312	Food/Beverage Total	16,546	4,122	3,901	965	7,633	1,907	5,012	1,254
311812	Commercial Bakeries	1,462	384	188	49	1,021	269	252	67
311340	Non-chocolate Confectionery Manufacturing	1,193	298	21	5	778	194	394	99
312112	Bottled Water Manufacturing	1,068	268	195	49	0	0	873	219
311352	Confectionery Manufacturing from Purchased Chocolate	1,006	248	740	182	99	25	166	41
311615	Poultry Processing	971	233	237	57	715	172	19	5
311612	Meat Processed from Carcasses	893	214	269	64	624	150	0	0
311919	Other Snack Food Manufacturing	861	216	236	59	319	80	306	78
312120	Breweries	817	205	33	8	103	26	681	171
311813	Frozen Cakes, Pies, and Other Pastries Manufacturing	778	203	635	165	109	29	34	9
311520	Ice Cream and Frozen Dessert Manufacturing	688	174	6	1	682	173	0	0
311351	Chocolate and Confectionery Manufacturing from Cacao Beans	676	167	339	84	337	84	0	0
312111	Soft Drink Manufacturing	671	168	62	15	0	0	609	153
311111	Dog and Cat Food Manufacturing	628	148	0	0	16	4	612	144
311421	Fruit and Vegetable Canning	606	142	380	89	226	53	0	0
311119	Other Animal Food Manufacturing	524	123	67	16	420	99	37	9
311230	Breakfast Cereal Manufacturing	449	110	0	0	449	110	0	0
311513	Cheese Manufacturing	391	99	0	0	377	95	14	3
311991	Perishable Prepared Food Manufacturing	354	89	0	0	227	57	127	32
311811	Retail Bakeries	353	93	79	20	117	31	158	41
311941	Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing	253	63	13	3	0	0	171	43
311824	Dry Pasta, Dough, and Flour Mixes Manufacturing from Purchased Flour	252	66	0	0	252	66	0	0
311511	Fluid Milk Manufacturing	236	60	99	25	125	32	12	3
311930	Flavoring Syrup and Concentrate Manufacturing	224	56	0	0	0	0	224	56
311942	Spice and Extract Manufacturing	181	46	0	0	131	33	50	13
311514	Dry, Condensed, and Evaporated Dairy Product Manufacturing	177	44	177	44	0	0	0	0
312130	Wineries	177	44	31	8	75	19	70	18
311611	Animal (except Poultry) Slaughtering	163	39	23	5	65	16	75	18
311211	Flour Milling	119	29	14	3	66	16	39	10
311411	Frozen Fruit, Juice, and Vegetable Manufacturing	114	27	0	0	55	13	58	14
311613	Rendering and Meat Byproduct Processing	100	24	0	0	100	24	0	0
311911	Roasted Nuts and Peanut Butter Manufacturing	59	15	43	11	16	4	0	0
311999	All Other Miscellaneous Food Manufacturing	46	12	13	3	10	3	23	6
311920	Coffee and Tea Manufacturing	20	5	0	0	20	5	0	0
312113	Ice Manufacturing	15	4	0	0	15	4	0	0
311821	Cookie and Cracker Manufacturing	12	3	0	0	12	3	0	0
311225	Fats and Oils Refining and Blending	7	2	0	0	0	0	7	2
311412	Frozen Specialty Food Manufacturing	2	0	0	0	0	0	2	0
312140	Distilleries	2	1	0	0	2	1	0	0

Source: JobsEQ® Data as of 2016Q2

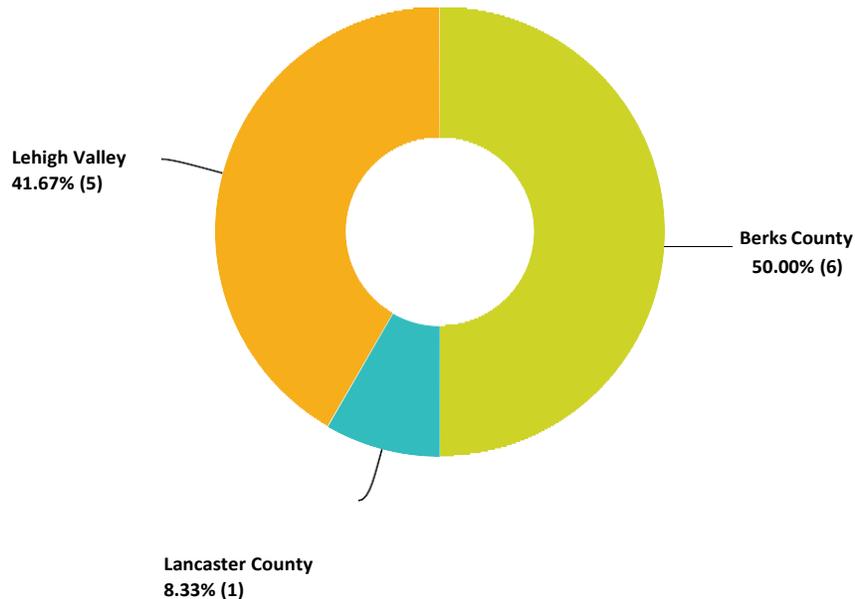
## Appendix B: 10-Year Industry/Occupation Mix for Food/Beverage Mfg., CRISP Region, Top 25 Baseline

Indicates High Priority		Current CRISP			Forecast			Current Berks			Forecast			Current Lancaster			Forecast			Current Lehigh Valley			Forecast		
SOC	Title	Employment	10-Year Net Total Demand	% Demand	Employment	10-Year Net Total Demand	% Demand	Employment	10-Year Net Total Demand	% Demand	Employment	10-Year Net Total Demand	% Demand	Employment	10-Year Net Total Demand	% Demand	Employment	10-Year Net Total Demand	% Demand	Employment	10-Year Net Total Demand	% Demand			
	<b>Total</b>	<b>16,546</b>	<b>3,707</b>	<b>22.4%</b>	<b>3,901</b>	<b>744</b>	<b>19.1%</b>	<b>7,633</b>	<b>1,671</b>	<b>21.9%</b>	<b>5,012</b>	<b>1,292</b>	<b>25.8%</b>												
51-9111	Packaging and Filling Machine Operators and Tenders	1,511	478	31.6%	334	93	27.8%	666	207	31.0%	511	179	34.9%												
51-3092	Food Batchmakers	1,282	266	20.8%	368	64	17.3%	654	141	21.6%	260	61	23.6%												
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	632	171	27.1%	136	32	23.5%	291	78	26.7%	206	62	30.0%												
49-9041	Industrial Machinery Mechanics	386	159	41.3%	91	34	36.7%	174	71	40.7%	120	55	45.6%												
53-7064	Packers and Packagers, Hand	737	149	20.2%	212	35	16.5%	369	77	20.9%	157	37	23.4%												
53-7051	Industrial Truck and Tractor Operators	439	109	24.9%	93	20	21.2%	187	45	24.3%	159	44	27.9%												
51-3011	Bakers	528	107	20.2%	164	31	18.6%	278	58	20.8%	86	18	21.4%												
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	299	102	34.0%	49	15	30.0%	93	30	31.8%	156	57	36.6%												
51-9198	Helpers--Production Workers	518	101	19.5%	142	23	16.5%	261	52	20.0%	116	26	22.2%												
51-3023	Slaughterers and Meat Packers	361	73	20.1%	89	16	18.4%	254	53	20.6%	18	4	20.6%												
49-9071	Maintenance and Repair Workers, General	355	72	20.4%	84	14	16.9%	174	36	20.4%	97	23	23.5%												
51-1011	First-Line Supervisors of Production and Operating Workers	537	71	13.2%	124	12	10.0%	262	34	13.0%	152	24	16.1%												
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	456	65	14.3%	113	14	12.7%	321	47	14.8%	22	3	15.2%												
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	292	65	22.3%	67	13	19.0%	137	30	21.9%	88	22	25.4%												
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	288	64	22.2%	42	8	19.4%	116	25	21.5%	130	31	23.7%												
43-5081	Stock Clerks and Order Fillers	187	55	29.3%	39	10	25.1%	67	19	28.0%	81	26	32.5%												
51-3093	Food Cooking Machine Operators and Tenders	287	52	18.2%	74	11	14.6%	149	27	18.3%	63	14	22.1%												
41-4012	Sales Representatives, Wholesale and Manufacturing	300	51	17.0%	53	7	13.5%	93	15	15.6%	154	29	19.0%												
11-1021	General and Operations Managers	235	50	21.2%	49	9	17.5%	95	19	20.4%	90	22	24.1%												
51-2092	Team Assemblers	284	50	17.5%	79	11	14.0%	128	22	17.5%	78	16	21.0%												
53-3032	Heavy and Tractor-Trailer Truck Drivers	310	47	15.1%	50	6	12.5%	125	18	14.5%	135	23	16.7%												
11-3051	Industrial Production Managers	148	43	28.7%	32	8	24.9%	68	19	28.3%	49	16	32.0%												
53-3031	Driver/Sales Workers																								
53-3033	Light Truck Delivery Drivers	217	36	16.7%	40	6	14.1%	140	22	15.7%	175	32	18.3%												
51-3099	Food Processing Workers, All Other	189	35	18.5%	47	7	15.6%	108	20	18.7%	34	7	21.5%												

## Appendix C: Food & Beverage Manufacturer Employer Staffing Survey

### Q1 Please identify your local Workforce Development Area.

Answered: 12 Skipped: 0



### Q2 What is the total number of employees at your local company location?

Answered: 12 Skipped: 0

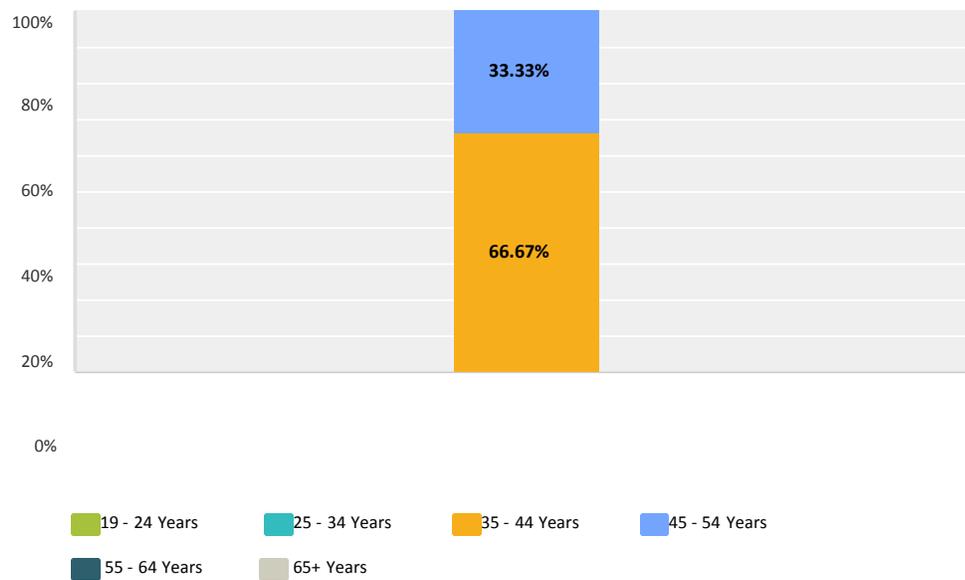
Answer Choices	Average Number	Total Number	Responses
Full-Time	258	3,091	12
Part-Time	9	103	11
<b>Total Respondents: 12</b>			

#	Full-Time	Date
1	183	11/2/2016 11:25 AM
2	419	10/31/2016 8:43 AM
3	445	10/31/2016 7:48 AM
4	553	10/28/2016 9:44 AM
5	114	10/27/2016 9:04 AM
6	128	10/27/2016 7:54 AM
7	325	10/26/2016 6:28 PM
8	553	10/26/2016 3:20 PM
9	142	10/26/2016 2:42 PM
10	86	10/26/2016 2:37 PM
11	83	10/26/2016 1:52 PM
12	60	10/26/2016 1:49 PM
#	Part-Time	Date

1	0	11/2/2016 11:25 AM
2	0	10/31/2016 8:43 AM
3	90	10/31/2016 7:48 AM
4	3	10/28/2016 9:44 AM
5	0	10/27/2016 9:04 AM
6	0	10/27/2016 7:54 AM
7	3	10/26/2016 3:20 PM
8	2	10/26/2016 2:42 PM
9	0	10/26/2016 2:37 PM
10	0	10/26/2016 1:52 PM
11	5	10/26/2016 1:49 PM

**Q3 Roughly 50% of the current Food & Beverage Manufacturing workforce is aged 45 or older. What is the Average Age of your employees?**

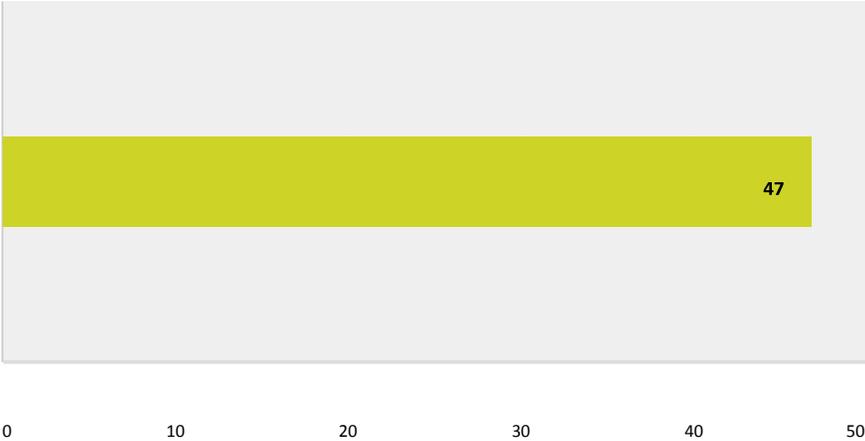
Answered: 12 Skipped: 0



Answer Choices	Responses	
19 – 24 Years	0.00%	0
25 - 34 Years	0.00%	0
35 - 44 Years	66.67%	8
45 - 54 Years	33.33%	4
55 - 64 Years	0.00%	0
65+ Years	0.00%	0
<b>Total</b>		<b>12</b>

# Q4 Percentage of employees over age 45?

Answered: 12 Skipped: 0



Answer Choices	Average Number	Total Number	Responses
percentages	47	563	12
<b>Total Respondents: 12</b>			

#		Date
1	39	11/2/2016 11:25 AM
2	45	10/31/2016 8:43 AM
3	68	10/31/2016 7:48 AM
4	63	10/28/2016 9:44 AM
5	49	10/27/2016 9:04 AM
6	46	10/27/2016 7:54 AM
7	35	10/26/2016 6:28 PM
8	63	10/26/2016 3:20 PM
9	39	10/26/2016 2:42 PM
10	38	10/26/2016 2:37 PM
11	41	10/26/2016 1:52 PM
12	37	10/26/2016 1:49 PM

# Q5 Percentage of employees under age 25?

Answered: 12 Skipped: 0

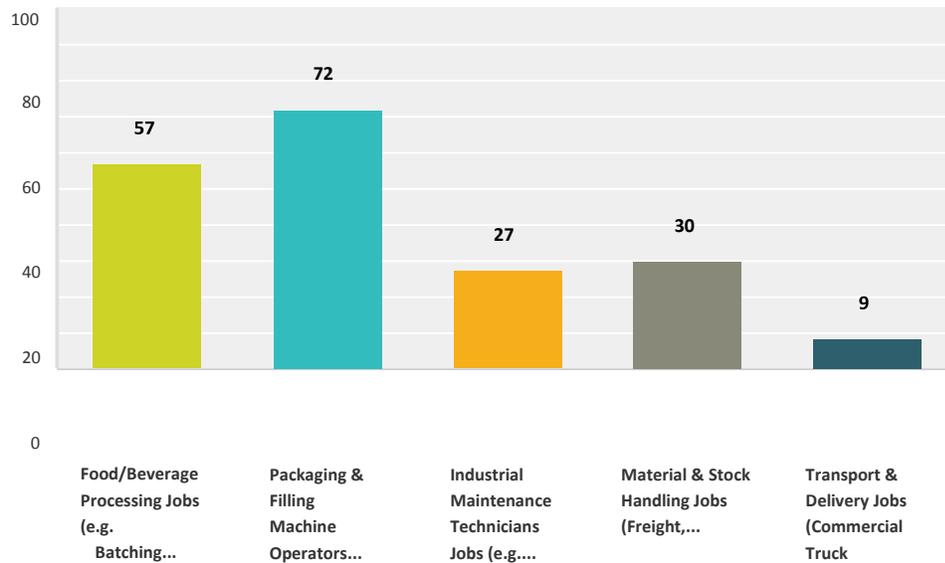


Answer Choices	Average Number	Total Number	Responses
	9	105	12
<b>Total Respondents: 12</b>			

#		Date
1	3	11/2/2016 11:25 AM
2	5	10/31/2016 8:43 AM
3	15	10/31/2016 7:48 AM
4	6	10/28/2016 9:44 AM
5	1	10/27/2016 9:04 AM
6	5	10/27/2016 7:54 AM
7	30	10/26/2016 6:28 PM
8	6	10/26/2016 3:20 PM
9	4	10/26/2016 2:42 PM
10	7	10/26/2016 2:37 PM
11	7	10/26/2016 1:52 PM
12	16	10/26/2016 1:49 PM

## Q6 What are the Food & Beverage Manufacturing Occupations that you currently employ?

Answered: 12 Skipped: 0



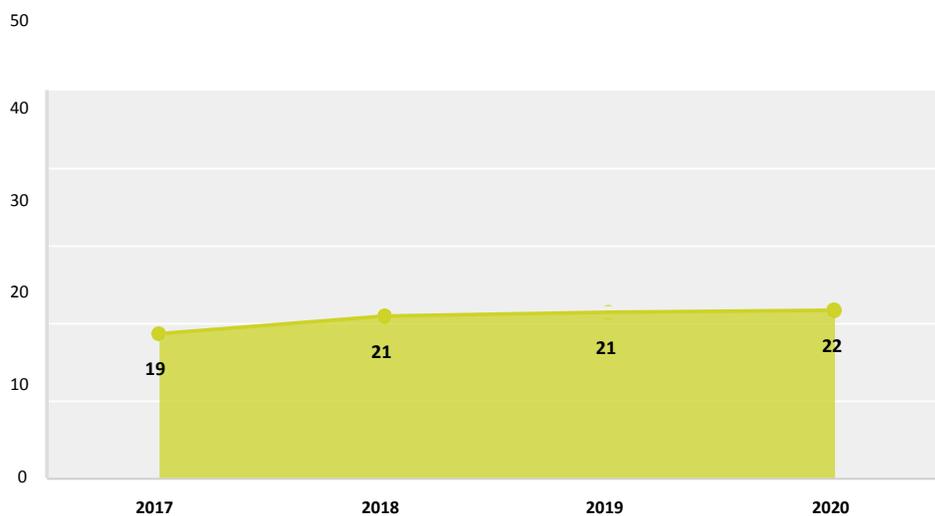
Answer Choices	Average Number	Total Number	Responses
<b>Food/Beverage Processing Jobs (e.g. Batching Operator, Blender, Brewing Technician, Compounder, Scaler and Mixer, Machine Operator, Mixer, Process Operator, Syrup Maker, etc.)</b>	57	572	10
Packaging & Filling Machine Operators Jobs (e.g. Adjuster/Packer, Portioner, Wrapper & Case Packer, Bundler, Closing Machine Operator, Filler Operator, Packaging Operator, Packing Machine Operator, etc.)	72	794	11
Industrial Maintenance Technicians Jobs (e.g. Industrial Machinery Mechanics, Maintenance & Repair Workers, Machinery, Industrial Mechatronics Technician, etc.)	27	300	11
Material & Stock Handling Jobs (Freight, Stock & Material Hand Movers, Forklift, etc.)	30	300	10
Transport & Delivery Jobs (Commercial Truck Drivers)	9	103	12
<b>Total Respondents: 12</b>			

#	Food/Beverage Processing Jobs (e.g. Batching Operator, Blender, Brewing Technician, Compounder, Scaler and Mixer, Machine Operator, Mixer, Process Operator, Syrup Maker, etc.)	Date
1	28	11/2/2016 11:25 AM
2	75	10/31/2016 8:43 AM
3	30	10/31/2016 7:48 AM
4	52	10/28/2016 9:44 AM
5	2	10/27/2016 7:54 AM
6	100	10/26/2016 6:28 PM
7	20	10/26/2016 2:42 PM
8	0	10/26/2016 2:37 PM
9	0	10/26/2016 1:52 PM
10	265	10/26/2016 1:49 PM
#	Packaging & Filling Machine Operators Jobs (e.g. Adjuster/Packer, Portioner, Wrapper & Case Packer, Bundler, Closing Machine Operator, Filler Operator, Packaging Operator, Packing Machine Operator, etc.)	Date
1	84	11/2/2016 11:25 AM
2	45	10/31/2016 8:43 AM
3	35	10/31/2016 7:48 AM
4	315	10/28/2016 9:44 AM
5	0	10/27/2016 9:04 AM
6	1	10/27/2016 7:54 AM
7	30	10/26/2016 6:28 PM
8	55	10/26/2016 2:42 PM
9	55	10/26/2016 2:37 PM
10	58	10/26/2016 1:52 PM
11	116	10/26/2016 1:49 PM
#	Industrial Maintenance Technicians Jobs (e.g. Industrial Machinery Mechanics, Maintenance & Repair Workers, Machinery, Industrial Mechatronics Technician, etc.)	Date
1	22	11/2/2016 11:25 AM
2	35	10/31/2016 8:43 AM
3	82	10/31/2016 7:48 AM
4	40	10/28/2016 9:44 AM
5	6	10/27/2016 9:04 AM
6	4	10/27/2016 7:54 AM
7	30	10/26/2016 6:28 PM
8	9	10/26/2016 2:42 PM
9	4	10/26/2016 2:37 PM
10	4	10/26/2016 1:52 PM
11	64	10/26/2016 1:49 PM
#	Material & Stock Handling Jobs (Freight, Stock & Material Hand Movers, Forklift, etc.)	Date
1	13	11/2/2016 11:25 AM
2	90	10/31/2016 8:43 AM
3	12	10/31/2016 7:48 AM

4	69	10/28/2016 9:44 AM
5	11	10/27/2016 7:54 AM
6	59	10/26/2016 6:28 PM
7	7	10/26/2016 2:42 PM
8	8	10/26/2016 2:37 PM
9	4	10/26/2016 1:52 PM
10	27	10/26/2016 1:49 PM
#	<b>Transport &amp; Delivery Jobs (Commercial Truck Drivers)</b>	<b>Date</b>
1	0	11/2/2016 11:25 AM
2	7	10/31/2016 8:43 AM
3	0	10/31/2016 7:48 AM
4	5	10/28/2016 9:44 AM
5	0	10/27/2016 9:04 AM
6	32	10/27/2016 7:54 AM
7	30	10/26/2016 6:28 PM
8	5	10/26/2016 3:20 PM
9	5	10/26/2016 2:42 PM
10	9	10/26/2016 2:37 PM
11	8	10/26/2016 1:52 PM
12	2	10/26/2016 1:49 PM

## Q7 Projected "Food/Beverage Processing" job openings?

Answered: 10 Skipped: 2



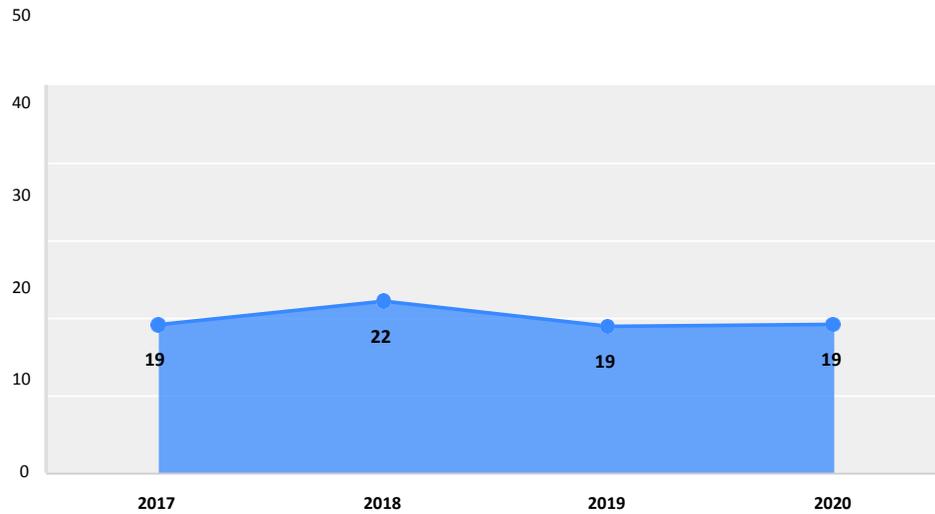
Answer Choices	Average Number	Total Number	Responses
2017	19	186	10
2018	21	167	8
2019	21	171	8

2020	22	173	8
<b>Total Respondents: 10</b>			

#	2017	Date
1	4	11/2/2016 11:25 AM
2	15	10/31/2016 8:47 AM
3	0	10/31/2016 7:49 AM
4	0	10/28/2016 9:49 AM
5	0	10/27/2016 7:56 AM
6	50	10/26/2016 6:31 PM
7	2	10/26/2016 2:59 PM
8	0	10/26/2016 2:38 PM
9	15	10/26/2016 1:53 PM
10	100	10/26/2016 1:50 PM
#	2018	Date
1	4	11/2/2016 11:25 AM
2	12	10/31/2016 8:47 AM
3	0	10/31/2016 7:49 AM
4	1	10/28/2016 9:49 AM
5	0	10/27/2016 7:56 AM
6	50	10/26/2016 6:31 PM
7	0	10/26/2016 2:38 PM
8	100	10/26/2016 1:50 PM
#	2019	Date
1	4	11/2/2016 11:25 AM
2	12	10/31/2016 8:47 AM
3	4	10/31/2016 7:49 AM
4	1	10/28/2016 9:49 AM
5	0	10/27/2016 7:56 AM
6	50	10/26/2016 6:31 PM
7	0	10/26/2016 2:38 PM
8	100	10/26/2016 1:50 PM
#	2020	Date
1	4	11/2/2016 11:25 AM
2	12	10/31/2016 8:47 AM
3	5	10/31/2016 7:49 AM
4	1	10/28/2016 9:49 AM
5	1	10/27/2016 7:56 AM
6	50	10/26/2016 6:31 PM
7	0	10/26/2016 2:38 PM
8	100	10/26/2016 1:50 PM

## Q8 Of these, how many are Replacements?

Answered: 10 Skipped: 2

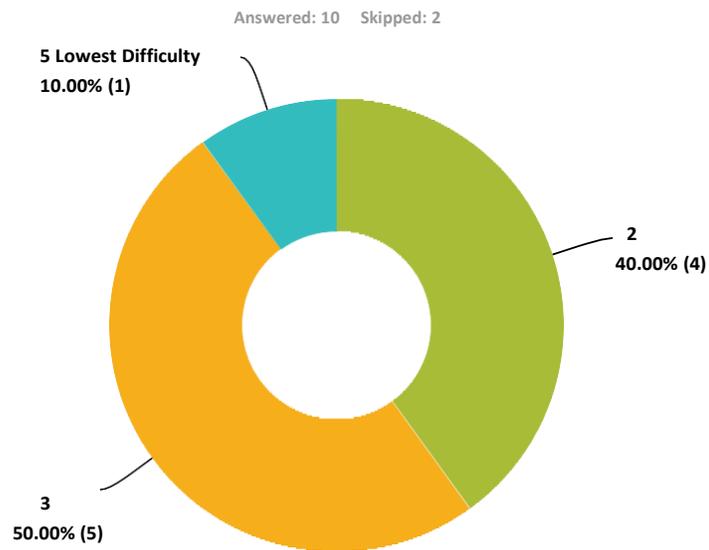


Answer Choices	Average Number	Total Number	Responses
2017	19	191	10
2018	22	177	8
2019	19	151	8
2020	19	153	8
<b>Total Respondents: 10</b>			

#	2017	Date
1	4	11/2/2016 11:25 AM
2	10	10/31/2016 8:47 AM
3	0	10/31/2016 7:49 AM
4	0	10/28/2016 9:49 AM
5	0	10/27/2016 7:56 AM
6	50	10/26/2016 6:31 PM
7	2	10/26/2016 2:59 PM
8	0	10/26/2016 2:38 PM
9	15	10/26/2016 1:53 PM
10	110	10/26/2016 1:50 PM
#	2018	Date
1	4	11/2/2016 11:25 AM
2	12	10/31/2016 8:47 AM
3	0	10/31/2016 7:49 AM
4	1	10/28/2016 9:49 AM
5	0	10/27/2016 7:56 AM
6	50	10/26/2016 6:31 PM

7	0	10/26/2016 2:38 PM
8	110	10/26/2016 1:50 PM
#	2019	Date
1	4	11/2/2016 11:25 AM
2	12	10/31/2016 8:47 AM
3	4	10/31/2016 7:49 AM
4	1	10/28/2016 9:49 AM
5	0	10/27/2016 7:56 AM
6	50	10/26/2016 6:31 PM
7	0	10/26/2016 2:38 PM
8	80	10/26/2016 1:50 PM
#	2020	Date
1	4	11/2/2016 11:25 AM
2	12	10/31/2016 8:47 AM
3	5	10/31/2016 7:49 AM
4	1	10/28/2016 9:49 AM
5	1	10/27/2016 7:56 AM
6	50	10/26/2016 6:31 PM
7	0	10/26/2016 2:38 PM
8	80	10/26/2016 1:50 PM

**Q9 On a scale of 1 to 5, 1 being highest, 5 being lowest, rate the current difficulty in filling these positions.**



Answer Choices	Responses
1 Highest Difficulty	0.00% 0
2	40.00% 4
3	50.00% 5

4	0.00%	0
5 Lowest Difficulty	10.00%	1
<b>Total</b>		<b>10</b>

### Q10 Please list any pre-hire training and/or certification required.

Answered: 5 Skipped: 7

#	Responses	Date
1	6 months experience in a manufacturing, farming, military, or similar environment, must pass the Bennett Mechanical Aptitude Test administered on site	10/31/2016 8:47 AM
2	Food experience	10/31/2016 7:49 AM
3	Must have mechanical aptitude	10/28/2016 9:49 AM
4	HS Diploma Pre-employment test	10/26/2016 6:31 PM
5	N/A	10/26/2016 2:38 PM

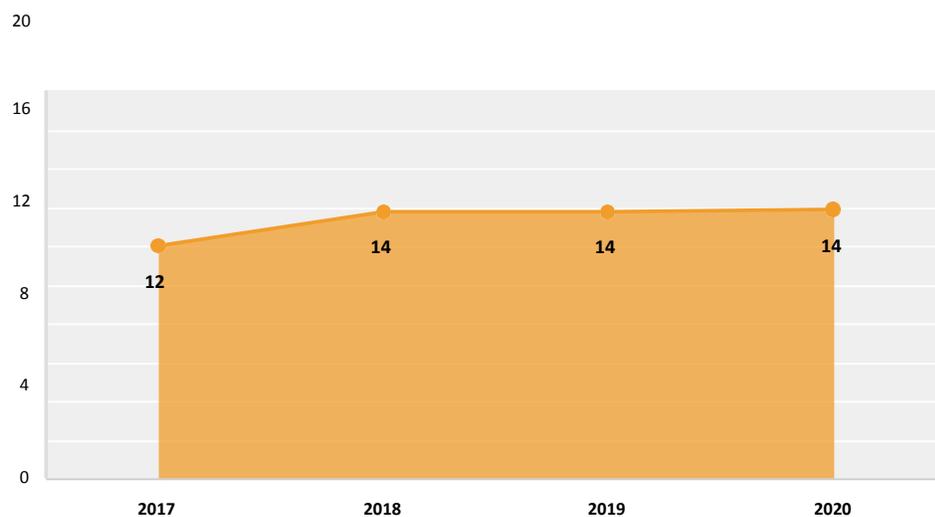
### Q11 Please list any post-hire training and/or certification required.

Answered: 3 Skipped: 9

#	Responses	Date
1	OJT	10/31/2016 7:49 AM
2	Training sign offs	10/26/2016 6:31 PM
3	N/A	10/26/2016 2:38 PM

### Q12 Projected "Packaging & Filling Machine Operator" job openings?

Answered: 9 Skipped: 3



Answer Choices	Average Number	Total Number	Responses
2017	12	108	9

2018	14	110	8
2019	14	110	8
2020	14	111	8
<b>Total Respondents: 9</b>			

#	2017	Date
1	12	11/2/2016 11:26 AM
2	8	10/31/2016 8:47 AM
3	0	10/31/2016 7:50 AM
4	7	10/28/2016 9:52 AM
5	0	10/27/2016 8:24 AM
6	15	10/26/2016 6:32 PM
7	1	10/26/2016 2:59 PM
8	15	10/26/2016 2:42 PM
9	50	10/26/2016 1:50 PM

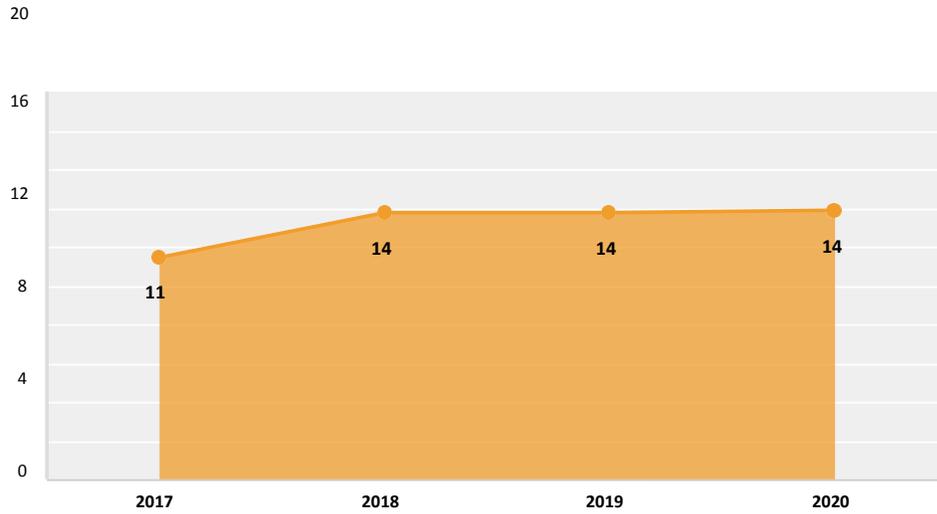
#	2018	Date
1	10	11/2/2016 11:26 AM
2	8	10/31/2016 8:47 AM
3	5	10/31/2016 7:50 AM
4	7	10/28/2016 9:52 AM
5	0	10/27/2016 8:24 AM
6	15	10/26/2016 6:32 PM
7	15	10/26/2016 2:42 PM
8	50	10/26/2016 1:50 PM

#	2019	Date
1	10	11/2/2016 11:26 AM
2	8	10/31/2016 8:47 AM
3	5	10/31/2016 7:50 AM
4	7	10/28/2016 9:52 AM
5	0	10/27/2016 8:24 AM
6	15	10/26/2016 6:32 PM
7	15	10/26/2016 2:42 PM
8	50	10/26/2016 1:50 PM

#	2020	Date
1	10	11/2/2016 11:26 AM
2	8	10/31/2016 8:47 AM
3	5	10/31/2016 7:50 AM
4	7	10/28/2016 9:52 AM
5	1	10/27/2016 8:24 AM
6	15	10/26/2016 6:32 PM
7	15	10/26/2016 2:42 PM

## Q13 Of these, how many are Replacements?

Answered: 9 Skipped: 3



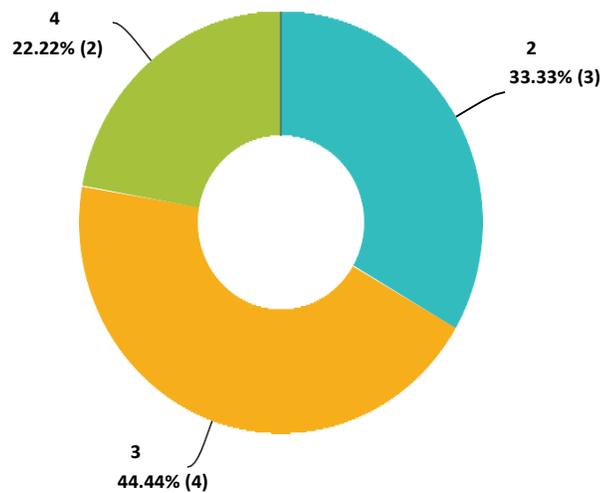
Answer Choices	Average Number	Total Number	Responses
2017	11	103	9
2018	14	110	8
2019	14	110	8
2020	14	111	8
<b>Total Respondents: 9</b>			

#	2017	Date
1	12	11/2/2016 11:26 AM
2	3	10/31/2016 8:47 AM
3	0	10/31/2016 7:50 AM
4	7	10/28/2016 9:52 AM
5	0	10/27/2016 8:24 AM
6	15	10/26/2016 6:32 PM
7	1	10/26/2016 2:59 PM
8	15	10/26/2016 2:42 PM
9	50	10/26/2016 1:50 PM
#	2018	Date
1	10	11/2/2016 11:26 AM
2	8	10/31/2016 8:47 AM
3	5	10/31/2016 7:50 AM
4	7	10/28/2016 9:52 AM
5	0	10/27/2016 8:24 AM

6	15	10/26/2016 6:32 PM
7	15	10/26/2016 2:42 PM
8	50	10/26/2016 1:50 PM
#	2019	Date
1	10	11/2/2016 11:26 AM
2	8	10/31/2016 8:47 AM
3	5	10/31/2016 7:50 AM
4	7	10/28/2016 9:52 AM
5	0	10/27/2016 8:24 AM
6	15	10/26/2016 6:32 PM
7	15	10/26/2016 2:42 PM
8	50	10/26/2016 1:50 PM
#	2020	Date
1	10	11/2/2016 11:26 AM
2	8	10/31/2016 8:47 AM
3	5	10/31/2016 7:50 AM
4	7	10/28/2016 9:52 AM
5	1	10/27/2016 8:24 AM
6	15	10/26/2016 6:32 PM
7	15	10/26/2016 2:42 PM
8	50	10/26/2016 1:50 PM

**Q14 On a scale of 1 to 5, 1 being highest, 5 being lowest, rate the current difficulty in filling these positions.**

Answered: 9 Skipped: 3



Answer Choices	Responses
1 Highest Difficulty	0.00% 0

2	33.33%	3
3	44.44%	4
4	22.22%	2
5 Lowest Difficulty	0.00%	0
<b>Total</b>		<b>9</b>

### Q15 Please list any pre-hire training and/or certification required.

Answered: 4 Skipped: 8

#	Responses	Date
1	6 months experience in a manufacturing, farming, military, or similar environment, must pass the Bennett Mechanical Aptitude Test administered on site	10/31/2016 8:47 AM
2	Food experience	10/31/2016 7:50 AM
3	HS Diploma Pre-employment testing	10/26/2016 6:32 PM
4	Forklift/pallet jack, packing machine operators, basic math, basic computer,	10/26/2016 2:42 PM

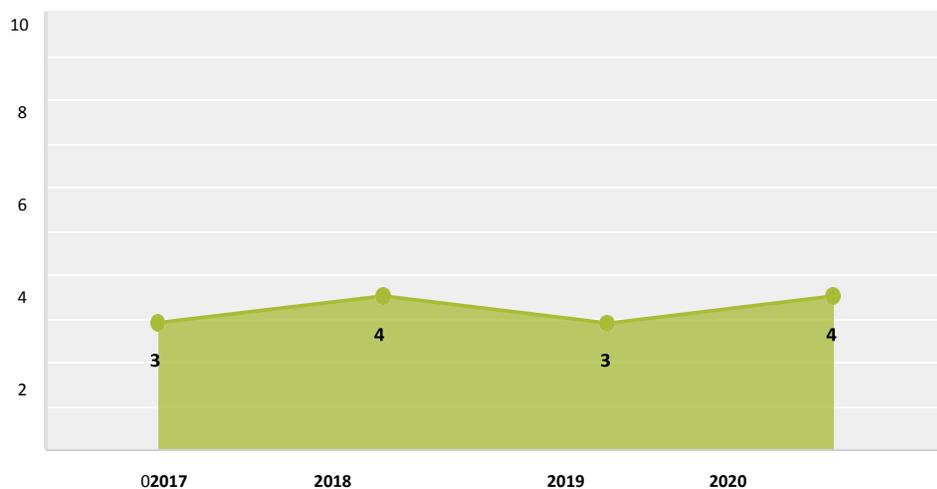
### Q16 Please list any post-hire training and/or certification required.

Answered: 3 Skipped: 9

#	Responses	Date
1	OJT	10/31/2016 7:50 AM
2	Training sign offs	10/26/2016 6:32 PM
3	General safety, Food safety training,	10/26/2016 2:42 PM

### Q17 Projected "Industrial Maintenance Technician" job openings?

Answered: 9 Skipped: 3



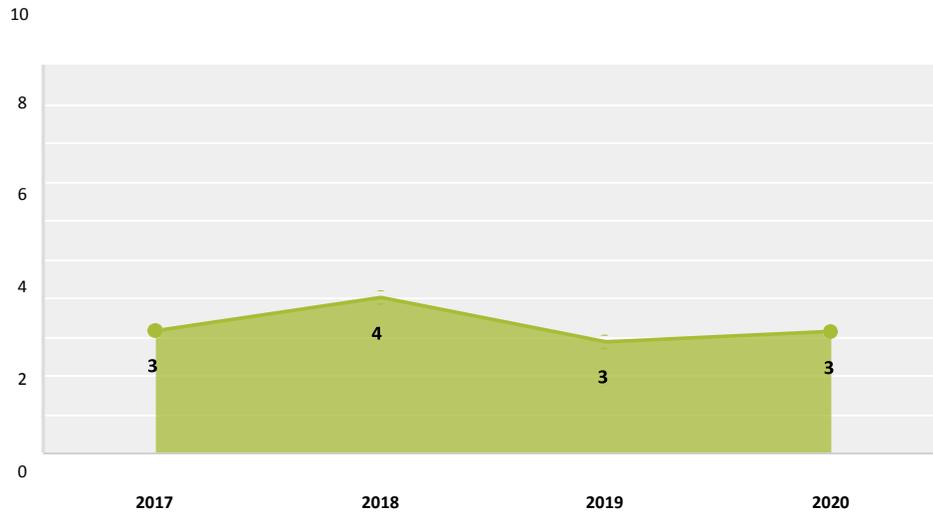
Answer Choices	Average Number	Total Number	Responses
2017	3	26	9
2018	4	28	8

2019	3	23	8
2020	4	28	8
<b>Total Respondents: 9</b>			

#	2017	Date
1	4	11/2/2016 11:26 AM
2	6	10/31/2016 8:48 AM
3	1	10/31/2016 7:51 AM
4	0	10/28/2016 9:55 AM
5	0	10/27/2016 8:24 AM
6	5	10/26/2016 6:32 PM
7	0	10/26/2016 2:59 PM
8	0	10/26/2016 2:44 PM
9	10	10/26/2016 1:51 PM
#	2018	Date
1	4	11/2/2016 11:26 AM
2	4	10/31/2016 8:48 AM
3	2	10/31/2016 7:51 AM
4	2	10/28/2016 9:55 AM
5	0	10/27/2016 8:24 AM
6	5	10/26/2016 6:32 PM
7	1	10/26/2016 2:44 PM
8	10	10/26/2016 1:51 PM
#	2019	Date
1	4	11/2/2016 11:26 AM
2	4	10/31/2016 8:48 AM
3	0	10/31/2016 7:51 AM
4	1	10/28/2016 9:55 AM
5	0	10/27/2016 8:24 AM
6	5	10/26/2016 6:32 PM
7	1	10/26/2016 2:44 PM
8	8	10/26/2016 1:51 PM
#	2020	Date
1	4	11/2/2016 11:26 AM
2	4	10/31/2016 8:48 AM
3	5	10/31/2016 7:51 AM
4	0	10/28/2016 9:55 AM
5	2	10/27/2016 8:24 AM
6	5	10/26/2016 6:32 PM
7	0	10/26/2016 2:44 PM
8	8	10/26/2016 1:51 PM

## Q18 Of these, how many are Replacements?

Answered: 8 Skipped: 4



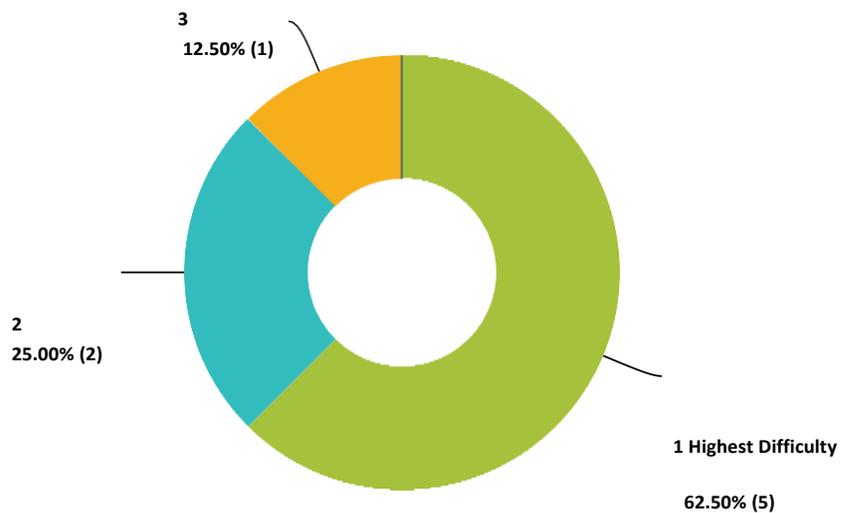
Answer Choices	Average Number	Total Number	Responses
2017	3	22	7
2018	4	28	7
2019	3	20	7
2020	3	25	8
<b>Total Respondents: 8</b>			

#	2017	Date
1	4	11/2/2016 11:26 AM
2	2	10/31/2016 8:48 AM
3	1	10/31/2016 7:51 AM
4	0	10/28/2016 9:55 AM
5	5	10/26/2016 6:32 PM
6	0	10/26/2016 2:44 PM
7	10	10/26/2016 1:51 PM
#	2018	Date
1	4	11/2/2016 11:26 AM
2	4	10/31/2016 8:48 AM
3	2	10/31/2016 7:51 AM
4	2	10/28/2016 9:55 AM
5	5	10/26/2016 6:32 PM
6	1	10/26/2016 2:44 PM
7	10	10/26/2016 1:51 PM
#	2019	Date
1	4	11/2/2016 11:26 AM
2	4	10/31/2016 8:48 AM
3	0	10/31/2016 7:51 AM

4	1	10/28/2016 9:55 AM
5	5	10/26/2016 6:32 PM
6	1	10/26/2016 2:44 PM
7	5	10/26/2016 1:51 PM
<b>#</b>	<b>2020</b>	<b>Date</b>
1	4	11/2/2016 11:26 AM
2	4	10/31/2016 8:48 AM
3	5	10/31/2016 7:51 AM
4	0	10/28/2016 9:55 AM
5	2	10/27/2016 8:24 AM
6	5	10/26/2016 6:32 PM
7	0	10/26/2016 2:44 PM
8	5	10/26/2016 1:51 PM

**Q19 On a scale of 1 to 5, 1 being highest, 5 being lowest, rate the current difficulty in filling these positions.**

Answered: 8 Skipped: 4



Answer Choices	Responses	
1 Highest Difficulty	62.50%	5
2	25.00%	2
3	12.50%	1
4	0.00%	0
5 Lowest Difficulty	0.00%	0
<b>Total</b>		<b>8</b>

## Q20 Please list any pre-hire training and/or certification required.

Answered: 7 Skipped: 5

#	Responses	Date
1	Electro-mechanical	11/2/2016 11:26 AM
2	industrial electrical experience and/or education, must pass a test at NCCC	10/31/2016 8:48 AM
3	Complete a test for skills Food experience	10/31/2016 7:51 AM
4	Prior maintenance experience and mechanical aptitude	10/28/2016 9:55 AM
5	HS Diploma Pre-employment testing	10/26/2016 6:32 PM
6	Industrial General Maintenance ( electrical, Fabricator, Refrigeration, industrial machine and general industrial maintenance)	10/26/2016 2:44 PM
7	Industrial mechanical training.	10/26/2016 1:51 PM

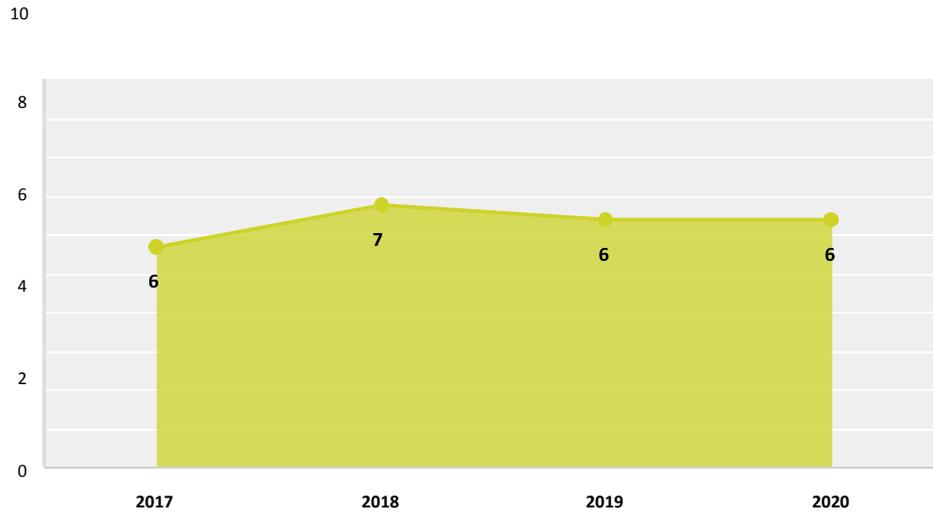
## Q21 Please list any post-hire training and/or certification required.

Answered: 3 Skipped: 9

#	Responses	Date
1	maintenance training for higher levels is required	10/31/2016 8:48 AM
2	OJT	10/31/2016 7:51 AM
3	Depends of the level	10/26/2016 2:44 PM

## Q22 Projected "Material & Stock Handling" job openings?

Answered: 9 Skipped: 3



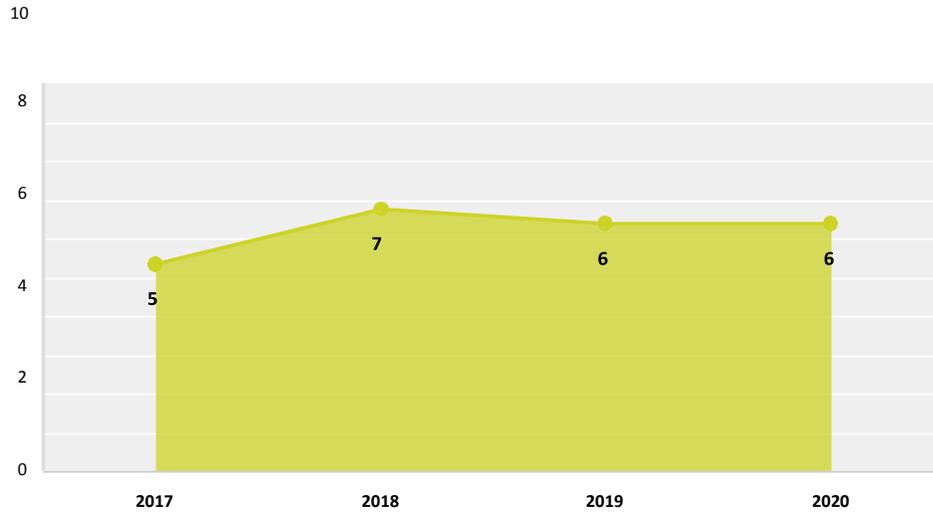
Answer Choices	Average Number	Total Number	Responses
2017	6	51	9
2018	7	54	8
2019	6	51	8
2020	6	51	8

Total Respondents: 9

#	2017	Date
1	1	11/2/2016 11:27 AM
2	15	10/31/2016 8:50 AM
3	0	10/31/2016 7:51 AM
4	1	10/28/2016 9:57 AM
5	1	10/27/2016 8:25 AM
6	20	10/26/2016 6:33 PM
7	1	10/26/2016 2:59 PM
8	2	10/26/2016 2:48 PM
9	10	10/26/2016 1:52 PM
#	2018	Date
1	1	11/2/2016 11:27 AM
2	20	10/31/2016 8:50 AM
3	0	10/31/2016 7:51 AM
4	0	10/28/2016 9:57 AM
5	1	10/27/2016 8:25 AM
6	20	10/26/2016 6:33 PM
7	2	10/26/2016 2:48 PM
8	10	10/26/2016 1:52 PM
#	2019	Date
1	1	11/2/2016 11:27 AM
2	20	10/31/2016 8:50 AM
3	0	10/31/2016 7:51 AM
4	2	10/28/2016 9:57 AM
5	1	10/27/2016 8:25 AM
6	20	10/26/2016 6:33 PM
7	2	10/26/2016 2:48 PM
8	5	10/26/2016 1:52 PM
#	2020	Date
1	1	11/2/2016 11:27 AM
2	20	10/31/2016 8:50 AM
3	0	10/31/2016 7:51 AM
4	2	10/28/2016 9:57 AM
5	1	10/27/2016 8:25 AM
6	20	10/26/2016 6:33 PM
7	2	10/26/2016 2:48 PM
8	5	10/26/2016 1:52 PM

## Q23 Of these, how many are Replacements?

Answered: 9 Skipped: 3



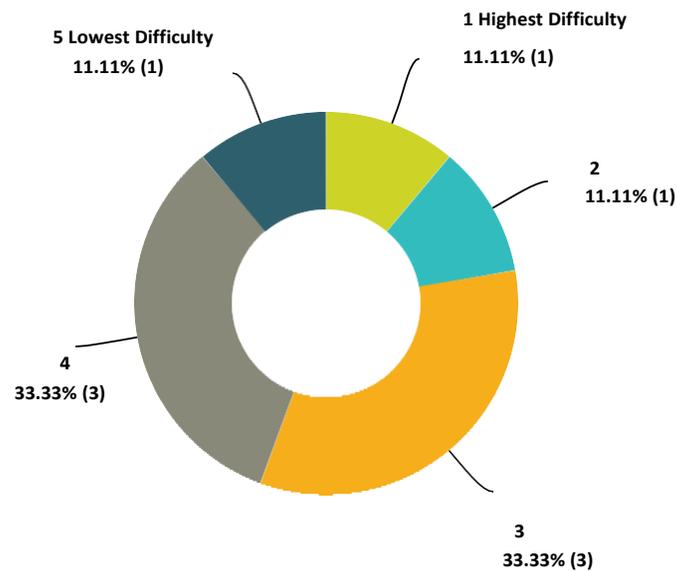
Answer Choices	Average Number	Total Number	Responses
2017	5	48	9
2018	7	54	8
2019	6	51	8
2020	6	51	8
<b>Total Respondents: 9</b>			

#	2017	Date
1	1	11/2/2016 11:27 AM
2	12	10/31/2016 8:50 AM
3	0	10/31/2016 7:51 AM
4	1	10/28/2016 9:57 AM
5	1	10/27/2016 8:25 AM
6	20	10/26/2016 6:33 PM
7	1	10/26/2016 2:59 PM
8	2	10/26/2016 2:48 PM
9	10	10/26/2016 1:52 PM
#	2018	Date
1	1	11/2/2016 11:27 AM
2	20	10/31/2016 8:50 AM
3	0	10/31/2016 7:51 AM
4	0	10/28/2016 9:57 AM
5	1	10/27/2016 8:25 AM
6	20	10/26/2016 6:33 PM

7	2	10/26/2016 2:48 PM
8	10	10/26/2016 1:52 PM
<b>#</b>	<b>2019</b>	<b>Date</b>
1	1	11/2/2016 11:27 AM
2	20	10/31/2016 8:50 AM
3	0	10/31/2016 7:51 AM
4	2	10/28/2016 9:57 AM
5	1	10/27/2016 8:25 AM
6	20	10/26/2016 6:33 PM
7	2	10/26/2016 2:48 PM
8	5	10/26/2016 1:52 PM
<b>#</b>	<b>2020</b>	<b>Date</b>
1	1	11/2/2016 11:27 AM
2	20	10/31/2016 8:50 AM
3	0	10/31/2016 7:51 AM
4	2	10/28/2016 9:57 AM
5	1	10/27/2016 8:25 AM
6	20	10/26/2016 6:33 PM
7	2	10/26/2016 2:48 PM
8	5	10/26/2016 1:52 PM

**Q24 On a scale of 1 to 5, 1 being highest, 5 being lowest, rate the current difficulty in filling these positions.**

Answered: 9 Skipped: 3



		1	
Answer Choices		Responses	
1 Highest Difficulty		11.11%	1
2		11.11%	1
3		33.33%	3
4		33.33%	4
5 Lowest Difficulty		11.11%	5
<b>Total</b>		<b>Total</b>	<b>9</b>

### Q25 Please list any pre-hire training and/or certification required.

Answered: 6 Skipped: 6

#	Responses	Date
1	requires warehouse forklift driving experience or must complete the LCTI material handling course	10/31/2016 8:50 AM
2	Food experience	10/31/2016 7:51 AM
3	Fork lift and electric pallet jack certification	10/28/2016 9:57 AM
4	Pre-employment testing HS diploma	10/26/2016 6:33 PM
5	pallet jack, Forklift, basic English language (reading and oral), basic math and computer	10/26/2016 2:48 PM
6	Forklift operator certification, valid driver's license.	10/26/2016 1:52 PM

### Q26 Please list any post-hire training and/or certification required.

Answered: 2 Skipped: 10

#	Responses	Date
1	OJT	10/31/2016 7:51 AM
2	Fork lift and electric pallet jack certification	10/28/2016 9:57 AM

## Q25 Please list any pre-hire training and/or certification required.

Answered: 6 Skipped: 6

#	Responses	Date
1	requires warehouse forklift driving experience or must complete the LCTI material handling course	10/31/2016 8:50 AM
2	Food experience	10/31/2016 7:51 AM
3	Fork lift and electric pallet jack certification	10/28/2016 9:57 AM
4	Pre-employment testing HS diploma	10/26/2016 6:33 PM
5	pallet jack, Forklift, basic English language (reading and oral), basic math and computer	10/26/2016 2:48 PM
6	Forklift operator certification, valid driver's license.	10/26/2016 1:52 PM

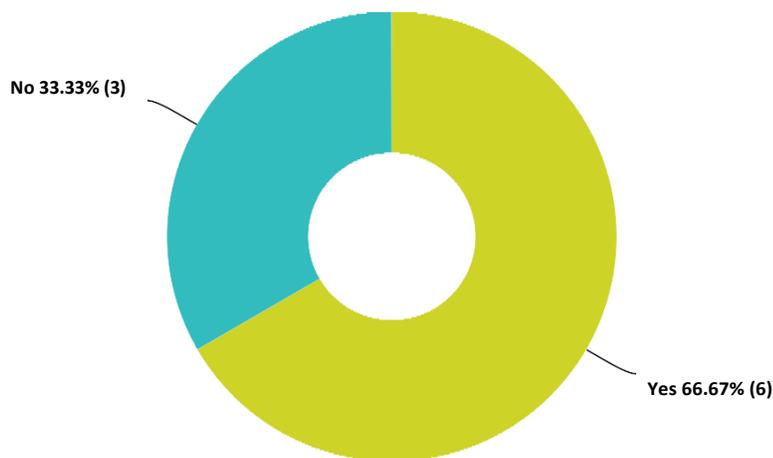
## Q26 Please list any post-hire training and/or certification required.

Answered: 2 Skipped: 10

#	Responses	Date
1	OJT	10/31/2016 7:51 AM
2	Fork lift and electric pallet jack certification	10/28/2016 9:57 AM

## Q27 Commercial Driver's License required? Please choose from the drop-down menu.

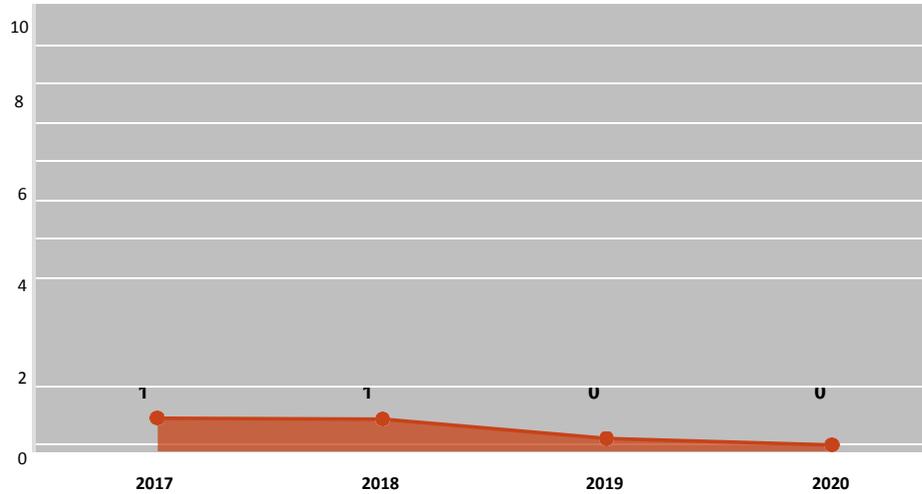
Answered: 9 Skipped: 3



Answer Choices	Responses
Yes	66.67%
No	33.33%
<b>Total</b>	<b>9</b>

## Q28 Projected "Transport & Delivery (CDL)" job openings?

Answered: 7 Skipped: 5



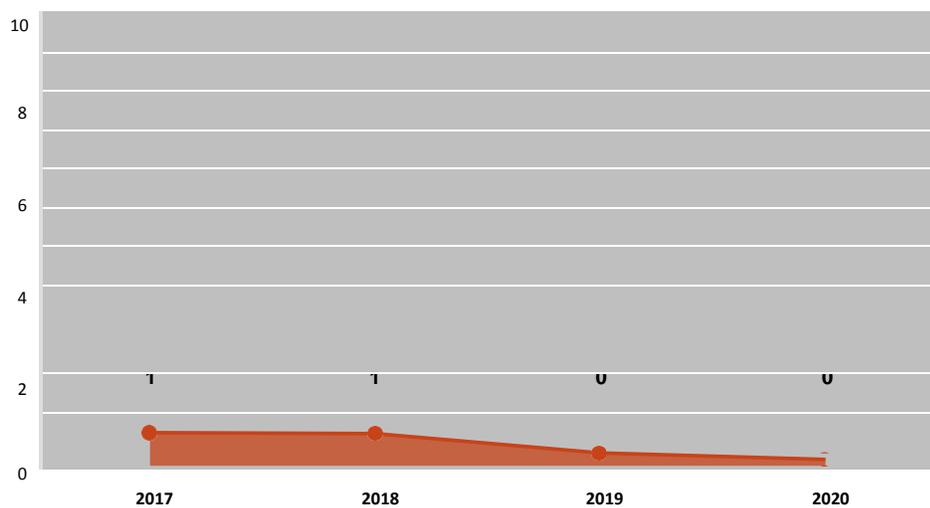
Answer Choices	Average Number	Total Number	Responses
2017	1	6	7
2018	1	5	6
2019	0	2	6
2020	0	1	6
<b>Total Respondents: 7</b>			

#	2017	Date
1	0	10/31/2016 8:51 AM
2	0	10/31/2016 7:52 AM
3	0	10/28/2016 9:59 AM
4	2	10/27/2016 8:26 AM
5	1	10/26/2016 3:00 PM
6	3	10/26/2016 2:51 PM
7	0	10/26/2016 1:53 PM
#	2018	Date
1	0	10/31/2016 8:51 AM
2	0	10/31/2016 7:52 AM
3	1	10/28/2016 9:59 AM
4	1	10/27/2016 8:26 AM
5	3	10/26/2016 2:51 PM
6	0	10/26/2016 1:53 PM
#	2019	Date
1	0	10/31/2016 8:51 AM
2	0	10/31/2016 7:52 AM
3	0	10/28/2016 9:59 AM
4	1	10/27/2016 8:26 AM

5	0	10/26/2016 2:51 PM
6	1	10/26/2016 1:53 PM
<b>#</b>	<b>2020</b>	<b>Date</b>
1	0	10/31/2016 8:51 AM
2	0	10/31/2016 7:52 AM
3	0	10/28/2016 9:59 AM
4	1	10/27/2016 8:26 AM
5	0	10/26/2016 2:51 PM
6	0	10/26/2016 1:53 PM

## Q29 Of these, how many are Replacements?

Answered: 7 Skipped: 5



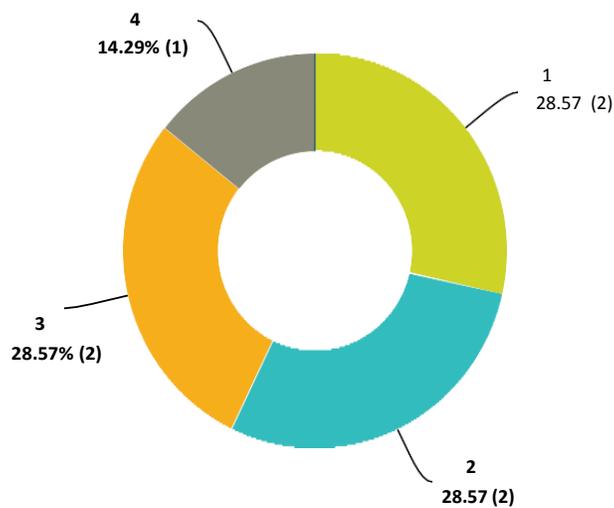
Answer Choices	Average Number	Total Number	Responses
2017	1	6	7
2018	1	5	6
2019	0	2	6
2020	0	1	6
<b>Total Respondents: 7</b>			

#	2017	Date
1	0	10/31/2016 8:51 AM
2	0	10/31/2016 7:52 AM
3	0	10/28/2016 9:59 AM
4	2	10/27/2016 8:26 AM
5	1	10/26/2016 3:00 PM
6	3	10/26/2016 2:51 PM
7	0	10/26/2016 1:53 PM

#	2018	Date
1	0	10/31/2016 8:51 AM
2	0	10/31/2016 7:52 AM
3	1	10/28/2016 9:59 AM
4	1	10/27/2016 8:26 AM
5	3	10/26/2016 2:51 PM
6	0	10/26/2016 1:53 PM
#	2019	Date
1	0	10/31/2016 8:51 AM
2	0	10/31/2016 7:52 AM
3	0	10/28/2016 9:59 AM
4	1	10/27/2016 8:26 AM
5	0	10/26/2016 2:51 PM
6	1	10/26/2016 1:53 PM
#	2020	Date
1	0	10/31/2016 8:51 AM
2	0	10/31/2016 7:52 AM
3	0	10/28/2016 9:59 AM
4	1	10/27/2016 8:26 AM
5	0	10/26/2016 2:51 PM
6	0	10/26/2016 1:53 PM

**Q30 On a scale of 1 to 5, 1 being highest, 5 being lowest, rate the current difficulty in filling these positions.**

Answered: 7 Skipped: 5



Answer Choices	Responses
1 Highest Difficulty	28.57% 2
2	28.57% 2

3	28.57%	2
4	14.29%	1
5 Lowest Difficulty	0.00%	0
<b>Total</b>		<b>7</b>

### Q31 In addition to CDL, please list any pre- hire training, certification or endorsements required.

Answered: 5 Skipped: 7

#	Responses	Date
1	jockey experience	10/31/2016 8:51 AM
2	This is outsourced	10/31/2016 7:52 AM
3	Clean driving record	10/28/2016 9:59 AM
4	Class A CDL, basic,computer, English language knowledge	10/26/2016 2:51 PM
5	Valid CDL Class A driver's license	10/26/2016 1:53 PM

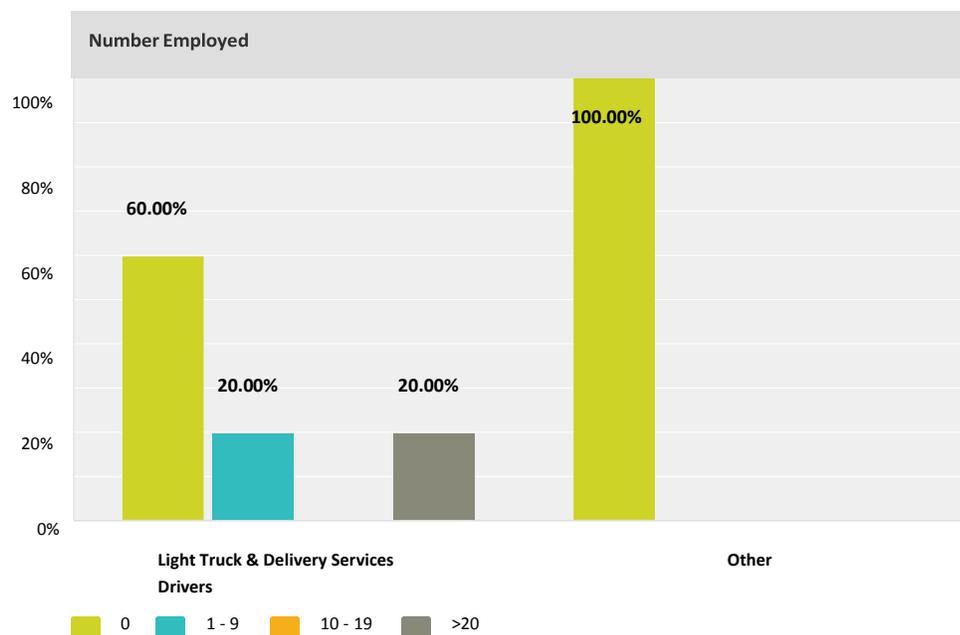
### Q32 Please list any post-hire training, certification or endorsements required.

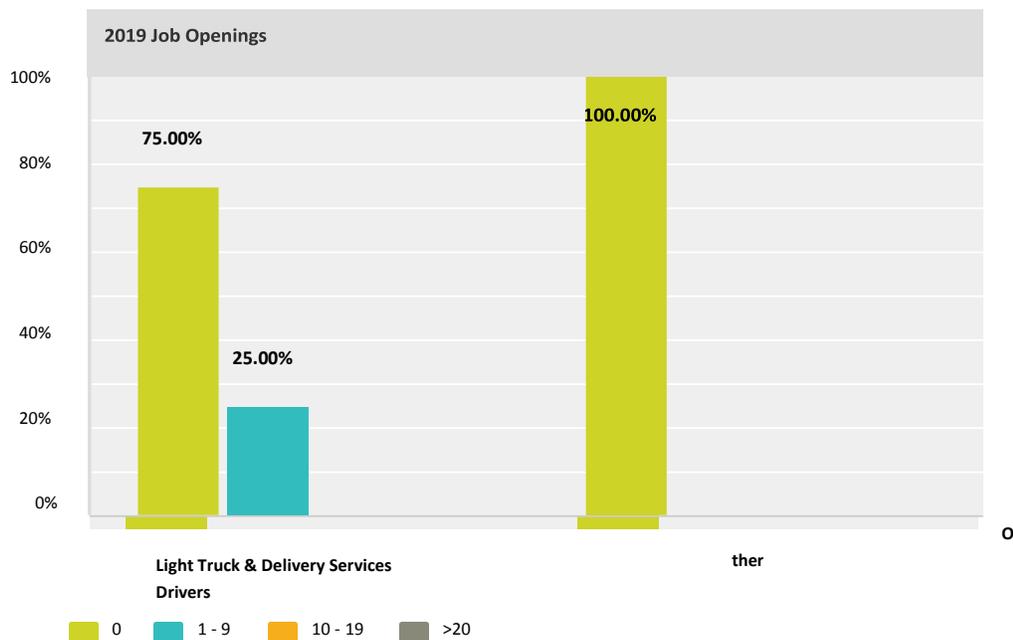
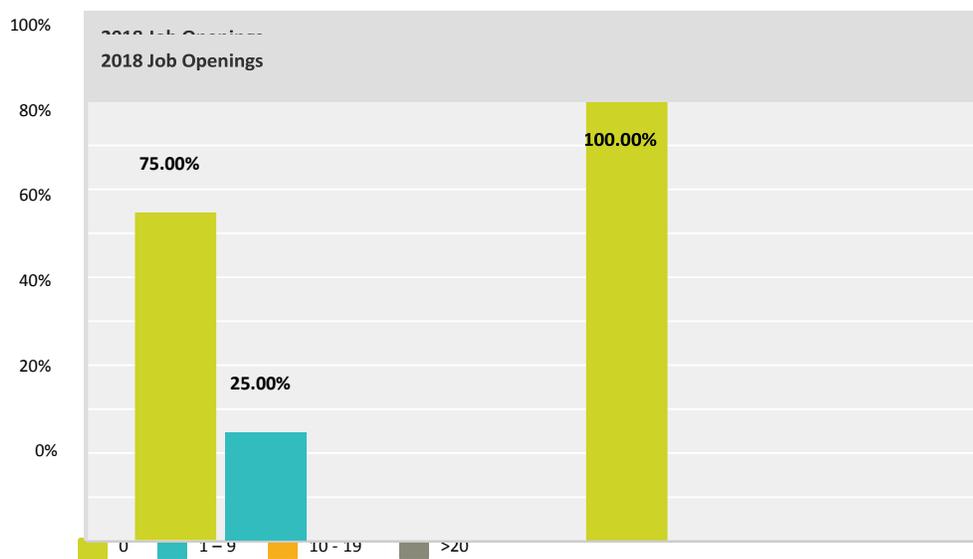
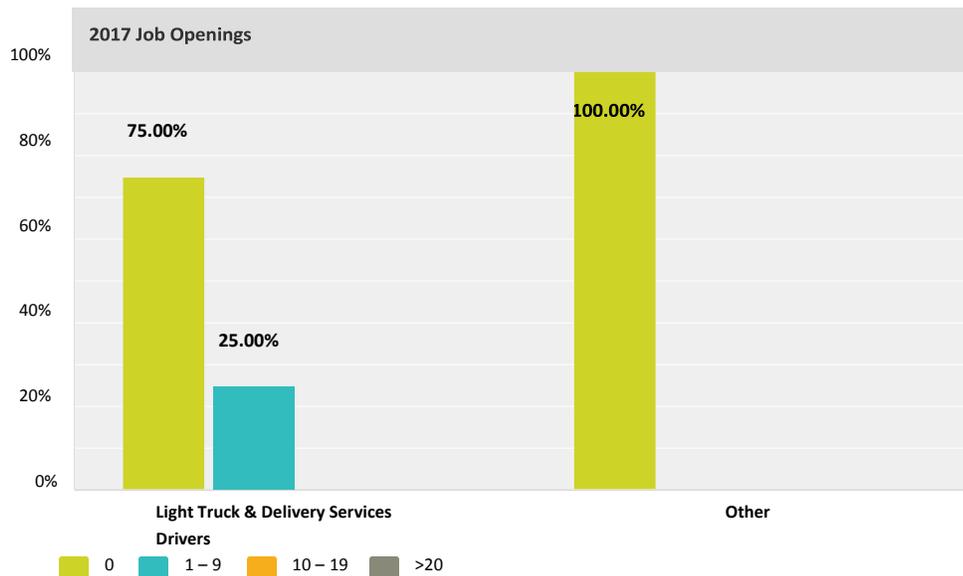
Answered: 2 Skipped: 10

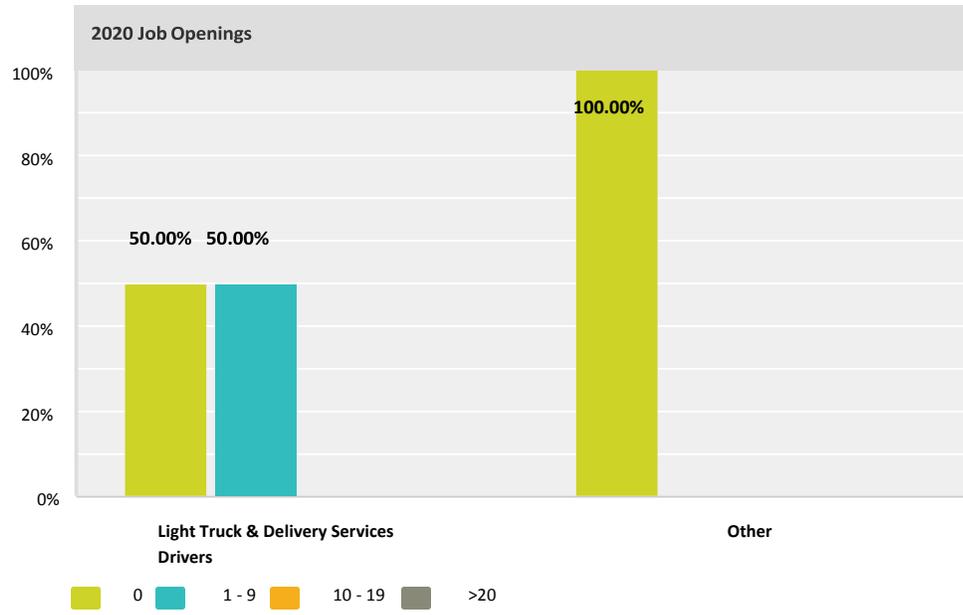
#	Responses	Date
1	This is outsourced	10/31/2016 7:52 AM
2	CDL A with zero experience 6 to 9 months training in house	10/26/2016 2:51 PM

### Q33 Do you employ any other non-CDL Transport & Delivery Drivers?

Answered: 5 Skipped: 7







**Q34 Based on the degree of difficulty you have indicated in filling positions, please share any anecdotal information you may have on the job readiness issues you have faced or anticipate facing in new-hire recruitment and/or forecasted replacements.**

Answered: 8 Skipped: 4

#	Responses	Date
1	We can't find people with the required experience and have begun to develop internal training programs.	11/2/2016 11:29 AM
2	we have lots of applicants with no manufacturing, farming, military, or similar experience	10/31/2016 8:53 AM
3	There is alot of competition in the trades although there is no one going into the trades anymore	10/31/2016 7:53 AM
4	It's difficult right now finding individuals with good work ethics	10/28/2016 10:01 AM
5	CDL Shortage, Qualified/Certified mechanical experience	10/27/2016 8:27 AM
6	solid work history	10/26/2016 3:01 PM
7	People don't want to work weekends or holidays or the majority wants 8 to 5 schedule. Specially the millenium generation.	10/26/2016 2:55 PM
8	Shortage of candidates with required mechanical and electro-mechanical skills; lack of adequate basic math skills; lack of valid driver's license.	10/26/2016 1:55 PM

**Q35 In the past two years, have you made any significant changes to pay and/or benefits in order to attract or retain talent in the survey occupations? If yes, please describe.**

Answered: 8 Skipped: 4

#	Responses	Date
1	Yes - we have increased the rates for mechanics and compounders to attract and retain qualified candidates and employees.	11/2/2016 11:29 AM
2	we have lowered the required time in the above to 6 months and have opened up to include "or similar experience"	10/31/2016 8:53 AM
3	We have a union contract	10/31/2016 7:53 AM
4	No, other than annual increases	10/28/2016 10:01 AM
5	Increased wages in Shipping and Utility departments	10/26/2016 6:36 PM
6	no	10/26/2016 3:01 PM
7	No	10/26/2016 2:55 PM
8	Entry level pay increases for all positions.	10/26/2016 1:55 PM

**Q36 In follow up to the previous question, do you anticipate making significant pay and/or benefits changes for the surveyed occupations in the next two years? If yes, please describe.**

Answered: 9 Skipped: 3

#	Responses	Date
1	We will continue to assess.	11/2/2016 11:29 AM
2	no - all of our rates and benefits are contractual and this does not seem to be a barrier for us	10/31/2016 8:53 AM
3	We have a union contract	10/31/2016 7:53 AM
4	No	10/28/2016 10:01 AM
5	No	10/27/2016 8:27 AM
6	No changes anticipated until the expiration of the CBA in 2018.	10/26/2016 6:36 PM
7	y - changing benefit providers	10/26/2016 3:01 PM
8	Yes	10/26/2016 2:55 PM
9	Will consider additional entry level pay increases.	10/26/2016 1:55 PM

**Q37 Company Information (will remain confidential)**