

# Erie Regional Career Planning Project

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**A Career Driven Education Model using the  
Educonomy Implementation Platform**

*Go for  
The Gold*



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## Introduction

This Erie Regional Career Readiness report proposes to address the highest ranking theme of “Educated” in the “Destination Erie: Creating a Vision” survey and more specifically the third highest ranked sub-theme in “The region’s education and workforce training system prepares residents to meet the current and future needs of our region’s employers”. This sub-theme scored a 4.55 on a scale of 1 to 5 with 5 being most important based on 1,969 Erie resident survey responses (Destination Erie).

This project will help address three (3) vital signs economic indicators: Growth or Strength of the Business Community; Employment Rate; and Income/Poverty Level. The project seeks to bring together the business and education community in order to support the regional implementation of a career driven educational model using WIN Learning’s *Educonomy* platform. This will be done while leveraging existing Erie leadership initiatives and partnerships such as: Erie Vital Signs, Career Street and Destination Erie. Overarching strategies to achieve project goals include:

1. Providing a data aligned and common language framework from which substantive and productive partnerships between business and education can locally flourish.
2. Equipping all stakeholders in the partnership with local labor market information and career awareness in order to provide locally relevant career guidance services while having local career coaches facilitate and support that process.
3. Engaging students with local career exploration opportunities and/or career infused instruction every day.

In order to help insure success, the project will leverage existing convergent momentum in the area of economic and workforce development while establishing a communitywide common language in support of regionally relevant career driven education and experiences.

## Partnership

The following school districts are partners in this project: Erie City, General McLane, Fort LeBoeuf, Girard, Union City, Harborcreek, Millcreek Township, North East, Iroquois, Fairview, Crawford Central, Conneaut, Penncrest, Northwestern, Wattsburg and Corry Area.

Other partners include the Manufacturer’s Association, the Northwest Chapter of the National Tool and Machining Association, Erie Together, and the Erie Regional Chamber and Growth Partnership. This project has also been endorsed by local legislators and the Governor’s office in Erie and Dr. Jim Kurre of the Economic Institute of Erie.

## **Career Ready**

Career Ready skill sets are critical for student success in today's global economy. Employers will state that a college degree in no way insures individual preparedness to succeed in the workplace. Please see the following NPR video - [NPR - Employers and Career Readiness](#).

As shown in the video, central to the disconnect in addressing the concept of college and career readiness is the lack of a common language and productive partnerships between business and education to address the challenge of workforce preparedness in a competitive global economy. Arguably, this stems from a lack of widely implemented research based curricular tools and the proper use of labor market information to inform curriculum development and convergent economic policy development between business and education.

This Regional Career Readiness Planning Project will address this disconnect as shown in the video with common language development between business and education, locally relevant career exploration supported by the availability of regional labor market information and career infused curriculum aligned to the needs of local employers.

## **From Pathways to Prosperity, a 2011 study from Harvard University,**

### **Educational trends**

...While there have been marginal gains, the bottom line measure of success is college completion. And on that score, we have still been unable to get more than 30 percent of young adults to earn a bachelor's degree by their mid-20s. "College for all" might be the mantra, but the hard reality is that fewer than one in three young people achieve the dream.

### **Dropout rates**

...Students drop out of high school and college for many reason, of course: under-preparation for the required academic work; financial pressures; competing claims of family and jobs – the list causes is long and varied. But, certainly a major reason is that too many can't see a clear, transparent connection between their program of study and tangible opportunities in the labor market. We fail these young people not because we are indifferent, but because we have focused too exclusively on a few narrow pathways to success

### **Earning potential**

...The Georgetown Center projects that 14 million job openings – nearly half of those that will be filled by workers with post-secondary education –will go to people with an associate's degree or occupational certificate. Many of these will be in "middle-skill" occupations such as electrician, and construction manager, dental hygienist, paralegal and police officer. While these jobs may not be as prestigious as those filled by B.A. holders, they pay a significant premium over many jobs open to those with just a high school degree. More surprisingly, they pay more than many of the jobs held by those with a bachelor's degree. In fact, 27 percent of

people with post-secondary licenses or certificates –credentials short of an associate’s degree – earn more than the average bachelor’s degree recipient.

### **Job Openings**

....There will also be a huge number of job openings in so called blue –collar fields like construction, manufacturing and natural resources, though many will simply replace retiring baby boomers. These fields will provide nearly 8 million job openings, 2.7 million of which will require a post –secondary credential. In commercial construction, manufacturing, mining and installation and repair, this kind of post-secondary education –as opposed to a B.A. – is often the ticket to a well-paying and rewarding career.

### **Career Readiness Report**

This report will first summarize the industries that comprise the labor inventory of the Erie Region using data from the United States Bureau of Labor Statistics’ (BLS) Quarterly Census of Employment and Wages (QCEW). This summary will reveal the industries that employ significant percentages of the regional workforce. Data trends from the summary will identify critical industries that supply occupational demand and job opportunities in the Erie Economy.

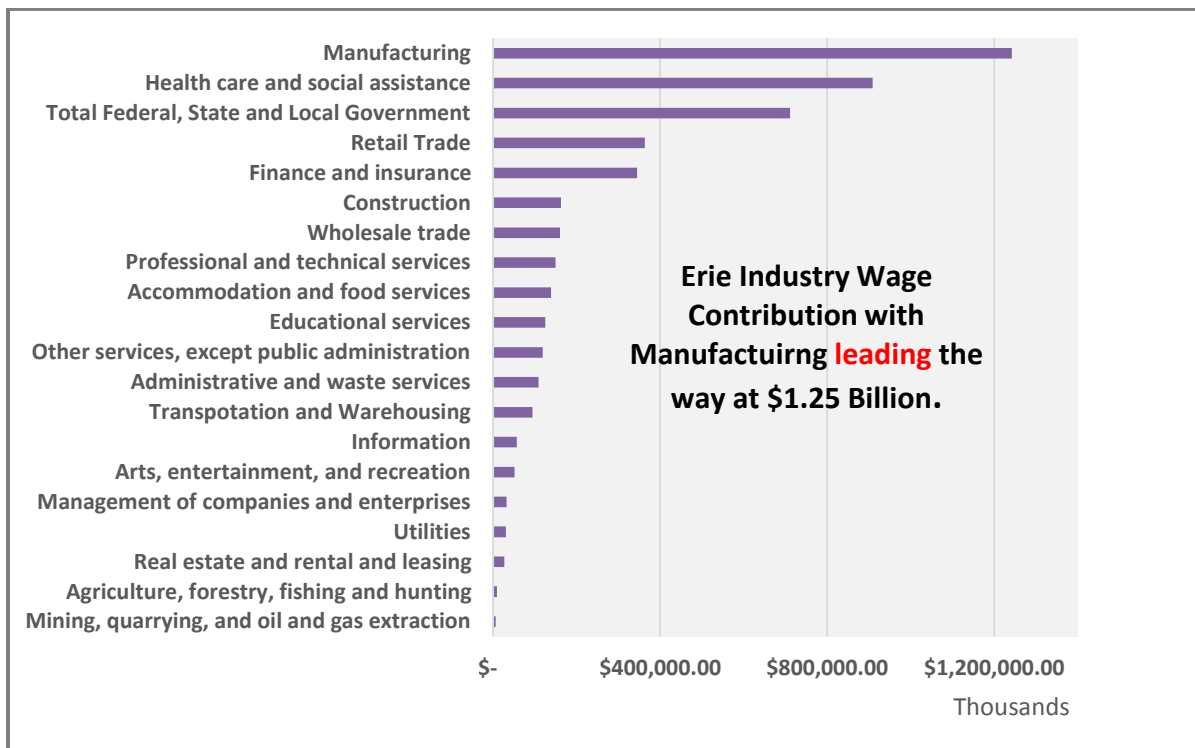
In order to evaluate the role of education in the regional Erie economy, occupational demand, wages and educational requirements will be related to industry sectors and the national educational career clusters. Each occupation is assigned to an educational career cluster with related educational levels and career readiness skill requirements as referenced by both O\*NET Job Zones and ACT’s National Career Readiness Certificate levels. In this way, educational outcomes can be articulated through the educational taxonomy found in the national career clusters based on referenced occupational educational requirements.

A supply and demand component in this report will show occupational demand in relationship to reported data found in the Integrated Post-Secondary Education Data System (IPEDS) completer data and undersupplied occupations on a per career cluster basis. This will help both K-12 and post-secondary institutions satisfy occupational demand through instructional program offerings that are in alignment to regional occupational demand.

## Executive Summary

### Critical Industries

The Erie workforce is employed by 15 different industries employing over 1000 people and 5 industries that employ less than 1000 people. The Manufacturing and Healthcare industries are the largest industries that combined employ 37% of the total workforce or 45,120 employees in Erie. Manufacturing leads Erie in wage contribution by 36% over the next closest industry in healthcare.



### Growth Industries

Growth in the mining, construction, transportation, utilities and hospitality industries has recently been reported.

### High Wage Industries

The best-paying industries in Erie as shown in the labor inventory table on page 16 are:

- Utilities
- Finance and Insurance
- Manufacturing

## Education Levels

Based on the table analysis performed later in this paper using O\*NET Job Zones, it is clear that there are a significant number of projected openings that provide the opportunity to make more than the average annual wage starting from job zone 2, which requires a high school diploma and going to job zone 4 that more than likely will require a 4 year degree. For detailed information on job zones - see the Appendix.

These educational requirement / job zone levels used in conjunction with projected occupational demand provide the educational system with data to support curriculum and program alignment. When used in conjunction with program completion data, this information can help the educational system allocate and optimize resources and offerings based on regional business and economic needs.

## Career Readiness Skills

Based on the table analysis contained in this report on page 19 consisting of Bronze, Silver, Gold and Platinum career readiness levels, a Silver or higher career readiness skill level will be required to satisfy 77% of the projected labor demand in the three Core Employability Skill Areas of Applied Mathematics, Reading for Information and Locating Information. A Gold level has been shown to be both college and career ready based on research conducted by ACT. To see this research go to - <http://www.act.org/research/policymakers/pdf/ReadinessBrief.pdf>

For this reason, a “Go for the Gold” Career Readiness campaign is encouraged in order to provide learners maximum options in being both college and career ready when equipped with a Gold level Career Readiness Certificate.

## Career Clusters

Career clusters organize career pathways and corresponding programs of study into sixteen groupings, as defined by the United States Department of Education’s (USDOE) Office of Vocational and Adult Ed. Career clusters, often represent the first career marketing opportunity for K-12 in promoting careers to students. The sixteen career clusters are:

- Agriculture, Food and Natural Resources
- Architecture and Construction
- Arts, Audio/Video Technology and Communications
- Business, Management and Administration
- Education and Training
- Finance
- Government and Public Administration
- Health Science
- Hospitality and Tourism
- Human Services
- Information Technology

- Law, Public Safety, Corrections and Security
- Manufacturing
- Marketing Sales and Service
- STEM
- Transportation, Distribution, and Logistics

This report did not involve a review of the currently implemented career cluster system in the region. At the same time, potential wage variances have surfaced as it relates to the USDOE defined manufacturing career cluster and the actual wage paid in the region by the manufacturing industry sector. This variance involves the average occupational wage in the manufacturing cluster being far less than the average wage paid by the industry in the region. This variance could prevent students from pursuing careers in the local manufacturing industry. This variance deserves closer examination in order to more accurately communicate local earning potential in the manufacturing industry. This wage variance is shown on page 24 of this report.

## Supply and Demand

Significant opportunities for K-12 and Post-Secondary education exist to serve occupations currently not served in the Erie Region. While some occupations may never warrant the development of a specific instructional program, other occupations may require the development of supporting instructional programs, internships and/or apprenticeship programs to effectively serve the local economy.

On page 28 and 29 of this report, supply and demand tables and charts can be found showing in demand occupations and projected openings by career clusters not currently supplied by post-secondary programs in Erie. The manufacturing career cluster contains the most occupations not currently served by a post-secondary instructional program.

Additionally, based on the table and chart on page 27 and using the O\*NET Job Zone table found in the Appendix, with an average job zone of 2.28, many of the manufacturing occupations can be supplied exclusively in K-12 and/or through an apprenticeship program and/or a 1-2 year post-secondary program when referencing O\*NET Job Zones.

## Soft Skills

As shown on page 30, in a study of forty three in demand occupations not served by a post-secondary instructional program in the critical industry sectors of healthcare and manufacturing, it has been determined that soft skills are of high importance in satisfying the occupational performance requirements based on the skills scores using the O\*NET Skills Database. In this skills review, soft skills were highly important in a review of the top 5 most important skills of forty three in demand occupations that account for 15% of the Erie workforce. This points to the need for the integration of soft skills into the curriculum. This can be done using WIN Learning's online and print based soft skills curriculum as shown below:



**Module 1 - Conveying Professionalism:**

- o Describes components of a strong work ethic, including personal images conveyed to the company and to customers.
- o Explains benefits of a positive attitude and excellent customer relations.
- o Describes the importance of being on-time and dependable.
- o Discusses how motivation affects performance.
- o Offers strategies to build excellent work habits.

**Module 2 - Communicating Effectively**

- o Identifies ways to improve communication and listening skills for a productive work environment.
- o Explains the importance of spoken communication to improving understanding.
- o Assesses use of communication tools—email etiquette, cell phone use, social networking.
- o Describes how to resolve conflict in the workplace.

**Module 3 - Promoting Teamwork and Collaboration**

- o Explains how treating coworkers as team members benefits an organization.
- o Describes how diversity benefits a workplace.
- o Discusses the importance of sensitivity to individual differences.
- o Describes the benefits and challenges of teamwork and collaboration.
- o Defines leadership and its value in the workplace.

**Module 4 - Thinking Critically and Solving Problems**

- o Describes the importance of innovation, creativity, and flexibility in the workplace.
- o Defines adversity and describes how it affects the workplace.
- o Evaluates elements of critical thinking—evidence, reasoning, and fallacies.
- o Distinguishes between inductive and deductive reasoning.
- o Applies strategies to help with creative problem-solving in the workplace.

## Next Steps

- Reach out to the manufacturing community first as the region's leading wage contributor to inform The Erie Regional Career Planning Project's evolution and ongoing improvement
- Develop educational and training programming aligned to the needs of Erie's manufacturing industry sector with high school, apprenticeship and 1-2 year technical post-secondary programming options.
- Schedule quarterly Educonomy meetings involving Erie education, business and workforce development stakeholders
- Emphasize Core Employability Skill development based on in demand occupational profiles in the areas of Applied Mathematics, Locating Information and Reading for Information. This curriculum aligns to ACT's National Career Readiness Certificate assessment which is part of the National Association of Manufacturer's certification system.
- Leverage the existing investment in WIN Learning tools and launch a region wide "Go for the Gold" Certificate campaign in order to optimize post high school graduation options for learners in preparation for college or careers
- Work in partnership with Career Street and their liaisons to facilitate the development of common language which will enable all community stakeholders to play a role in the career guidance and exploration process with a special focus on parents.
- Identify lead career coaches in the partnership to be chief program advocates and facilitators of the career counseling process involving all stakeholders
- Integrate soft skills development into the curriculum based on the soft skills in demand occupational profile study to develop career infused personal, interpersonal, problem-solving and team collaboration skills for all students.
- Extend this study to the entire Northwest Region to include Crawford County
- Analyze the occupational alignment of the manufacturing career cluster

## Further Investigation

- Investigate job-matching system integration into WIN's Career Readiness system to advertise real time job openings to increase career exploration relevance for learners and based on informal feedback from employers in the manufacturing community
- Explore systemic video integration into the curriculum with an initial focus and partnership with the manufacturing community to increase awareness about career opportunities.
- Explore becoming an ACT Work Ready Community while implementing local job profiling to formally document job skill requirements while supporting common language development
- Explore career infused instruction for Middle School
- Explore broad based soft skill development through Common Core curriculum integration
- Explore enhanced promotion of Career and Technical Education opportunities

## Overview of the Region – From Erie Vital Signs

This report proposes to address the highest ranking theme of “Educated” in the *Destination Erie: Creating a Vision Survey* and more specifically the third highest ranked sub-theme in “The region’s education and workforce training system prepares residents to meet the current and future needs of our region’s employers”. This sub-theme scored a 4.55 on a scale of 1 to 5 with 5 being most important based on 1,969 Erie resident survey responses.

### Economy: Business Community

#### This trend is better or improving.

Between June 2013 and June 2014, Erie gained a total of 1,500 jobs, an increase of 1.16 percent. Erie’s job growth performance is above the benchmark average of 1.03 percent during that same period. According to preliminary numbers, sectors with strong job gains include natural resources, mining and construction at 6.82 percent, transportation and utilities at 3.33 percent and leisure and hospitality at 2.68 percent.

Manufacturing jobs declined by 1.33 percent and professional and business services jobs declined by 1.04 percent year-over-year.

Sectors that remained stable over the 12-month period include retail trade jobs and information jobs. After several years of increasing the number of business establishments, Erie saw a slight decline of 6 percent between 2011 and 2012.

### Economy: Employment

#### This trend is better or improving.

Some 1,815 fewer Erie County residents were unemployed in March 2014 compared to March 2013 – a 16.7 percent decline in the jobless population, according to seasonally adjusted U.S. Bureau of Labor Statistics data. The decline brought the total number of jobless residents in the county to 9,005. During the recession the maximum number of Erie County residents unemployed was 14,825, in January 2010. Erie County’s unemployment rate was also lower, falling from 7.7 percent to 6.4 during that period.

The county’s rate remains higher than the average among the 15 Erie Vital Signs benchmark regions (6.1 percent) and the average unemployment rate for Pennsylvania (6 percent). However, Erie’s jobless rate falls below the average rate for the nation (6.7 percent). This is very good news for Erie because until this recent recession it was a rare occurrence for Erie’s unemployment rate to be below the national rate by historical (pre 2007) standards.

The number of people employed rose only .75 percent to stand at 131,269, an increase of 983 working residents. That rate of increase was the sixth lowest reported among the Erie Vital Signs benchmark regions.

While the unemployment rate has been falling, in many places/cases it has been due to people dropping out of the labor force, perhaps because they are discouraged about ever finding a job. While the unemployment rate going down is good news, it's substantially better news if the labor force is not falling—or even rising—at the same time. The fact that Erie's labor force rose, and faster than those of the benchmark regions, is another piece of economic good news.

## **Economy: Wages**

**This trend is mixed or inconclusive.**

### **Average Weekly Wages**

Average weekly wages in Erie grew at a slow rate from 2012 to 2013 compared to its benchmark regions, according to the most recent U.S. Bureau of Labor Statistics wage data. Erie's weekly wages rose .94 percent from \$744 to \$751 year-over-year, the seventh slowest rate of all benchmark regions. Such data suggest Erie's labor market, while slowly growing, remains relatively weak. The region's average weekly wages for 2013 ranked well below the benchmark average of \$845 and was the second lowest of all benchmark peers.

### **Average Annual Pay**

Average annual pay in Erie grew .9 percent from \$38,688 in 2012 to \$39,038 in 2013, the seventh slowest rate of all benchmark regions. The region's average annual pay ranked below the benchmark average of \$43,964 and was the second lowest of all benchmark peers. out of the labor force, perhaps because they are discouraged about ever finding a job. While the unemployment rate going down is good news, it's substantially better news if the labor force is not falling—or even rising—at the same time. The fact that Erie's labor force rose, and faster than those of the benchmark regions, is another piece of economic good news. Sectors that remained stable over the 12-month period include retail trade jobs and information jobs. After several years of increasing the number of business establishments, Erie saw a slight decline of .6 percent between 2011 and 2012.

## **Education: Educational Attainment**

**This trend is mixed or inconclusive.**

Education is a barometer of a region's economic viability and the prospects of the people who live there. The education levels attained by Erie County residents offer mixed results when compared with attainment levels found in 13 benchmark regions. The good news is that the

education levels of Erie County residents aged 18 to 24 compare more favorably than those of older residents, suggesting the population is becoming more educated.

### **25 Years and Older**

Erie County has one of the lowest rates of residents 25-years-old or older who have less than a 9th grade level of education among the benchmark regions – and that rate is declining. But Erie County’s percentages of residents in this age group who have some college or have earned an associate’s, bachelor’s or graduate degree fall below the averages among benchmark region.

### **18 to 24 Years Olds**

The general trend among this group of younger residents is generally one of improvement. The latest data, for example, show a significant decline in those with less than a high school diploma. And the rate of 18-to-24-year-old Erie County residents with a bachelor’s or higher degree has climbed above the average found among the benchmark regions.

### **Median Earnings**

The latest data show a strong link between what people earn and their level of education. For example, the median earnings of an Erie County resident without a high school diploma is \$17,521. That’s \$24,279 less than the median earnings of someone with a bachelor’s degree.

## **Economy: Wages**

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## Data Sources

### Workforce

#### Wages

Data sources to inform occupational wages in this report came from the Bureau of Labor Statistics' (BLS) Occupational Employment Statistics (OES) program. The OES program produces employment and wage estimates annually for over 800 occupations. These estimates are available for the nation as a whole, for individual States, and for metropolitan and nonmetropolitan areas; national occupational estimates for specific industries are also available. This report uses Pennsylvania OES 2013 wage data since a significant number of occupations did not have wage data for The Erie MSA.

#### Projections

The data source to inform employment projections was obtained from the Pennsylvania Department of Labor and Industry and uses projection data across a ten year span from 2010-2020

#### Industry

The data source to inform the industry data was obtained from BLS and The Quarterly Census of Employment and Wages (QCEW) program. This program publishes a quarterly count of employment and wages reported by employers covering 98 percent of U.S. jobs, available at the county, MSA, state and national levels by industry.

### Education Data

#### Integrated Post-Secondary Education Data System

Completer Data was obtained from the National Center for Educational Statistics (NCES) and its Integrated Post-Secondary Education Data System (IPEDS) program for completions through June 30, 2013. IPEDS gathers information from every college, university, and technical and vocational institution that participates in the federal student financial aid programs

#### ACT

ACT WorkKeys is a job skills assessment system that helps employers select, hire, train, develop, and retain a high-performance workforce. This series of tests measures foundational and soft skills and offers specialized assessments to target institutional needs.

As part of ACT's Work Readiness System, ACT WorkKeys has helped millions of people in high schools, colleges, professional associations, businesses, and government agencies build their skills to increase global competitiveness and develop successful career pathways.

Successful completion of ACT WorkKeys assessments in Applied Mathematics, Locating Information, and Reading for Information can lead to earning ACT's National Career Readiness Certificate (NCRC), a portable credential earned by more than 1 million people across the United States.

Standards for the WorkKeys assessment are driven by a formal researched based approach called *Job Profiling*. Trained job profilers work with employers to formally document job tasks while working with subject matter experts to accurately analyze skill levels to perform the job. The skill levels are then equated to the ACT WorkKeys assessment instrument to help inform both employers and learners career readiness levels using published occupational profiles and assessments.

The assessment battery consists of Reading for Information, Applied Mathematics, Locating Information, Applied Technology, Teamwork, Listening and Writing. The most common assessments used are Reading for Information, Applied Mathematics and Locating Information which aligns to ACT's National Career Readiness Certificate (NCRC). These competencies are required in 85% of available jobs.

The NCRC uses a credentialing system that recognizes levels of career readiness competencies in Reading for Information, Applied Mathematics and Locating Information. The credentialing system recognizes career readiness levels using the following certificate levels: Bronze, Silver, Gold and Platinum. A Gold level has been shown to be both college and career ready based on research conducted by ACT. To see this research go to -

<http://www.act.org/research/policymakers/pdf/ReadinessBrief.pdf>

### **Occupational Information Network (O\*NET)**

The Occupational Information Network (O\*NET) program is the nation's primary source of occupational information. Central to the project is the O\*NET database, containing information on hundreds of standardized and occupation-specific descriptors. The database, which is available to the public at no cost, is continually updated by surveying a broad range of workers from each occupation. Information from this database forms the heart of O\*NET On-Line, an interactive application for exploring and searching occupations.

This reports uses O\*NET's Job Zones and Skills database to inform education, training and skill importance requirements for specific occupations. The skills database consists of 35 skill constructs. The O\*NET Job Zones can be found in the Appendix (Appendix B).

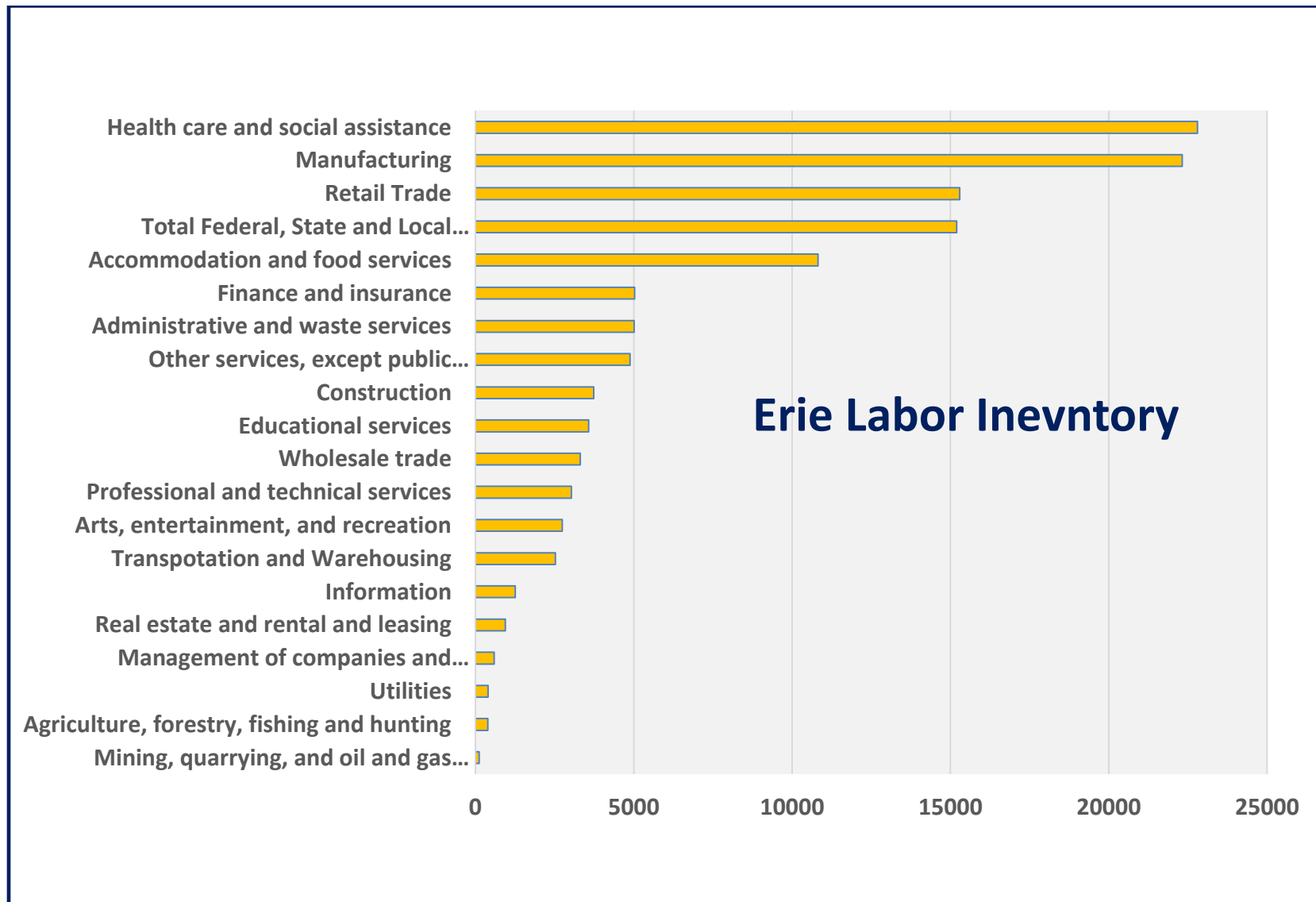


## Erie Labor Inventory by Industry – Table

Twenty industries are represented in this table for Erie County. Industries represented in yellow are industries that provide approximately 37% of the employment in Erie County with manufacturing having a location quotient of 1.93. Any location quotient value over a 1.0 in comparison to the United States signals a competitive advantage and an exporter of that industry good or service. Areas shaded in blue have shown recent signs of growth while mining on a statewide basis continues to accelerate based on the Marcellus Shale.

Code	Sector	Establishments	Annual Wage	Employees	Total Wage
<b>62</b>	<b>Health care and social assistance</b>	<b>1505</b>	<b>\$ 39,864.00</b>	<b>22802</b>	<b>\$ 908,983,196.00</b>
<b>31-33</b>	<b>Manufacturing</b>	<b>473</b>	<b>\$ 55,678.00</b>	<b>22318</b>	<b>\$ 1,242,588,865.00</b>
44-45	Retail Trade	931	\$ 23,749.00	15294	\$ 363,230,594.00
10	Total Federal, State and Local Government	355	\$ 46,771.00	15200	\$ 710,920,311.00
72	Accommodation and food services	591	\$ 12,836.00	10820	\$ 138,892,946.00
52	Finance and insurance	328	\$ 68,635.00	5023	\$ 344,763,260.00
56	Administrative and waste services	281	\$ 21,658.00	5012	\$ 108,549,611.00
81	Other services, except public administration	647	\$ 24,326.00	4885	\$ 118,832,288.00
<b>23</b>	<b>Construction</b>	<b>520</b>	<b>\$ 43,379.00</b>	<b>3735</b>	<b>\$ 162,034,853.00</b>
61	Educational services	79	\$ 34,922.00	3571	\$ 124,708,361.00
42	Wholesale trade	301	\$ 48,376.00	3311	\$ 160,159,410.00
54	Professional and technical services	420	\$ 49,309.00	3030	\$ 149,381,028.00
71	Arts, entertainment, and recreation	101	\$ 18,625.00	2741	\$ 51,042,293.00
48-49	Transportation and Warehousing	159	\$ 37,244.00	2526	\$ 94,079,320.00
51	Information	58	\$ 45,119.00	1254	\$ 56,593,994.00
53	Real estate and rental and leasing	175	\$ 27,817.00	945	\$ 26,273,590.00
55	Management of companies and enterprises	40	\$ 54,742.00	591	\$ 32,352,255.00
22	Utilities	13	\$ 77,280.00	396	\$ 30,596,592.00
11	Agriculture, forestry, fishing and hunting	43	\$ 24,039.00	389	\$ 9,349,305.00
<b>21</b>	<b>Mining, quarrying, and oil and gas extraction</b>	<b>17</b>	<b>\$ 49,041.00</b>	<b>120</b>	<b>\$ 5,905,409.00</b>
<b>10</b>	<b>Total All</b>	<b>7035</b>	<b>\$ 39,038.39</b>	<b>123961</b>	<b>\$ 4,839,237,481.00</b>

## Erie Labor Inventory by Industry – Graph

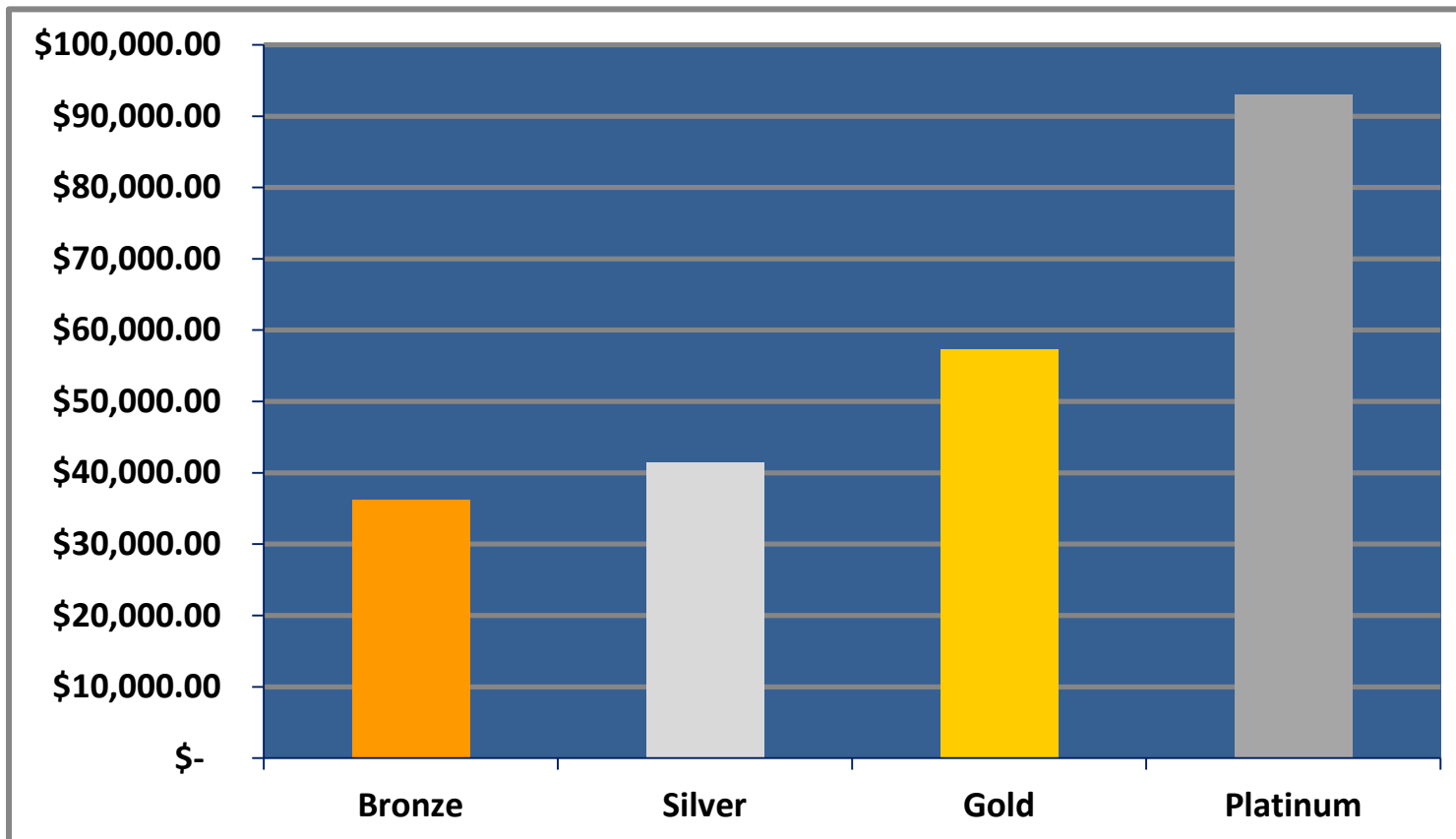


## Workforce of the future

The below table displays the Erie's workforce of the future and compares similarly with the rest of the United States with a significant representation from the retail, healthcare and hospitality sectors. These projections were sourced from the Pennsylvania Department of Labor and Industry.

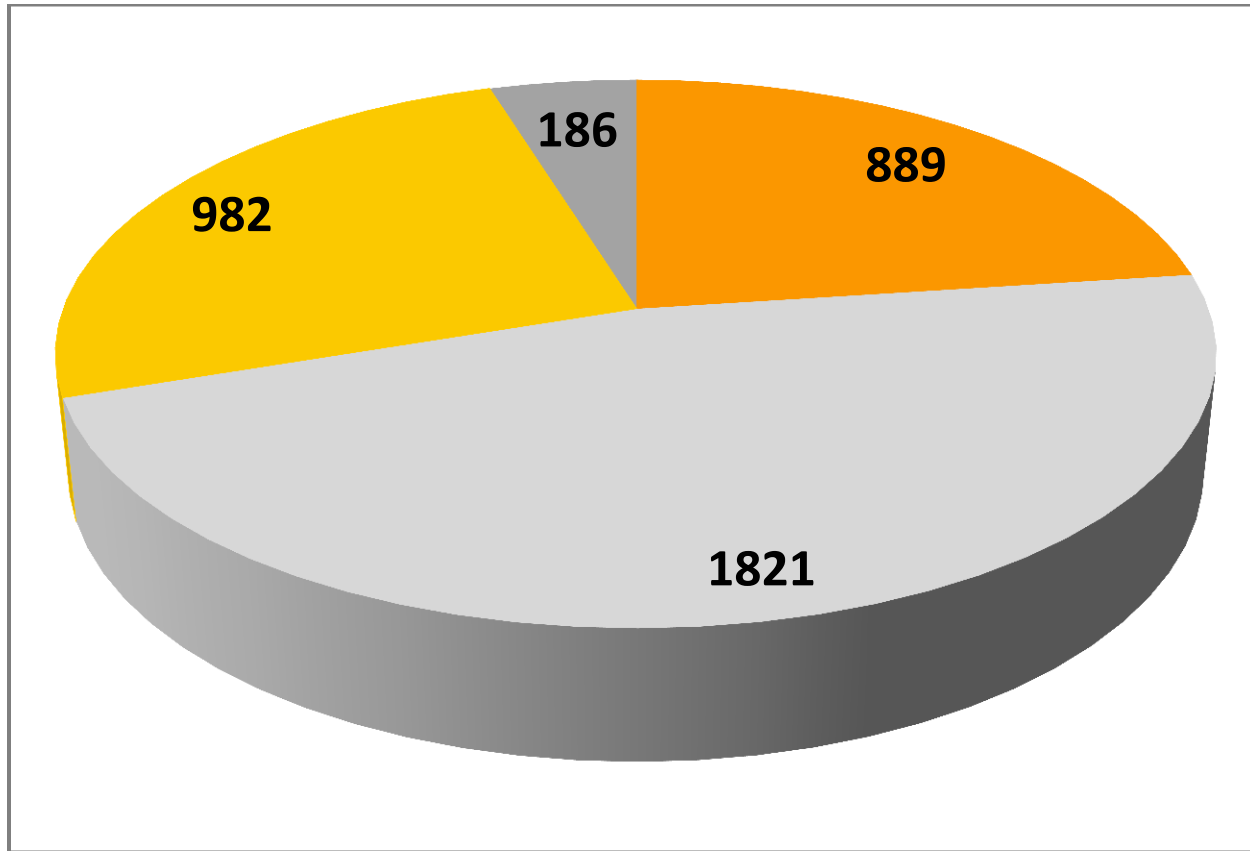
SOC	Occupation	Annual Wage	Career Clusters	CRC	Emp 2020	Prj. Annual Openings	Workforce %
41-2031	Retail Salespersons	\$ 25,950.00	Marketing	Gold	4810	157	3.40%
41-2011	Cashiers	\$ 19,570.00	Marketing	Silver	3270	151	2.31%
35-3021	Combined Food Preparation, Serving Workers, Fast Food	\$ 18,930.00	Hospitality & Tourism	Bronze	3520	128	2.49%
35-3031	Waiters & Waitresses	\$ 20,520.00	Hospitality & Tourism	Silver	2280	120	1.61%
29-1141	Registered Nurses	\$ 66,010.00	Health Science	Gold	3880	117	2.75%
31-1011	Home Health Aides	\$ 20,750.00	Health Science	Silver	2810	90	1.99%
43-9061	Office Clerks, General	\$ 30,610.00	Business Management & Administration	Silver	3450	76	2.44%
43-4051	Customer Service Representatives	\$ 34,070.00	Business Management & Administration	Bronze	1890	61	1.34%
39-9011	Child Care Workers	\$ 20,470.00	Human Services	Silver	1670	60	1.18%
53-7062	Laborers & Freight, Stock & Material Movers, Hand	\$ 28,990.00	Transportation, Distribution & Logistics	Bronze	1600	57	1.13%
39-9021	Personal & Home Care Aides	\$ 21,580.00	Human Services	Bronze	1820	49	1.29%
37-2011	Janitors & Cleaners, Except Maids & Housekeeping Cleaners	\$ 26,280.00	Hospitality & Tourism	Silver	2250	44	1.59%
31-1014	Nursing assistants	\$ 27,850.00	Health Science	Silver	2230	44	1.58%
43-3031	Bookkeeping, Accounting & Auditing Clerks	\$ 36,380.00	Business Management & Administration	Silver	1430	23	1.16%
43-6014	Secretaries, Except Legal, Medical & Executive	\$ 32,720.00	Business Management & Administration	Silver	1120	23	1.15%

**Averages Annual Wages per ACT WorkKeys NCRC levels for categorically related occupations**



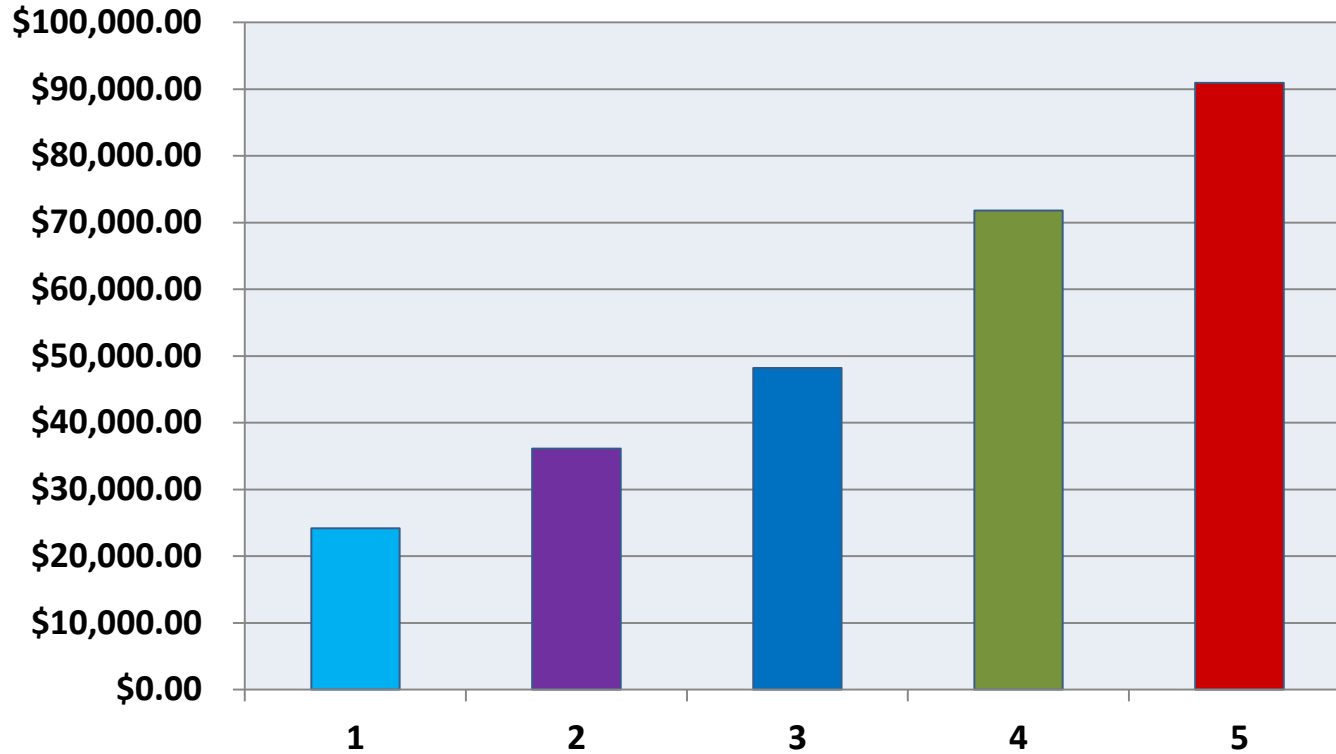
CRC	Average
Bronze Level 3	\$ 36,192.02
Silver Level 4	\$ 41,452.43
Gold Level 5	\$ 57,261.90
Platinum Level 6	\$ 92,960.53

## Erie Projected job openings per National Career Readiness Certificate Level



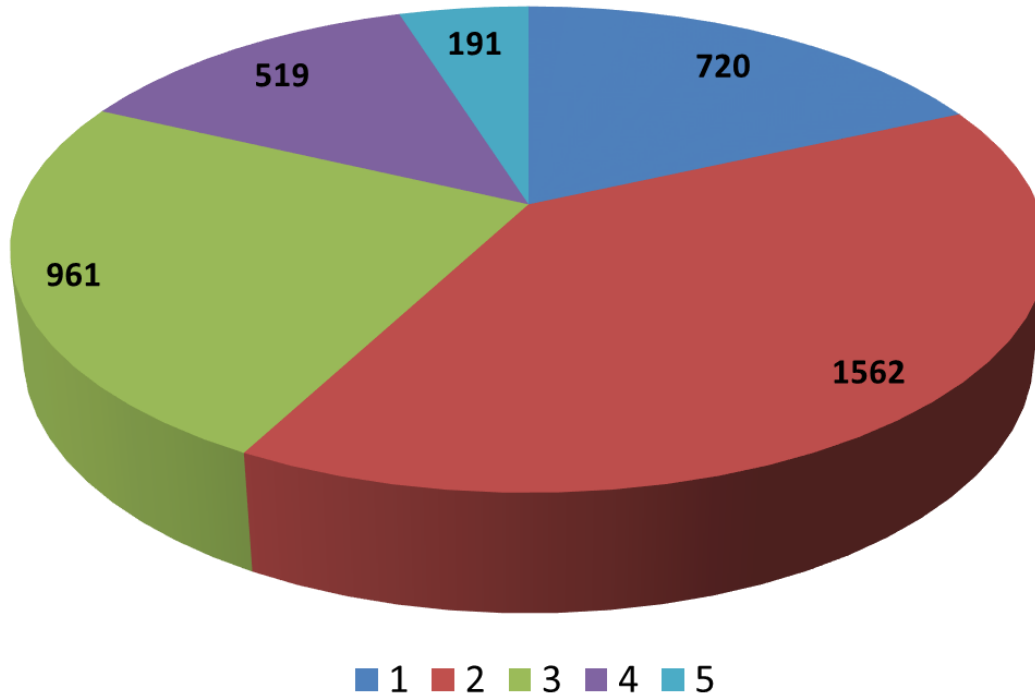
CRC	Projection	Percent
Bronze	889	22.92%
Silver	1821	46.96%
Gold	982	25.32%
Platinum	186	4.80%

**Erie Averages Annual Wages per O\*NET Job Zone levels for categorically related occupations based on PA OES Tables**



<b>Job Zone</b>	<b>Average</b>
<b>1</b>	<b>\$24,160.30</b>
<b>2</b>	<b>\$36,098.87</b>
<b>3</b>	<b>\$48,189.80</b>
<b>4</b>	<b>\$71,811.36</b>
<b>5</b>	<b>\$90,958.84</b>

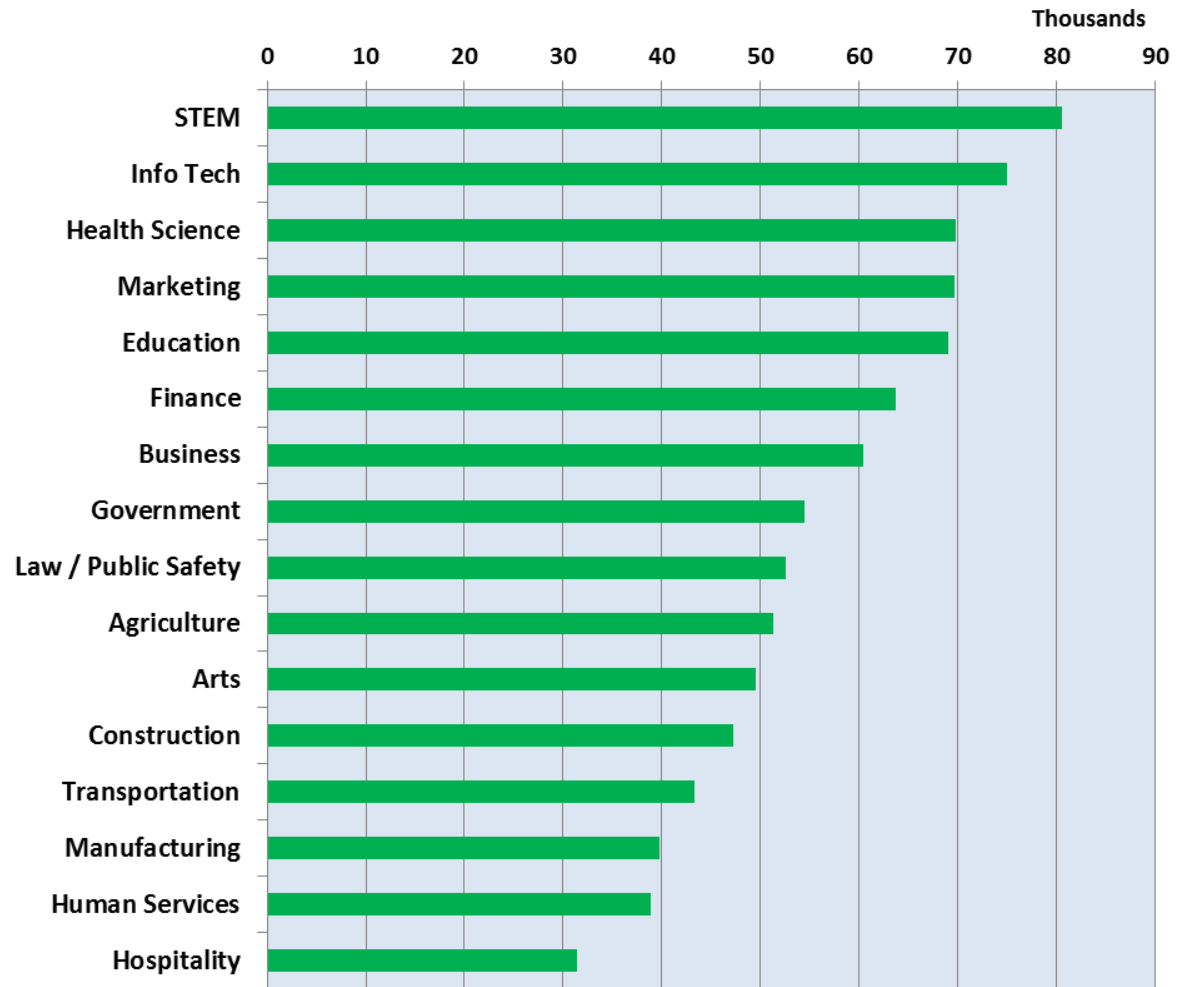
## Erie Projected job openings per National Career Readiness Certificate Level



Job Zone	Projections	Percent
1	720	18.21%
2	1562	39.51%
3	961	24.31%
4	519	13.13%
5	191	4.83%

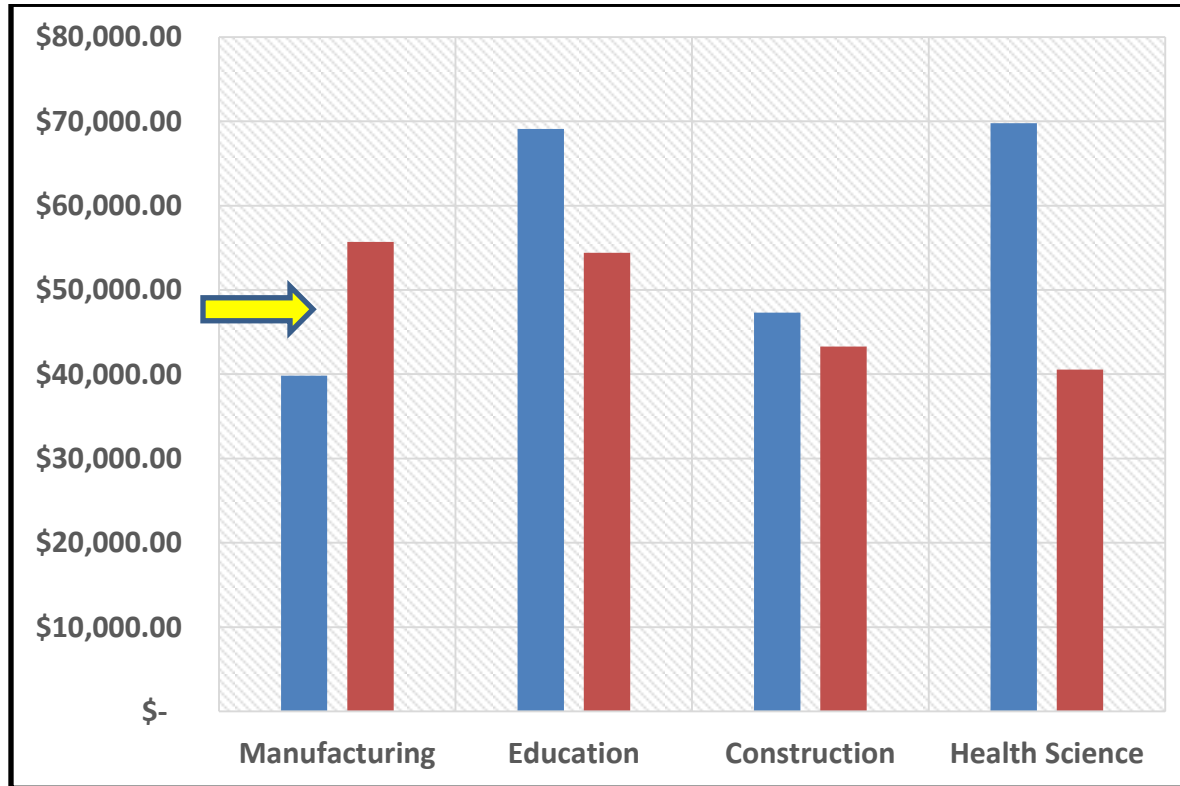
## Erie County Wages Per Career Cluster: OES PA – 2013

Cluster	Average
STEM	\$ 80,611.66
Info Tech	\$ 75,000.00
Health Science	\$ 69,789.03
Marketing	\$ 69,640.00
Education	\$ 69,105.10
Finance	\$ 63,780.52
Business	\$ 60,492.22
Government	\$ 54,508.75
Law / Public Safety	\$ 52,544.54
Agriculture	\$ 51,310.90
Arts	\$ 49,598.75
Construction	\$ 47,288.88
Transportation	\$ 43,309.50
Manufacturing	\$ 39,812.94
Human Services	\$ 38,891.72
Hospitality	\$ 31,442.10





## Erie County Noted Wage Variances Per Career Cluster (OES PA -2013 / State of PA)

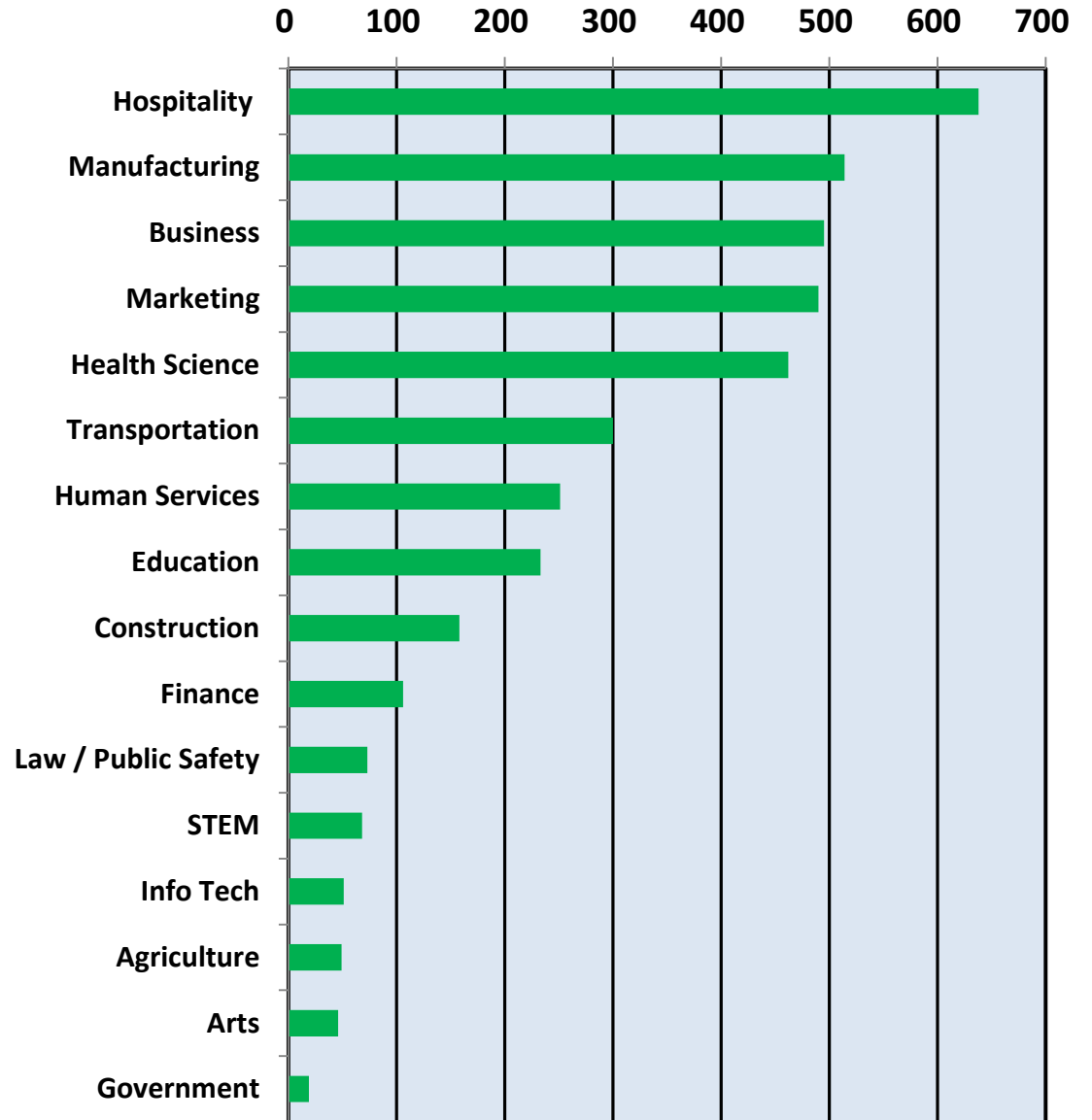


Career Clusters	Average	Ind. Average
<b>Manufacturing</b>	\$ 39,812.94	\$ 55,678.00
<b>Education</b>	\$ 69,105.10	\$ 54,420.00
<b>Construction</b>	\$ 47,288.88	\$ 43,292.00
<b>Health Science</b>	\$ 69,789.03	\$ 40,558.00



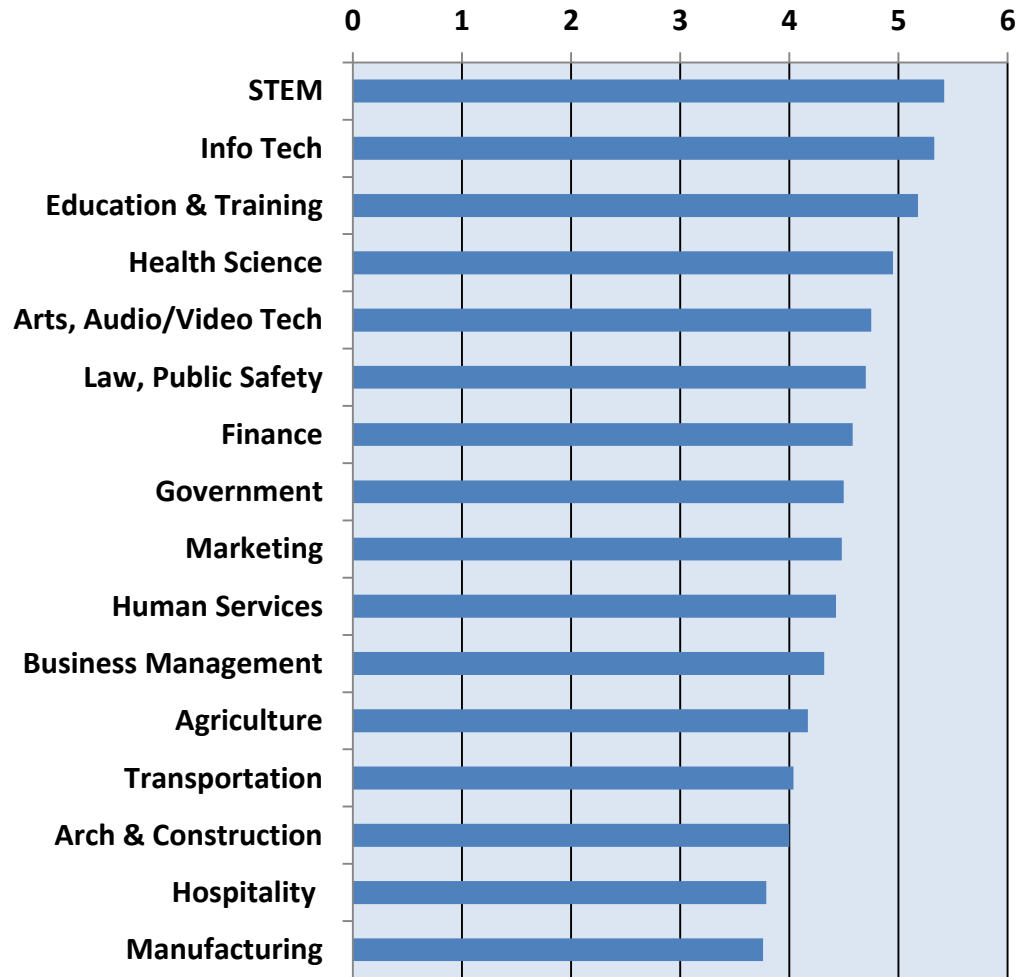
## Erie Projections Per Career Cluster

Cluster	Projections
Hospitality	638
Manufacturing	514
Business	495
Marketing	490
Health Science	462
Transportation	300
Human Services	251
Education	233
Construction	158
Finance	106
Law / Public Safety	73
STEM	68
Info Tech	51
Agriculture	49
Arts	46
Government	19



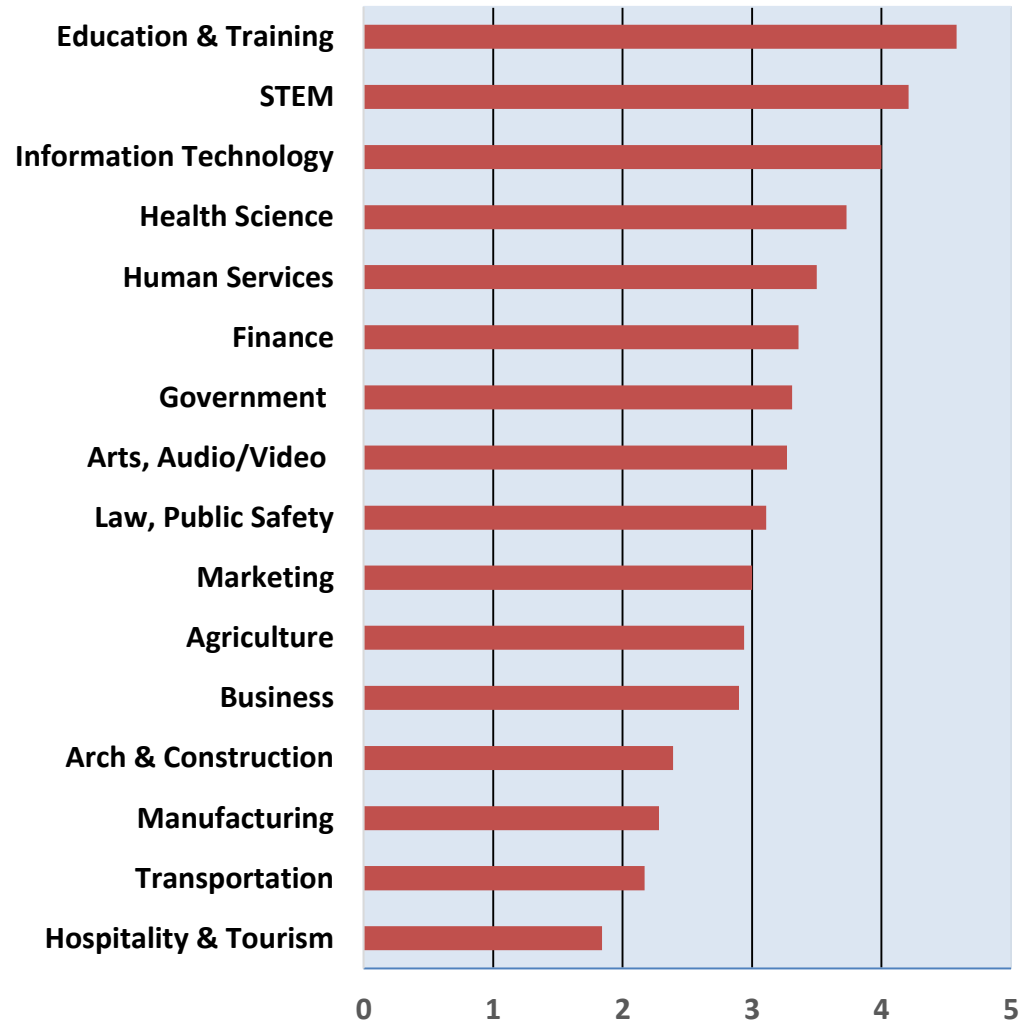
## Average Career Readiness Level of Erie Occupation K-12 Career Cluster

Cluster	CRC
STEM	5.42
Info Tech	5.33
Education & Training	5.18
Health Science	4.95
Arts, Audio/Video Tech	4.75
Law, Public Safety	4.7
Finance	4.58
Government	4.5
Marketing	4.48
Human Services	4.43
Business Management	4.32
Agriculture	4.17
Transportation	4.04
Arch & Construction	4
Hospitality	3.79
Manufacturing	3.76



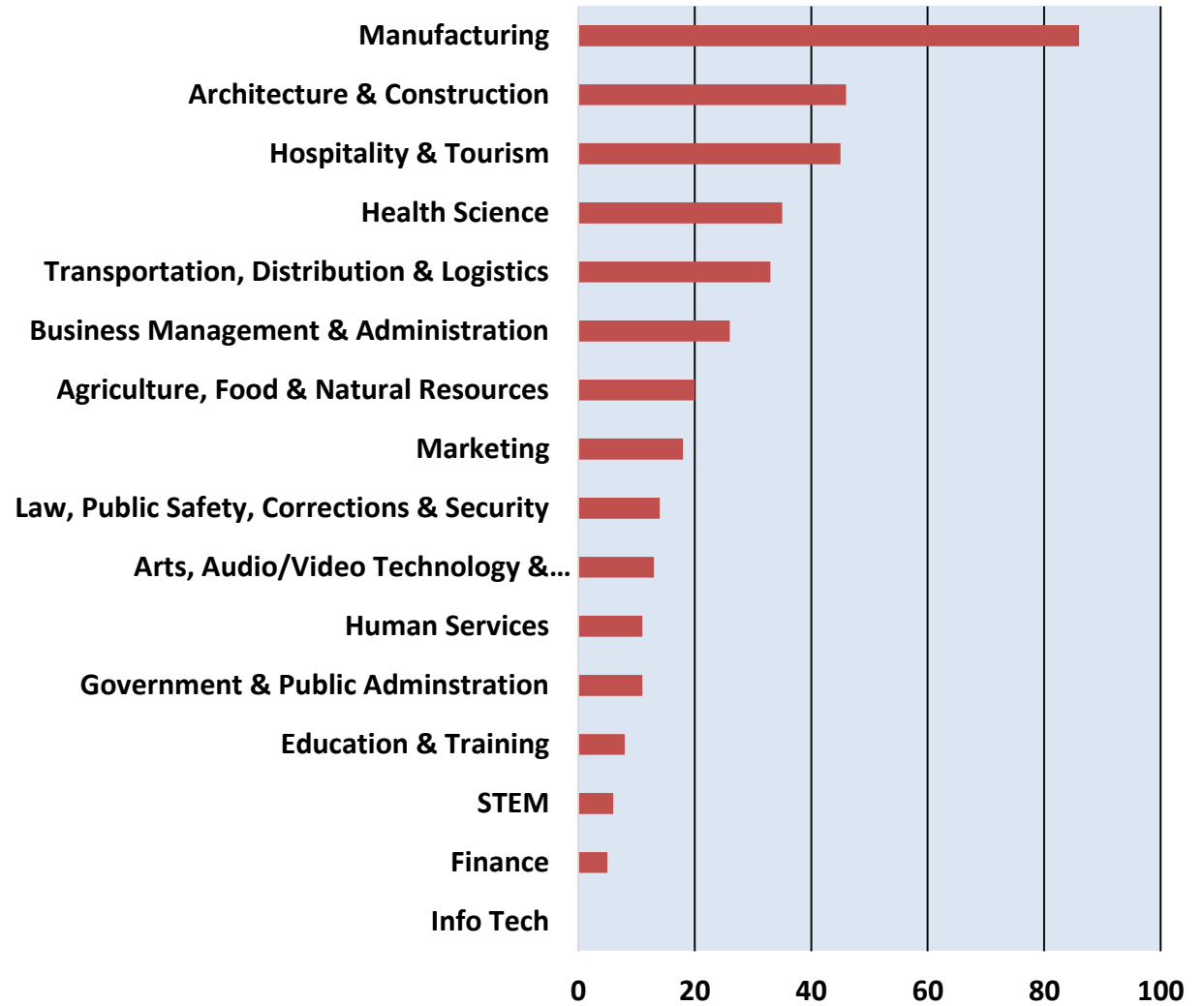
## Average Job Zone of Erie Occupations K-12 Career Cluster

Cluster	Job Zone
Education & Training	4.58
STEM	4.21
Information Technology	4
Health Science	3.73
Human Services	3.5
Finance	3.36
Government	3.31
Arts, Audio/Video	3.27
Law, Public Safety	3.11
Marketing	3
Agriculture	2.94
Business	2.9
Arch & Construction	2.39
Manufacturing	2.28
Transportation	2.17
Hospitality & Tourism	1.84



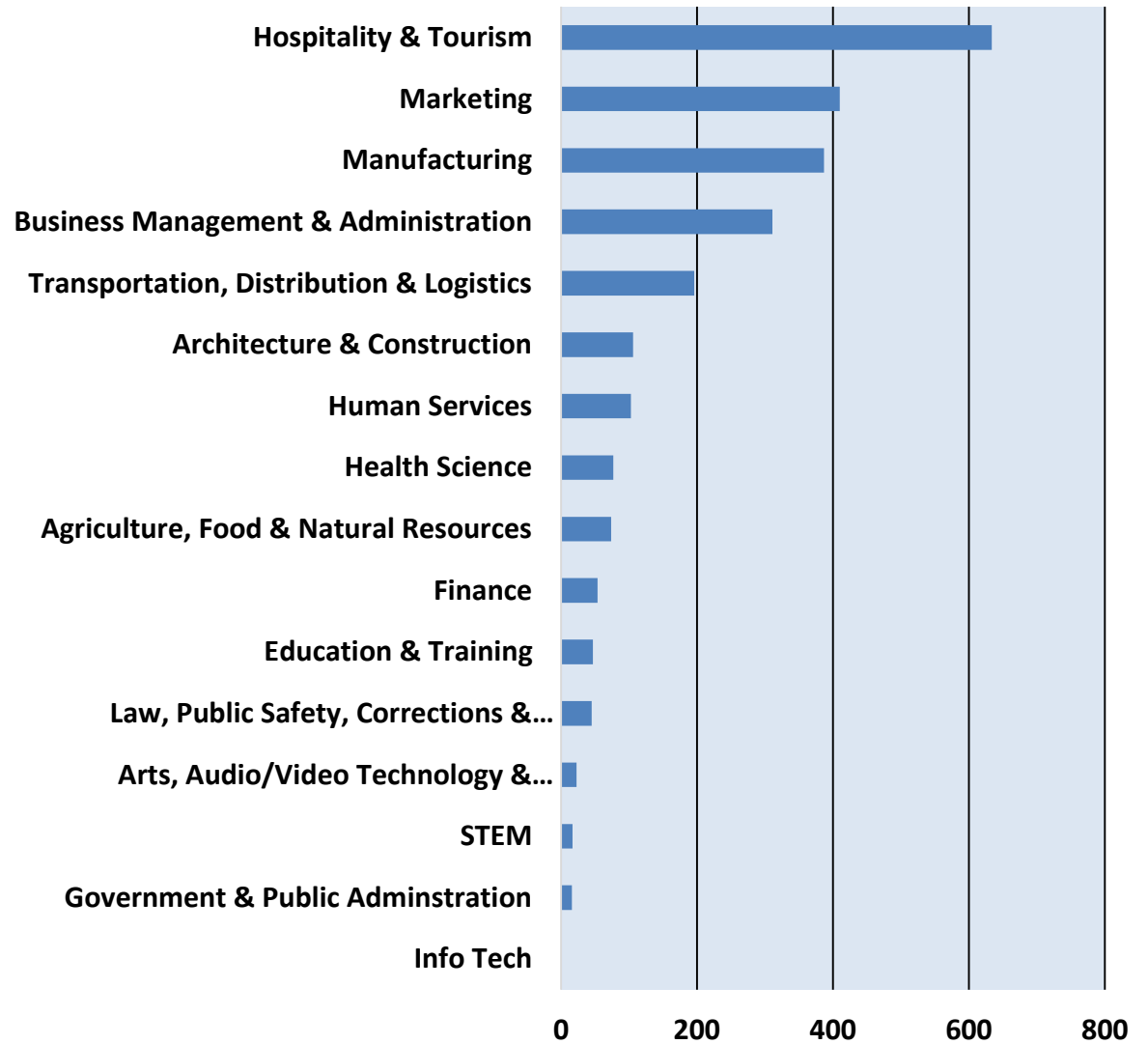
### Supply and Demand: Number of Occupations not served in Erie by Post-Secondary Program per Career Cluster

Cluster	Occupations
Manufacturing	86
Architecture & Construction	46
Hospitality & Tourism	45
Health Science	35
Transportation, Distribution & Logistics	33
Business Management & Administration	26
Agriculture, Food & Natural Resources	20
Marketing	18
Law, Public Safety, Corrections & Security	14
Arts, Audio/Video Technology & Communications	13
Government & Public Administration	11
Human Services	11
Education & Training	8
STEM	6
Finance	5
Info Tech	0



## Supply and Demand: Number of Projected Openings in Erie not served by Post-Secondary Program per Career Cluster

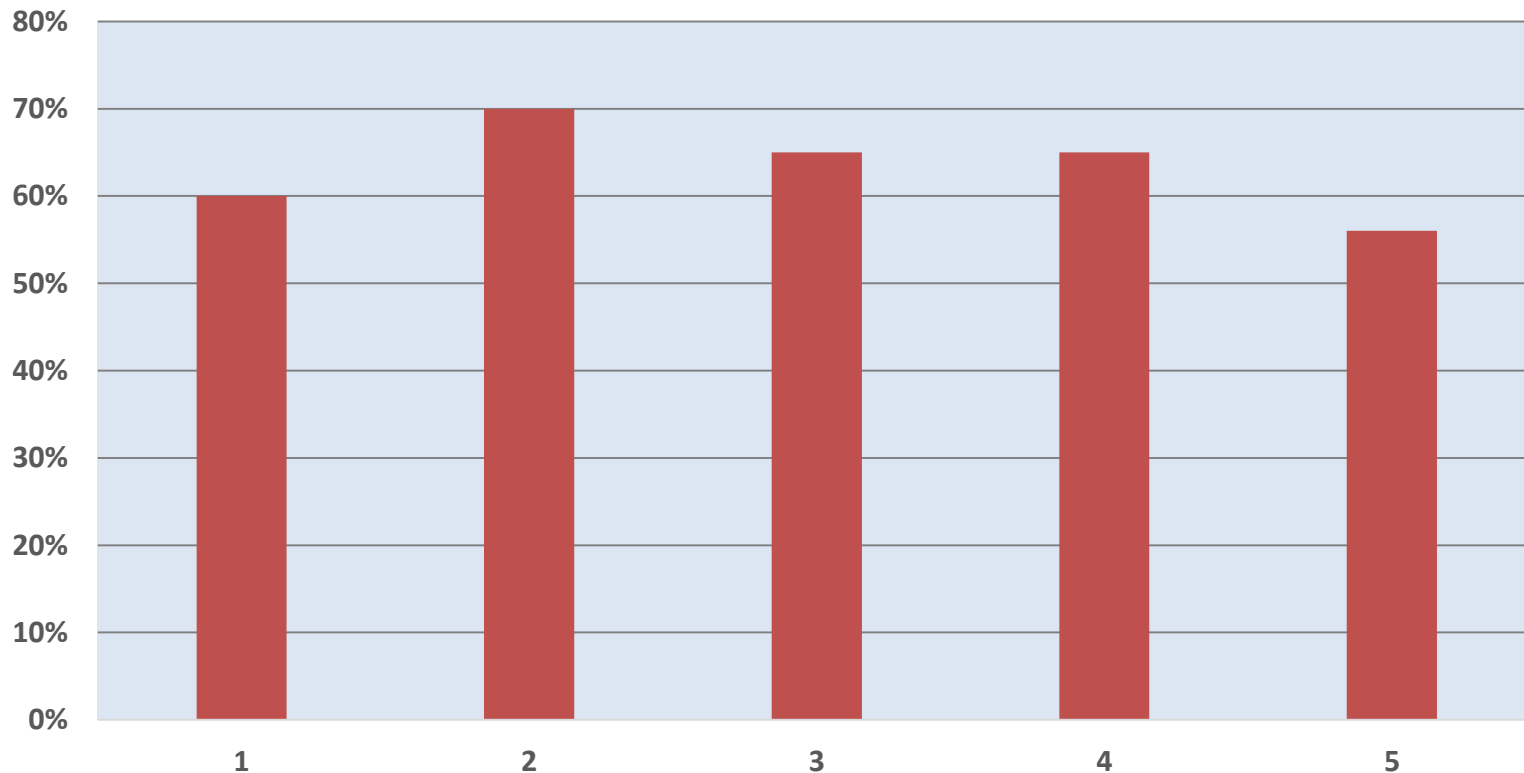
Cluster	Occ. Demand
Hospitality & Tourism	634
Marketing	410
Manufacturing	387
Business Management & Administration	311
Transportation, Distribution & Logistics	196
Architecture & Construction	106
Human Services	103
Health Science	77
Agriculture, Food & Natural Resources	74
Finance	54
Education & Training	47
Law, Public Safety, Corrections & Security	45
Arts, Audio/Video Technology & Communications	23
STEM	17
Government & Public Administration	16
Info Tech	0



## Skills Study

Using the National Crosswalk Service to view a range of occupations employed by both the Manufacturing and Healthcare sectors, 400 occupations were identified that served those industries. Of those 400, 43 resulting occupations skills were studied using the O\*NET Skills Database. The filtering process involved filtering out occupations with annual wages under \$35,500.00, occupations served by post-secondary instructional programs and obvious occupational correlations that were highly unspecialized to the industry or correlations that were judged incorrect were removed. The results of the study showed that both soft and foundational skills were most important to job performance. The skills in high demand by the occupations studied include: Active Listening, Critical Thinking, Monitoring, Reading Comprehension, Speaking, and Writing. Other more technical skills that were highly ranked included: Equipment Maintenance, Operation and Control, Operation Monitoring, Quality Control Analysis & Troubleshooting. The below graph shows percentage rankings for the top five skills for the forty-three occupations studied that were soft or foundational skills.

**Top 5 Rated Skills of 43 Studied Occupations that were Soft/Foundation Skills by %**



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**APPENDIX A**  
(O\*NET Job Zones)

Job Zone	Experience	Education	Job Training	Examples
1	Little or no previous work-related skill, knowledge, or experience is needed for these occupations. For example, a person can become a waiter or waitress even if he/she has never worked before.	Some of these occupations may require a high school diploma or GED certificate.	Employees in these occupations need anywhere from a few days to a few months of training. Usually, an experienced worker could show you how to do the job.	These occupations involve following instructions and helping others. Examples include taxi drivers, amusement and recreation attendants, counter and rental clerks, construction laborers, continuous mining machine operators, and waiters/waitresses.
2	Some previous work-related skill, knowledge, or experience is usually needed. For example, a teller would benefit from experience working directly with the public.	These occupations usually require a high school diploma.	Employees in these occupations need anywhere from a few months to one year of working with experienced employees. A recognized apprenticeship program may be associated with these occupations.	These occupations often involve using your knowledge and skills to help others. Examples include sheet metal workers, forest fire fighters, customer service representatives, physical therapist aides, salespersons (retail), and tellers.
3	Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.	Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree.	Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers. A recognized apprenticeship program may be associated with these occupations.	These occupations usually involve using communication and organizational skills to coordinate, supervise, manage, or train others to accomplish goals. Examples include food service managers, electricians, agricultural technicians, legal secretaries, interviewers, and insurance sales agents.
4	A considerable amount of work-related skill, knowledge, or experience is needed for these occupations. For example, an accountant must complete four years of college and work for several years in accounting to be considered qualified.	Most of these occupations require a four-year bachelor's degree, but some do not.	Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.	Many of these occupations involve coordinating, supervising, managing, or training others. Examples include accountants, sales managers, database administrators, teachers, chemists, environmental engineers, criminal investigators, and special agents.
5	Extensive skill, knowledge, and experience are needed for these occupations. Many require more than five years of experience. For example, surgeons must complete four years of college and an additional five to seven years of specialized medical training to be able to do their job.	Most of these occupations require graduate school. For example, they may require a master's degree, and some require a Ph.D., M.D., or J.D. (law degree).	Employees may need some on-the-job training, but most of these occupations assume that the person will already have the required skills, knowledge, work-related experience, and/or training.	These occupations often involve coordinating, training, supervising, or managing the activities of others to accomplish goals. Very advanced communication and organizational skills are required. Examples include librarians, lawyers, aerospace engineers, wildlife biologists, school psychologists, surgeons, treasurers, and controllers.

**APPENDIX B**  
(Occupations in Skills Study)

<b>SOC</b>	<b>Title</b>	<b>SOC</b>	<b>Title</b>
11-9111	Medical and Health Services Managers	49-9041	Industrial Machinery Mechanics
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	49-9052	Telecommunications Line Installers and Repairers
13-1151	Training and Development Specialists	49-9071	Maintenance and Repair Workers, General
13-2053	Insurance Underwriters	51-1011	First-Line Supervisors of Production and Operating Workers
17-2112	Industrial Engineers	51-2022	Electrical and Electronic Equipment Assemblers
21-1011	Substance Abuse and Behavioral Disorder Counselors	51-2023	Electromechanical Equipment Assemblers
21-1015	Rehabilitation Counselors	51-2092	Team Assemblers
27-1026	Merchandise Displayers and Window Trimmers	51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic
27-3031	Public Relations Specialists	51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic
29-1051	Pharmacists	51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators,
29-2011	Medical and Clinical Laboratory Technologists	51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and P
29-2012	Medical and Clinical Laboratory Technicians	51-4041	Machinists

29-2041	Emergency Medical Technicians and Paramedics	51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, M
41-1012	First-Line Supervisors of Non-Retail Sales Workers	51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic
41-3021	Insurance Sales Agents	51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plas
43-4051	Customer Service Representatives	51-5112	Printing Press Operators
43-4061	Eligibility Interviewers, Government Programs	51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	51-9111	Packaging and Filling Machine Operators and Tenders
43-5061	Production, Planning, and Expediting Clerks	53-3032	Heavy and Tractor-Trailer Truck Drivers
43-5071	Shipping, Receiving, and Traffic Clerks	53-3033	Light Truck or Delivery Services Drivers
47-2073	Operating Engineers and Other Construction Equipment Operators	53-7051	Industrial Truck and Tractor Operators
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers		