

# A Labor Market and Workforce Profile of the Coastal Counties Workforce Investment Region

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## EXECUTIVE SUMMARY

To evaluate the current conditions of the Coastal Counties Workforce Investment Area, an extensive data analysis of the region's labor market, industrial structure, occupational mix and skill requirements, and an inventory of the region's workforce training capacities was completed and is contained in the body of this report. The analysis employed readily available secondary data from a variety of federal, state, and local sources, as well as data provided from Coastal Counties Workforce Investments sourced from Economic Modeling Specialists International. The result is a comprehensive understanding of where the region's labor market and workforce have been and where it is headed.

A number of challenges, as well as opportunities are present in the region, as it adjusts to broader economic shifts in the global economy and within the state of Maine. As the state's economic center, the success of the Coastal Counties region will drive the success of Maine.

### *The deficit between workforce entrants and retirees and loss of workforce skills*

Collectively, the current labor market trends and demographic projections pose very difficult challenges for the CCWI region and the greater state of Maine in terms of competitiveness and economic development. The challenges of population demographics in the region and state are not new. There is a dearth of younger populations entering the labor force to replace aging workers that will soon be reaching retirement age. While impacts of these trends are beginning to show in the labor market, they will continue to affect the supply of workers in the years ahead restricting access. Specific industries will be affected the most, such as manufacturing and to some degree education and health care which tend to have higher median ages than other professions. Without a steady increase of workers migrating to the region, the labor pool will continue to shrink. However, low wages and difficulties with trailing household members securing professional employment makes it difficult to attract significant numbers of people to work in the region.

Another critical implication of these trends is the loss of skills and experience in the workforce from retiring workers. This creates additional competitive disadvantages for the region and state. These impacts will likely vary across industries in the region, affecting mature industries to a greater extent than other more knowledge intensive and innovation based industries. Furthermore, filling these skill and worker voids may increasingly rest upon the workforce system and training programs to keep the region's industrial drivers competitive. This has two implications for workforce development. The first is that training will likely focus on existing employer needs and upskilling to bolster productivity. While it is expected that market forces will correct some of these imbalances, targeted training programs will be increasingly important to help maintain regional competitiveness and halt the loss of firms in the region that will seek talent elsewhere.

In general, the CCWI regional economy is healthy and expanding although very slowly. This runs contrary to the remainder of the state, which has seen a decline in real output since prior to the recession. Employment in the region has yet to reach pre-recession peaks almost 5 years after the recession technically ended. However, unemployment rates are falling and approaching full employment levels. Labor force participation rates are above the national and state averages. These indicators suggest a fast tightening labor market compounded by the population demographics in the

region. These conditions will present positives mainly in the form of increased wages and opportunities for previously discouraged workers to re-enter the labor market, as well as other dislocated individuals. It may also provide greater opportunity for underemployed individuals seeking more work.

*In-demand industries represent a diverse mix of industries, including manufacturing, transportation, finance and insurance*

Industry employment trends since 2010 highlight a continued transition from traditionally more trade and hands-on oriented skills towards service and social skills. The region retains relative specializations in healthcare, retail, and accommodation and services, as well as finance and insurance. In-demand industries comprise a diverse mix of traditional production based sectors such as manufacturing in addition to industries in finance and banking, information technology, and management of companies. There has also been strong growth in transportation and warehousing. However, there are major wage discrepancies across some of these industries including information, finance and insurance, management of companies, and transportation and logistics in addition to professional and technical services; a majority of which are often considered high skilled innovative industries.

*A majority of in-demand occupations will require less than a four-year degree by 2022*

By 2022, it is projected that  $\frac{3}{4}$  of the jobs in the CCWI region will require less than a four year degree; that ratio will be 4 out of 5 for Maine. This includes a majority of the fastest growing 20 occupations in the region, while the same fraction ( $\frac{3}{4}$ ) pay less than the regional median wage. In demand occupations reflect various in demand industries, including healthcare workers and advanced manufacturing workers, as well as computer specialists. The average skill levels of in demand occupations requiring less than a 4 year degree reflect a mix of basic communication, cognitive thinking, social interaction, and other soft skills, such as time management and service orientation. Skill requirements of in-demand occupations requiring a bachelor's degree or higher emphasize cognitive problem solving skills.

*Workforce system capacity?*

The underlying workforce trends in the Coastal Counties workforce region present real challenges and will require a nimble and responsive workforce training system to address failures in the market place. Most notably, these will come in the areas of underserved industries that traditional may not have been the focus of the region's workforce programs. Still, there is a great number of resources in the region to address these needs. Alignment of resources and goals of the workforce system with industry economic development initiatives will be a critical factor in the success in meeting these workforce challenges.

## Contents

Introduction .....	5
Section I. Demographic summary .....	6
Section II. Workforce and labor market summary.....	9
Section III. Regional economic conditions and in-demand industries .....	13
Section IV. Occupational overview and in-demand occupations .....	18
Section V: Inventory and assessment of education and training service providers .....	27
Appendices.....	30

## Introduction

The Maine Center for Business and Economic Research (MCBER) at the University of Southern Maine (USM) in Portland was commissioned by Coastal Counties Workforce Investment (CCWI) to provide support in the development of a four year strategic workforce plan beginning in 2016 for the region in the form of a regional workforce and labor market analysis. Critical to any successful workforce plan is a detailed understanding of the conditions, both past and projected, that influence a region’s labor market, industries, and workers themselves. This includes a consideration of both developments within the region and those that are broader in scope that influence from beyond the region’s political borders. In line with this, it is important to recognize that economic regions do not end at political boundaries (such as municipalities, counties, and states). However, to undertake this analysis, we focus on the geographic area defined by the CCWI region. The analysis uses the most recent data available at the time of preparation and is drawn from a variety of public and private sources.

The analysis justifies three overarching themes:

1. The regional labor market is beginning to show signs of stress driven largely by a population that is aging and showing minimal growth.
2. While key industrial strengths remain healthy in the region, new industries are emerging that are service and knowledge intensive, in addition to continued strengths in production based industries.
3. Occupations that are in-demand and pay higher wages require skills sets and training that appear to reflect the industrial structure and place greater emphasis on problem solving and cognitive functions.

### *The CCWI region overview*

The Coastal Counties Region is comprised of six counties along the southern coast of Maine beginning in York County at the New Hampshire board and extending through mid-coast into Waldo County. The region is also comprised of 3 all or parts of 3 economic development districts defined by the EDA, including Southern Maine, Greater Portland, and Mid-Coast regions.

Inter-regional commuting patterns provide some insights into the extent of economic integration of the CCWI labor market and the counties that comprise it. About 13 percent of workers in the CCWI region commute across county lines, with Cumberland County and the greater Portland area being the largest receiver of commuters (64 percent), particularly from commuters in the neighboring counties of York and

**Table 1: Commuting patterns, 2013**

Place of residence	Place of work	Number
Cumberland County	Cumberland County	128,513
	York County	5,085
	Sagadahoc County	2,996
Knox County	Knox County	16,236
	Lincoln County	1,015
	Waldo County	710
Lincoln County	Lincoln County	10,039
	Sagadahoc County	1,485
	Knox County	1,380
	Cumberland County	1,031
Sagadahoc County	Sagadahoc County	8,163
	Cumberland County	6,061
	Lincoln County	577
Waldo County	Waldo County	10,258
	Knox County	1,610
York County	York County	60,487
	Cumberland County	21,363

*Source: US Census, ACS, Journey-to-work, 2013. Note: includes top destination for each county and does not include commuters outside the region.*

Sagadahoc (Table 1). About 10 percent and 11 percent of workers commute into Sagadahoc County and York County respectively. The northern counties Lincoln, Knox and Waldo are slightly more integrated with each other, though it varies by county. In general, these patterns are somewhat reflective of two sub-regions in the CCWI region, the northern mid-coast region, which aligns with the Mid-Coast Economic Development District, and a southern area that makes up Cumberland and York counties.

The CCWI region is the most economically productive area of the state – it is Maine’s economic engine accounting for over 55 percent of the state’s output as measured by gross domestic product. Likewise, it is the only part of the state that has seen real growth in output over the last 5 years, while the rest of the state’s output has declined. A heavy burden to carry, the fortunes of other regions of the state are in part dependent upon what happens in the CCWI and greater Portland regions.

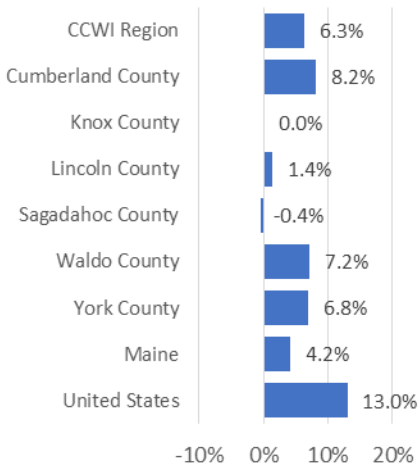
Historically, the region has been home to a diver set of industries that differ by county. For instance, boat building and fishing have been critical to the northern part of the region, while Portland is an economic hub and service center with port access, and York County with boasting a strong manufacturing and tourist base. On the whole, the CCWI regional economy is diverse and calls for a variety of work and skill sets to support regional competitiveness.

This report follows with a demographic and socioeconomic summary of the region followed by an overview of the regional labor market. A high level and detailed industry analysis identifies in-demand industries in the region that may be good targets for workforce strategies. Finally, the analysis identifies key occupations and skills that are projected to be in-demand in the region in the coming years.

## Section I. Demographic summary

*An older population and low population growth restrict the labor market*

**Figure 1: Population change in the CCWI Region, 2000 - 2014**



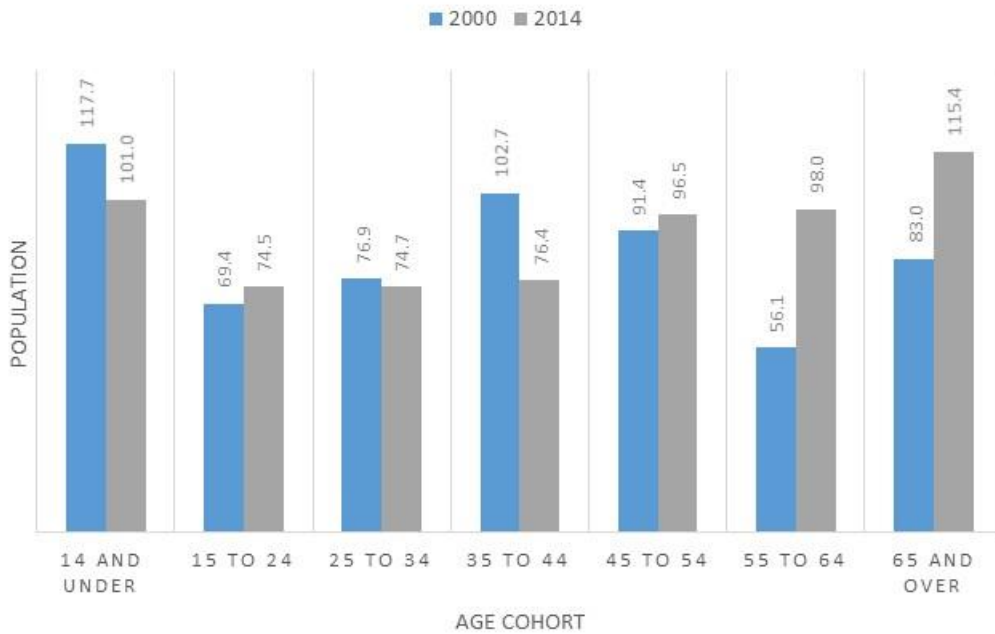
Population demographics are not a new known challenge in Maine, but pose very real and near term implications for the labor market. The CCWI region’s population as of 2013 was about 636,000, a majority of which is concentrated in the larger counties of York and Cumberland. Population growth rates in the CCWI region (6.3 percent) have been well below national averages (13 percent), although higher than the state’s growth as a whole (4.2 percent) since 2000 (Figure 1). The natural rate of population change has entered a period of net negative growth, meaning there are more deaths than births in the state and in the region. The only way to counter this loss is through in-migration of people; something that has posed a challenge in the past and extremely difficult to predict in Maine. As a result, population levels are projected to remain flat over the next 5-10

Source: US Census, CPS 2014 & Decennial Census 2000

years, through 2022 and then begin to decline, assuming current trends continue.<sup>1</sup>

Maine is the oldest state in the nation, though the CCWI region is slightly younger than the statewide average due in part to younger populations in the Portland area. Figure 2 shows the dramatic increases in the older age cohorts between years 2000 to 2014. There is a 19,000 difference between age cohorts that will be entering the labor force and the cohorts that will be existing the labor force in the next 10 years. In other words, a larger share of the region’s population will be reaching retirement age in the near future, representing workers leaving the labor force, while a smaller share of younger workers will be entering. These projections are shown in in Figure 3, where there is an ever increasing cohort of retirement age people.

**Figure 2: Age Distribution of the Coastal Counties Regional Population (in '000's)**

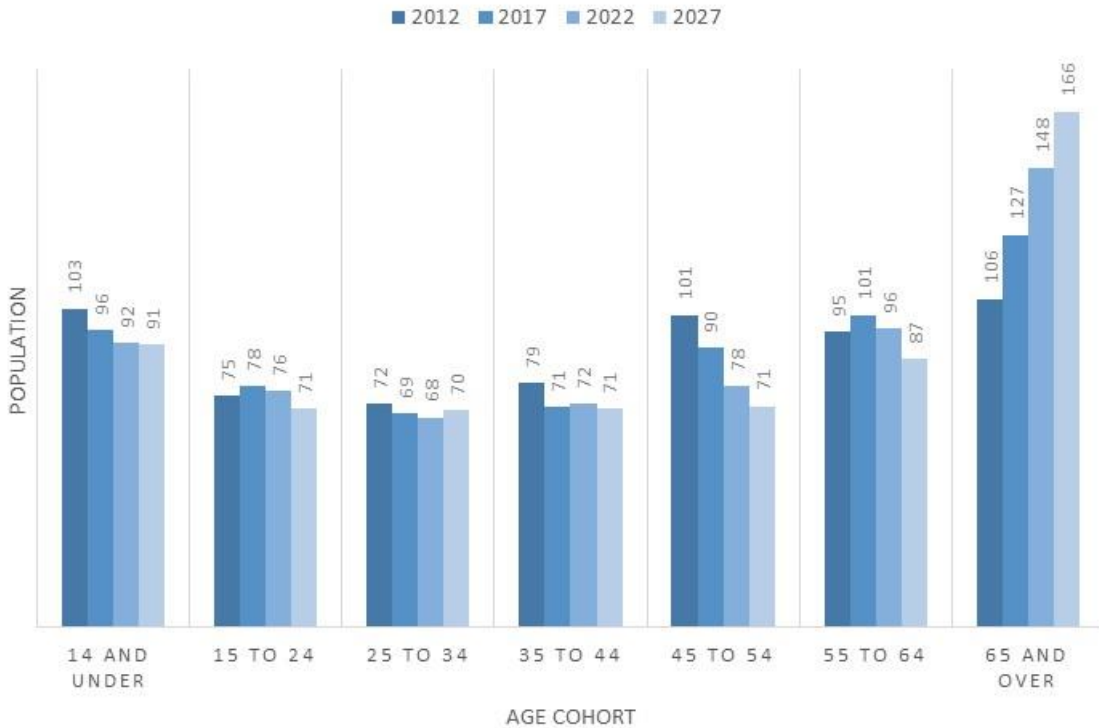


Source: US Census, CPS 2014 & Decennial Census 2000

There are two key implications of these trends. The first poses significant challenges to the labor market in the form of a smaller labor pool for firms to access. It is likely that some workers will benefit in the form of higher wages, but ultimately these restrictions, particularly in a healthy economy, will have dramatic effects on the regional and state economy. The second relates to the loss of skill and experience in the workforce from retiring workers. This creates additional competitive disadvantages and unless addressed, may result in a decline in the number of firms in the region who will move to seek talent elsewhere.

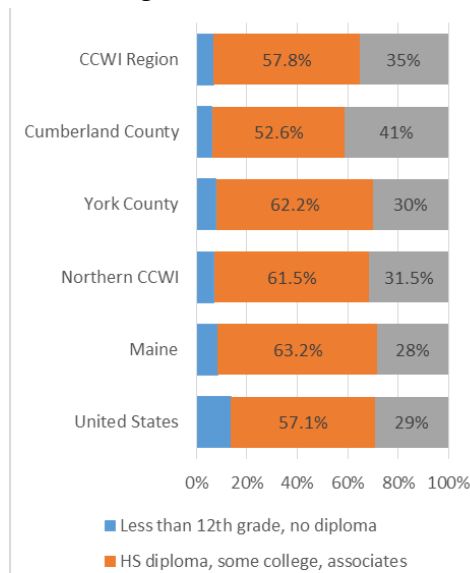
<sup>1</sup> Data is based on the Maine Office of Policy and Management state and county population projections.

**Figure 3: Population Projection of the Coastal Counties Region 2012-2027 (in thousands)**



Source: Maine Office of Policy and Management, Maine state and county population projections 2032; MCBER calculations

**Figure 4: Educational attainment levels of the CCWI region, 2013**



Source: US Census, (ACS), 5-year est. 2009-2013; MCBER calculations

On average, the CCWI region has a higher level of educational attainment than both state and national averages with a somewhat higher concentration of middle skills training and education (Figure 4). More of the population has completed high school, with about 93 percent of the population aged 25 years and older holding a diploma (or equivalent) or some level of post-secondary education, compared with about 91.5 percent statewide and just 86 percent for the nation. Cumberland County, the urban center of the region, has the highest concentration of people who have obtained a Bachelor’s degree or higher (41 percent), which is significantly higher than the rest of the counties individually as well as regionally, state wide, and country wide.



### Section summary

The challenges of population demographics in the region and state are not new. There is a dearth of younger populations entering the labor force to replace aging workers that will soon reaching retirement age. While impacts of these trends are beginning to show in the labor market, they will continue to affect the supply of workers in the years ahead restricting access. Specific industries will be affected the most, such as manufacturing and to some degree education and health care which tend to have higher median ages than other professions. Without a steady increase of workers migrating to the region, the labor pool will continue to shrink. However, low wages and difficulties with trailing household members securing professional employment makes it difficult to attract significant numbers of people to work in the region. Another critical implication of these trends is the loss of skills and experience in the workforce from retiring workers. This creates additional competitive disadvantages for the region and state. These impacts will likely vary across industries in the region, affecting mature industries to a greater extent than other more knowledge intensive and innovation based industries. Furthermore, filling these skill and worker voids may increasingly rest upon the workforce system and training programs to keep the region’s industrial drivers competitive. This has two implications for workforce development. The first is that training will likely focus on existing employer needs and upskilling to bolster productivity. While it is expected that market forces will correct some of these imbalances, targeted training programs will be increasingly important to help maintain regional competitiveness and halt the loss of firms in the region that will seek talent elsewhere.

## Section II. Workforce and labor market summary

The health of the overall labor market is an important consideration in any regional workforce strategy. Changes in population demographics are beginning to influence the labor market and employment.

*Employment levels are below the 2008 peak*

In 2014, the CCWI region employed 347,570 people, approximately 50 percent of Maine’s total employment (Table 2). The majority of the region’s employment was centered in the urban areas of Cumberland (46 percent) and York (32 percent) counties, together accounting for 78 percent of the CCWI region’s total employment. Since 2005, employment trends in the region and state have been lackluster relative to the nation. Following the recession in the early 2000’s, employment in the CCWI region grew at a modest rate before

**Table 2: Labor force summary table, 2014**

Geography	Employment	Unemploy- ment Rate	Labor Force Participation Rate
CCWI Region	347,570	4.9%	66.0%
Cumberland	159,420	4.4%	66.9%
Knox	20,740	5.2%	62.2%
Lincoln	17,270	5.9%	59.6%
Sagadahoc	19,160	4.6%	66.0%
Waldo	20,900	6.1%	64.6%
York	110,080	5.3%	66.4%
Maine	698,930	5.7%	63.9%

Source: ME DOL, CRWI; US BLS QCEW

**Figure 5: Employment growth index in the Coastal Counties Workforce Region, 2005-2014**

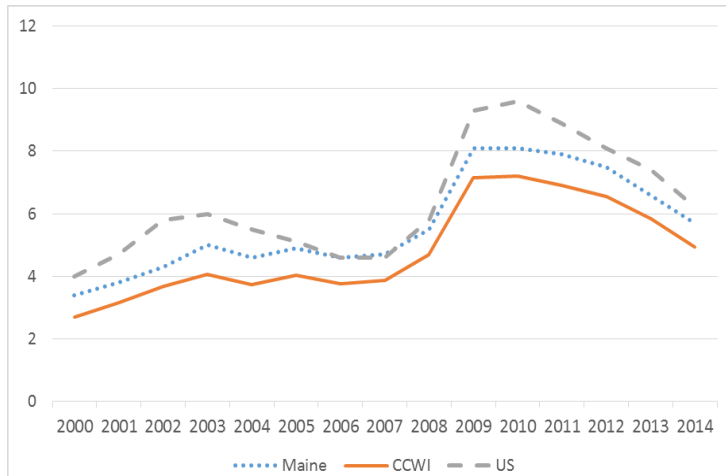


Unemployment rates in the CCWI region are lower relative to both Maine and the nation, ending 2014

at 4.9 percent (refer to Table 2) and have consistently trended lower over time (Figure 6). Within the region, Cumberland (4.4 percent) and Sagadahoc (4.6 percent)

have the lowest unemployment levels in the CCWI region; whereas Waldo (6.1 percent) and Lincoln (5.9 percent) have the highest unemployment rates.

**Figure 6: Unemployment rates in the CCWI region, 2000 to 2014**



Source: ME DOL, CRWI; US BLS QCEW; MCBER calculations

dropping off at the onset of the Great Recession in 2008 (see Figure 5). While the nation has recovered from the recession, the CCWI region (and the state) has still yet to return to pre-recession peak employment and shows signs of leveling off its current growth pattern.

*Unemployment levels are healthy and trending downwards*

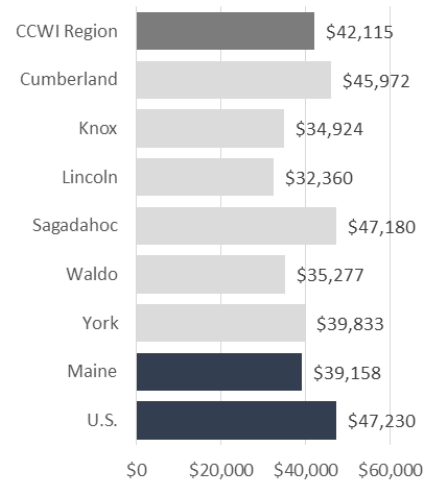
Despite not returning to 2007 employment levels, unemployment rates appear healthy in the region and labor force participation is above national rates.

There are more people age 16 and over in the labor force in the CCWI region (66 percent), a higher percentage than the U.S. (64 percent) and Maine (63 percent) in 2014. Rates vary across counties in the region. Knox and Lincoln County have the lowest labor force participation rate at 62 percent and 60 percent respectively, while Cumberland County, Sagadahoc, and York rates are above the state and nation ranging from 66-67 percent. Some of these differences, are in part, a result of differences in population age across the region, such as a greater share of retired persons reside in Lincoln and Knox County.

*Wages in the region are lower than the nation*

The region is at a relative competitive disadvantage when it comes to paying workers. In 2014, the CCWI region had an annual average wage of \$42,115, which is about \$5,000 below the national annual average, though still above Maine’s annual average wage of \$39,158 (Figure 6). Both Cumberland and Sagadahoc County had the highest annual average wage, \$45,972 and \$47,108 respectively; whereas Waldo and Lincoln have the lowest annual average wage. Maine and the region also rank among the lowest of urban areas in New England. While pay varies across industries and occupations, the relative low wages make it difficult to attract talented workers to the region that are so important to the modern economy.

**Figure 7: Average annual wages, 2014**



Source: ME DOL, CRWI; US BLS QCEW; MCBER calculations

**Populations with employment barriers<sup>2</sup>**

*The veteran population*

About 11.5 percent of the population over age 18 identify as veterans in the CCWI Region, or 57,500, with the highest shares located in the northern sub-region. In general, veterans in the CCWI region are paid higher than their non-veteran counterparts and there is a lower share of veterans living at or below the poverty level. Yet there is a lower share of veterans participating in the labor force and slightly higher unemployment rate for veterans; both likely a result in part of the much higher rate of disability among the veteran population.

Median income of veterans is higher in every county in the CCWI region than non-veterans; all but those in Waldo County are paid above the state median income for veterans. Educational attainment of veterans is similar to the non-veteran population, with a few differences. Slightly more veterans in the CCWI have a high school diploma, but about 9 percent fewer have obtained a Bachelor’s degree or higher, though a there are more veterans that have some college or an associate’s degree than non-veterans.

The unemployment rate for veterans in the CCWI Region was slightly higher (7 percent) than the non-veteran population (6.4 percent) for this period. Likewise, the labor force participation rate of veterans (76.8 percent) was lower than the nonveteran population (81 percent), though slightly higher than the

<sup>2</sup> Data for this section is from the US Census American Community Survey 5-year estimates, 2009-2013. Detailed tables of veterans and population aged 16-29 are found in the appendices.

statewide veteran labor force participation rate of 73.5 percent. The percent living at or below the poverty line was significantly lower for veterans (6.4 percent) relative to non-veteran population (10.6) in the region. However, when it comes to disability, 26 percent of veterans in the CCWI region claim a disability status compared to just 14 percent of the non-veteran populations.

### *Disabled population<sup>3</sup>*

The disabled population, which includes a number of physical and mental impairments, represent a key population group with significant barriers to employment, by their very nature. In general, the disabled population is more likely to be in poverty, be unemployed, and have a lower educational attainment level. About 16 percent of the disabled population in the CCWI Region does not have a high school degree, compared to approximately 5 percent of the nondisabled population.

### *Population in poverty and work status*

The percentage of people reported as being at or below the poverty level in the last 12 months was about 12 percent in 2013; lower than both the state and national average. Within the region, Waldo County has a significantly higher rate (18 percent) than the lowest level in York County (10 percent), suggesting varying degrees of economic status of the region's populations. The population in poverty worked significantly less in the previous twelve months than non-poverty populations. Over half of the population in poverty reported as not working in the past twelve months, where 26 percent of the non-poverty population reported not having worked. More of the population in poverty worked part time, 39 percent compared to 28 percent, and only 7 percent worked full time compared to 46 percent of the population above the poverty line.

### *Labor force participation and unemployment by educational attainment and youth workers*

The lower a person's educational attainment, the less likely they are to participate in the labor force or to be employed. In the CCWI region, 42 percent of people 25 and older with less than a high school degree do not participate in the labor force, while for those that do, upwards of 12 percent were unemployed in 2013, compared to just 3% unemployment for those with a Bachelor's degree or higher. For the youth population aged 16 to 19 years old, labor force participation (49%) is slightly higher than the nation (47%) and significantly larger than the state average (38%). Still 19 percent of youth that would like to find a job, were unemployed in 2013. Yet, the region's youth are faring better than Maine, where 28 percent of youth looking for a job were unemployed.

## **Section Summary**

In general, the CCWI regional economy is healthy and expanding although very slowly. This runs contrary to the remainder of the state, which has seen a decline in real output since prior to the recession. Employment in the region has yet to reach pre-recession peaks almost 5 years after the recession technically ended. However, unemployment rates are falling and approaching full employment levels. Labor force participation rates are above the national and state averages. These

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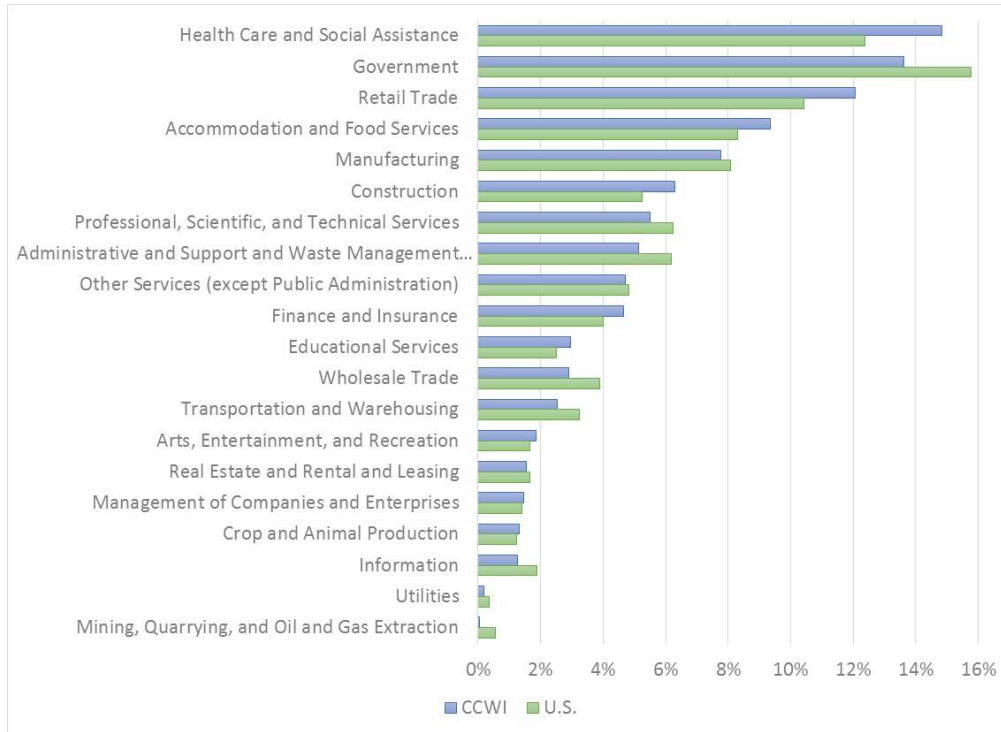
<sup>3</sup> Data for the disable population is only reported for York and Cumberland counties in the region.

indicators suggest a fast tightening labor market compounded by the population demographics in the region. These conditions will present positives mainly in the form of increased wages and opportunities for previously discouraged workers to re-enter the labor market, as well as other dislocated individuals. It may also provide greater opportunity for underemployed individuals seeking more work.

### Section III. Regional economic conditions and in-demand industries

It is critical that a successful workforce strategy have an understanding of the region's industry and employment sector strengths as well as how the region's industries are changing. In the CCWI region, health care, government, and retail are the three dominant industries by employment size (Figure 7). Together, these three core industries comprise 41 percent of the region's employment base, with 50,658 jobs in health care and social assistance (15 percent), 46,519 in government (14 percent), and 41,160 in retail trade (12 percent). The regional share of employment in the health care and retail trade industries is significantly higher than national shares, suggesting a relative specialization. Likewise, the region is specialized in tourism based industries of retail trade and accommodation and food services. Compared to other major sector industries, the professional, scientific, and technical services industry had the largest number of establishments (3,068) in the CCWI region. Relative to national shares this industry is less specialized, although it has experienced 11 percent growth over the last five years from 2010 to 2014. Other cores industries of the region include manufacturing (26,524 jobs) and accommodation and food services (31,918 jobs), the latter of which is highly concentrated in the region relative to the nation.

**Figure 8: Share of regional employment in the CCWI Region by major sector category, 2014**



Source: ME DOL, CRWI; US BLS QCEW; MCBER calculations

Growth in the region’s employment base has been lackluster from 2010 to 2014, during which the CCWI region grew by only 2 percent compared to 6 percent nationally (Table 4). The fastest growing sectors in the region make-up a collection of industries that are representative of a service based economy, including professional, scientific, and technical services and management of companies and enterprises, as well as administrative support services and educational services. Transportation and warehousing also grew significantly over the period in line with national growth. Growth in health care, the largest employer and a key driver of employment growth over much of the 2000’s, grew by just 2 percent relative to the nation (9 percent). The most significant drop in employment occurred in the information sector (-28.4 percent). In part, this reflects the internalization of information technology into business operations in other industries, though this still signals a steep drop in employment over a relatively short period.

**Table 3: Employment, growth, and wages in the CCWI Region by major industry classification, 2014**

Code	Industry description	Jobs	Growth rate 10-14		Avg. annual wage	
			CCWI Region	United States	CCWI Region	United States
62	Health Care and Social Assistance	50,658	1.9%	9.0%	\$43,383	\$45,036
90	Government	46,519	-4.3%	-2.0%	\$45,283	\$49,358
44	Retail Trade	41,160	-0.1%	5.0%	\$25,435	\$28,206
72	Accommodation and Food Services	31,918	5.3%	12.0%	\$18,914	\$18,525
31	Manufacturing	26,524	-0.7%	5.0%	\$56,224	\$61,988
23	Construction	21,485	-1.6%	6.0%	\$37,552	\$47,546
54	Professional, Scientific, and Technical Services	18,818	11.0%	10.0%	\$58,405	\$79,689
56	Administrative & Support & Waste Management &	17,547	16.5%	14.0%	\$32,546	\$33,721
81	Other Services (except Public Administration)	16,093	6.0%	-1.0%	\$23,748	\$26,546
52	Finance and Insurance	15,885	-3.5%	2.0%	\$69,609	\$93,344
61	Educational Services	10,120	13.2%	7.0%	\$31,167	\$37,525
42	Wholesale Trade	9,954	7.8%	6.0%	\$57,313	\$69,421
48	Transportation and Warehousing	8,633	10.8%	9.0%	\$37,498	\$48,841
71	Arts, Entertainment, and Recreation	6,367	4.5%	8.0%	\$23,408	\$31,701
53	Real Estate and Rental and Leasing	5,294	2.4%	3.0%	\$39,911	\$47,351
55	Management of Companies and Enterprises	4,992	16.0%	15.0%	\$80,609	\$111,971
11	Crop and Animal Production	4,534	1.9%	3.0%	\$28,475	\$28,329
51	Information	4,306	-20.2%	1.0%	\$44,893	\$87,938
22	Utilities	620	-28.4%	-1.0%	\$86,451	\$97,204
21	Mining, Quarrying, and Oil and Gas Extraction	121	24.7%	27.0%	\$57,568	\$100,363
	Total	341,546	2%	6%	\$44,920	\$48,518

Source: EMSI, 2015.2 – includes QCEW employees, non-QCEW employees, and self-employed; MCBER calculations

Overall, average annual wages in the region are lower (in some cases significantly) than the nation in most all sectors, with the exception of accommodation and food services and crop and animal production, which are traditionally lower paying industries. This is a critical challenge for the region as it attempts to attract worker. Although parts of the region offer a high quality of life and overall lower costs, relative pay differences to competitor regions is substantial. Within the region, sectors that pay above the regional average wage are in manufacturing, professional, scientific, and technical services, finance and insurance, and management of companies and enterprises, the latter of which has seen wages increase by 16 percent over the last 5 years.

*Industries that are in-demand in the region*

High level sector trends are important to understanding the economic levers in a region. Equally important are understanding which industries within these sectors are driving growth and regional economic development. Workforce strategies that align with growing industries can significantly improve competitiveness as well as provide opportunities for workers in the region. This section uses a method for identifying detailed industries that have some combination of high growth and regional

specialization, and pay above average wages.<sup>4</sup> Industries that are specialized in the region, relative to the nation, are thought to be associated with a competitive advantage over other regions. This is a result of a larger labor pool of workers with similar skills that firms can draw from, as well as networks where knowledge and innovative process improvements are more easily transferred between firms, primarily by workers moving from one job to another. Therefore, these industries represent existing or emerging industry strengths in the region, though not all may be candidates for targeted strategies.

Table 4 ranks industries by a measure that weights industry specialization and the industry's growth rate between 2010 and 2014. Overall, employment within these industries comprises roughly 7 percent of all jobs in the CCWI region and range across a variety of different sectors, including finance and insurance, education, manufacturing, and information, among others, showing a relatively diversified mix of industries in both production and service oriented. Table 5 also shows the relative wage of each industry compared to the region wide average annual wage.

Interestingly, a number of these industries are in the manufacturing sector, running contrary to downward trends in the sector over the last few decades. These industries are in both traditional manufacturing (pulp and paper) and what are often referred to as advanced manufacturing industries, such as metal working and machine shops. Anecdotal evidence suggests these industries are challenged by workforce issues, particularly replacing older workers with younger and highly skilled. Activities related to credit intermediation and education support services are among the top industries, while various types of management and computer systems related are also identified. This composition represents a rather diverse set of industries that are both specialized in the region and are growing, while paying good wages.

These industries are reflective of the region as a whole, though the distribution and specializations of specific counties differ across the region. This has implications in relation to commuting patterns and distances between workers and where the jobs are and should be a consideration in any training

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<sup>4</sup> Our method for identifying in-demand industries uses employment data for detailed industries at the 4-digit North American Industrial Classification (NAICS) level of detail. The method weights a respective industry's concentration in the region by its growth rate over the 2010-14 period. It also screens for industries that pays an average wage above the regional average wage for all industries. Industries with less than 150 employees in 2014 are left out of this top list. We therefore exclude industries such as fishing and boat building that are highly specialized in the region and grew over the 2010-14 period, yet pay below average wages.



**Table 4: Top 20 in-demand industries in the CCWI Region by high wage, growth rate and specialization, 2014**

Code	Industry description	Employment 2014		Wages 2014		Specialization	
		Number	Growth 10-14	Wages	Relative average	Ratio	Growth rate weighted
5223	Activities Related to Credit Intermediation	1,062	678	\$82,740	2.05	1.63	2.87
6117	Educational Support Services	464	187	\$47,572	1.18	1.37	0.92
5611	Office Administrative Services	1,542	481	\$63,975	1.59	1.45	0.66
3121	Beverage Manufacturing	637	183	\$47,791	1.19	1.46	0.59
3221	Pulp, Paper, and Paperboard Mills	453	91	\$68,249	1.69	1.93	0.48
2379	Other Heavy and Civil Engineering Construction	304	83	\$61,323	1.52	1.12	0.42
5171	Wired Telecommunications Carriers	1,025	286	\$65,750	1.63	0.76	0.29
4251	Wholesale Electronic Markets and Agents and Brokers	1,667	420	\$74,139	1.84	0.82	0.28
4242	Drugs and Druggists' Sundries Merchant Wholesalers	651	93	\$67,112	1.67	1.48	0.25
3335	Metalworking Machinery Manufacturing	508	81	\$51,646	1.28	1.24	0.24
5418	Advertising, Public Relations, and Related Services	1,123	215	\$43,282	1.07	0.93	0.22
5415	Computer Systems Design and Related Services	3,224	708	\$78,124	1.94	0.75	0.21
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	481	73	\$45,063	1.12	1.16	0.21
5511	Management of Companies and Enterprises	4,992	687	\$80,609	2.00	1.04	0.17
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	1,062	108	\$47,435	1.18	1.25	0.14
3328	Coating, Engraving, Heat Treating, and Allied Activities	306	36	\$47,542	1.18	0.99	0.13
5416	Management, Scientific, and Technical Consulting Services	3,185	369	\$50,997	1.27	0.95	0.12
3331	Agriculture, Construction, and Mining Machinery Manufacturing	287	53	\$53,561	1.33	0.51	0.12
2371	Utility System Construction	354	73	\$56,965	1.41	0.33	0.08
3323	Architectural and Structural Metals Manufacturing	581	59	\$49,901	1.24	0.73	0.08

Source: ME DOL, CRWI; US BLS QCEW; MCBER calculations

programs. A list of top industries by county can be found in the Appendices in Table A3. Also in the appendices are top employers by county in the region and a description of each industry.

**Section summary**

Industry employment trends since 2010 highlight a continued transition from traditionally more trade and hands-on oriented skills towards service and social skills. The region retains relative specializations in healthcare, retail, and accommodation and services, as well as finance and insurance. In-demand industries comprise a diverse mix of traditional production based sectors such as manufacturing in addition to industries in finance and banking and management of companies. Despite major declines in the IT sector, the computer systems design and related services. There has also been strong growth in transportation and warehousing. However, there are major wage discrepancies across some of these industries including information, finance and insurance, management of companies, and transportation and logistics in addition to professional and technical services.

## Section IV. Occupational overview and in-demand occupations

Industry employment captures all workers in an industry regardless of the types of jobs they engage in. Some jobs can transcend industries, while others are specific and specialized to a certain industry. Occupational data measures the number of workers that do similar jobs across all industries. These data can be used to identify the things that people do in a region and the skills and knowledge that is required by workers in the region.

The largest occupational groupings in the region are in office and administrative support, sales and related, and food preparation and serving related, which is in line with national shares (Table 5). These occupations make up over a third of workers in the region. The latter of which is somewhat concentrated in the region, as might be expected given the industry specialization in restaurants and food services (1.12). The region is also somewhat concentrated in personal care and service (1.23), healthcare (1.13), and community and social services (1.16). Nearly all occupational categories grew at a slower pace than the nation. These concentrations also happen to comprise occupations that tend to pay lower wages, with the exception of healthcare practitioners (\$38/hour median wage), although healthcare support workers are paid a median hourly wage of \$13.49 per hour. Occupations that tend to pay higher wages are in groupings that are generally referred to as STEM jobs that require specialized skill sets, higher training, or are more knowledge / cognitive function based.

**Table 5: Summary of major occupational groupings in the CCWI Region, 2014**

Code	Occupation description	Jobs	Median hourly	Growth 2010-14		Female to Male Ratio
				CCWI	US	
43	Office and Administrative Support	49,522	\$16.37	1.5%	4.3%	3.14
41	Sales and Related	30,603	\$14.55	1.2%	5.4%	1.20
35	Food Preparation and Serving Related	29,862	\$10.51	4.3%	11.1%	1.36
29	Healthcare Practitioners and Technical	19,370	\$38.06	4.4%	5.1%	3.02
25	Education, Training, and Library	18,498	\$22.24	0.0%	0.8%	3.08
51	Production	17,752	\$18.42	1.3%	7.7%	0.35
11	Management	16,801	\$39.86	3.6%	6.4%	0.63
53	Transportation and Material Moving	16,746	\$15.24	4.2%	8.6%	0.20
47	Construction and Extraction	12,483	\$19.69	6.5%	9.8%	0.03
39	Personal Care and Service	12,465	\$10.91	5.1%	8.9%	3.20
49	Installation, Maintenance, and Repair	12,339	\$21.18	5.2%	7.4%	0.03
13	Business and Financial Operations	12,259	\$29.81	1.2%	6.4%	1.28
37	Building and Grounds Cleaning and Maintenance	12,132	\$12.86	9.5%	4.3%	0.60
31	Healthcare Support	10,039	\$13.49	2.6%	7.8%	7.54
21	Community and Social Service	6,026	\$19.79	3.3%	5.2%	2.19
15	Computer and Mathematical	5,884	\$33.96	3.2%	10.6%	0.40
33	Protective Service	5,715	\$17.31	0.7%	1.6%	0.28
17	Architecture and Engineering	5,260	\$36.30	0.8%	5.3%	0.15
55	Military	4,733	\$20.96	-12.3%	-2.6%	0.10
27	Arts, Design, Entertainment, Sports, and Media	4,058	\$18.16	-1.6%	4.7%	0.84
23	Legal	1,948	\$33.33	0.5%	2.1%	1.11
19	Life, Physical, and Social Science	1,937	\$28.17	-0.5%	3.4%	0.73
45	Farming, Fishing, and Forestry	1,249	\$13.09	4.0%	6.0%	0.43
Total		307,682	\$20.11	2.6%	6.1%	1.0

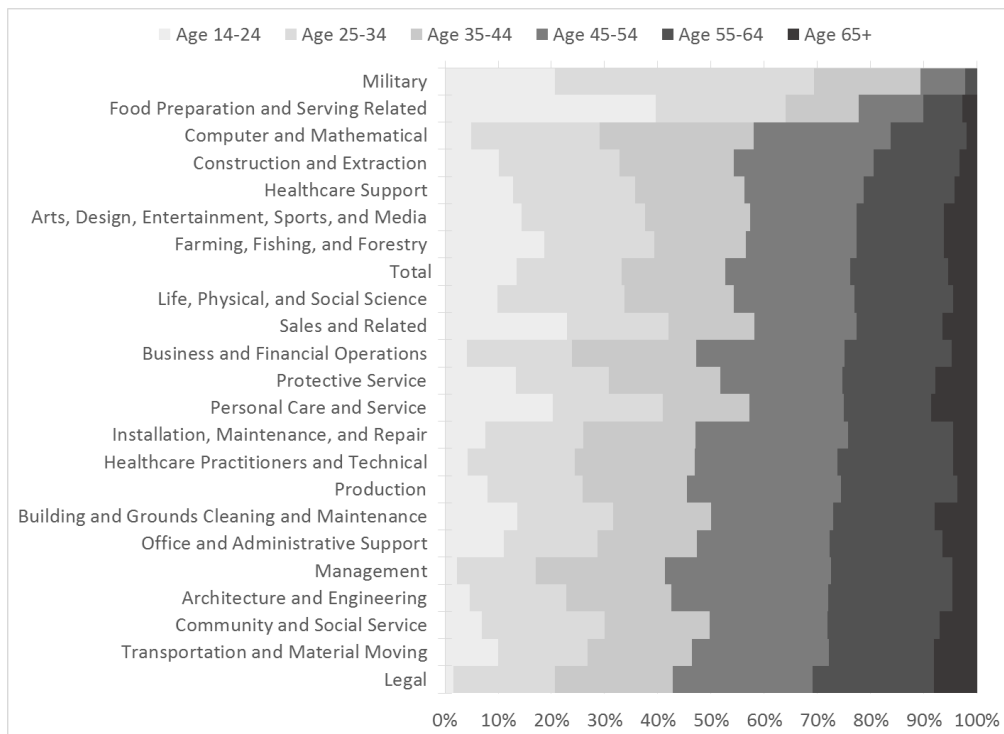
Source: EMSI - 2015.2 – QCEW + non-QCEW employees; MCBER calculations. Data on job postings provided by EMSI is from a snapshot in time, July 2015, and caution should be used in interpretation due to the nature of the data sources.

*Age and gender distributions across occupational groupings*

As is the national pattern, gender concentration is present across occupational groupings. Healthcare, education, and office and administrative support are female dominated, ranging from 7 to 3 female workers for every male (refer to Table 5). Alternatively, male occupations are concentrated in construction and extraction, transportation, installation and maintenance, architectural and engineering, and protective services. This has implications for developing workforce strategies that target specific occupations that may be traditionally dominated by a particular sex.

Figure 9 shows the age distribution across major occupational categories. Of particular interest are the occupational groupings with a greater share of dark blocks that make up the over 55 age cohorts. The larger these groupings, the greater the share of the workforce in a respective grouping that is fast approaching retirement age, if not there already. Specific groupings with larger shares of older workers include education, legal, transportation and moving, office and administrative, and various STEM groupings, which suggests the aging issue is a broader challenge rather than isolated to specific groupings, such as production oriented. However, this data is limited in the information about the age of new workers entering into specific occupational groupings, aka the replacement workers. Unfortunately, statistically reliable data on the age of new workers is not easily accessible.

**Figure 9: Age distribution of major occupational categories, 2014**



Source: EMSI, 2015.2 – includes QCEW employees, non-QCEW employees, and self-employed; MCBER calculations

*Detailed occupational analysis*

A look at detailed occupations within occupational groupings allows us to identify key skill levels and educational requirements, while gaining a more nuanced understanding of the growing and in-demand occupations in the region. As such, this section first looks at the fastest growing occupations regardless of wages or skill requirements. Occupations are then identified as high wage and in-demand broken out by educational requirements.

*Fastest growing occupations*

All occupations grew at a faster pace than at the national level, in particular the number of workers in transportation increased at a higher rate between 2010 and 2014 (Table 6). Among the top fastest growing are occupations that tend to pay lower wages and have lower educational requirements on average. A quarter of these occupations require less than a high school degree, while only 2 occupations require greater than a bachelor's degree. Most occupations require some degree of on-the-job training, whether short-term or more intensive. Over half of the fastest growing occupations are concentrated in the region relative to the nation.<sup>5</sup> Median hourly wages highlighted are above the median hourly wage for the region. Five out of the top twenty pay wages above the median hourly for all occupations in the region. Two of those require a Bachelor's degree or more.

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<sup>5</sup> Similar to measures of industry specialization, the measure of occupational concentration uses location quotients to gauge the presence of an occupation in the region compared to the nation. A ratio greater than 1.2 suggests an occupation is concentrated in the region, while a ratio below .80 suggests an underrepresented occupation. A ratio at or close to 1 suggests a similar share of occupations in the regional workforce relative to the nation.

**Table 6: Fastest growing detailed occupations 2010-14 and projected growth through 2022**

Code	Occupation description	Jobs	Growth, 10-14			Median hourly	Concent ration	Education requirements (entry)
			CCWI	US				
45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	92	37.3%	5.2%	\$11.30	0.54	Less than high school	
37-3013	Tree Trimmers and Pruners	279	36.8%	13.6%	\$16.94	3.31	HS diploma or equivalent	
47-3013	Helpers--Electricians	276	33.3%	12.4%	\$16.17	1.80	HS diploma or equivalent	
53-6099	Transportation Workers, All Other	89	30.9%	5.2%	\$12.73	1.00	HS diploma or equivalent	
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	131	28.4%	10.7%	\$13.74	2.50	Less than high school	
49-2098	Security and Fire Alarm Systems Installers	145	27.2%	11.6%	\$22.68	1.10	HS diploma or equivalent	
37-2021	Pest Control Workers	128	25.5%	9.8%	\$15.61	0.87	HS diploma or equivalent	
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	86	22.9%	8.1%	\$15.27	1.62	HS diploma or equivalent	
39-2021	Nonfarm Animal Caretakers	350	22.4%	14.6%	\$9.73	0.96	Less than high school	
29-2056	Veterinary Technologists and Technicians	407	21.9%	14.3%	\$16.50	2.01	Associate's degree	
39-6011	Baggage Porters and Bellhops	97	21.3%	9.6%	\$8.87	1.03	HS diploma or equivalent	
29-2081	Opticians, Dispensing	195	20.4%	12.4%	\$16.02	1.25	HS diploma or equivalent	
31-2022	Physical Therapist Aides	83	18.6%	11.4%	\$11.84	0.79	HS diploma or equivalent	
37-3011	Landscaping and Groundskeeping Workers	2,562	17.8%	8.0%	\$14.09	1.31	Less than high school	
47-2131	Insulation Workers, Floor, Ceiling, and Wall	222	17.5%	8.6%	\$19.03	4.16	Less than high school	
13-1131	Fundraisers	275	17.0%	6.8%	\$24.55	1.53	Bachelor's degree	
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	237	16.7%	8.7%	\$22.29	1.09	HS diploma or equivalent	
29-1123	Physical Therapists	588	16.7%	9.8%	\$37.05	1.36	Doctoral or professional	
31-2021	Physical Therapist Assistants	130	16.1%	12.0%	\$25.51	0.78	Associate's degree	
43-4131	Loan Interviewers and Clerks	535	16.1%	5.4%	\$15.69	1.17	HS diploma or equivalent	
Total		307,682	2.6%	6.1%	20.11	1.00	-	

Source: EMSI, 2015.2 – includes QCEW employees, non-QCEW employees, and self-employed; MCBER calculations. Note: highlighted median hourly wages are those above the total workforce median. Highlighted concentration ratios are occupations concentrated in the region (a measure greater than 1.20).

**High-wage, in-demand occupations and their skill and knowledge requirements**

Occupations that are projected to grow significantly over the next 5 to 10 years and that pay higher wages on average are good targets for a workforce strategy. Considering absolute numbers of projected growth is a better indicator of the overall demand of the occupational mix. It is also important to consider the various roles in the workforce system and the educational and training requirements of occupations. Universities that award Bachelor’s and advanced degrees train different kinds of workers than the community college system or other training centers. Furthermore, university trained workers/students are more footloose upon graduation and less tied to the region in many cases than career pathways training programs.

*In-demand, high wage occupations with an Associates or lower educational requirement*

Table 7 shows in-demand, high-wage occupations that require less than a 4 year university degree, including 2 year awards and below. The occupations identified include a number that are specialized to

the industries we previously identified as in-demand, including healthcare workers, workers in advanced manufacturing, information technology related, and business operations. There are also a number of vocational trades that are identified as in-demand.

**Table 7: In-demand, high-wage occupations with low formal educational requirements**

Code	Occupation description	Region				Education requirements (entry)	Annual openings	Projected growth '22
		Jobs	growth	Median hourly	Concentration			
29-1141	Registered Nurses	6,586	1.7%	\$31.18	1.13	Associate's degree	238	862
43-1011	First-Line Supervisors of Office and Administrative Support Workers	2,639	1.9%	\$22.74	0.85	HS diploma or equivalent	85	188
15-1151	Computer User Support Specialists	1,095	6.4%	\$22.44	0.82	Some college, no degree	41	187
41-4012	Sales Reps, Wholesale and Manufacturing, Except Technical and Scientific Products	1,723	5.6%	\$25.42	0.56	HS diploma or equivalent	56	174
47-2111	Electricians	1,227	14.8%	\$23.98	0.97	HS diploma or equivalent	49	142
41-3099	Sales Representatives, Services, All Other	1,193	-1.6%	\$23.53	0.63	HS diploma or equivalent	49	121
29-2061	Licensed Practical and Vocational Nurses	622	-3.1%	\$21.79	0.41	Postsecondary non-degree award	26	107
13-1199	Business Operations Specialists, All Other	1,474	-2.0%	\$30.21	0.71	HS diploma or equivalent	33	98
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	1,189	6.8%	\$26.76	1.08	HS diploma or equivalent	27	88
47-2081	Drywall and Ceiling Tile Installers	197	15.9%	\$20.78	1.04	Less than HS	12	82
47-2152	Plumbers, Pipefitters, and Steamfitters	1,011	6.2%	\$23.71	1.21	HS diploma or equivalent	29	72
29-2021	Dental Hygienists	591	5.3%	\$32.25	1.39	Associate's degree	25	71
29-2034	Radiologic Technologists	468	3.1%	\$27.51	1.12	Associate's degree	15	64
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	970	5.3%	\$22.67	1.68	Postsecondary non-degree award	38	62
47-2141	Painters, Construction and Maintenance	728	4.7%	\$20.31	1.57	Less than HS	25	55
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	955	3.2%	\$30.01	1	HS diploma or equivalent	32	51
51-4041	Machinists	703	7.5%	\$20.72	0.83	HS diploma or equivalent	28	49
31-2021	Physical Therapist Assistants	130	16.1%	\$25.51	0.78	Associate's degree	9	49
29-2055	Surgical Technologists	221	5.2%	\$20.91	1.03	Postsecondary non-degree award	8	49
49-9041	Industrial Machinery Mechanics	455	5.8%	\$25.86	0.66	HS diploma or equivalent	19	44

Source: EMSI, 2015.2 – includes QCEW employees, non-QCEW employees, and self-employed; MCBER calculations. Note

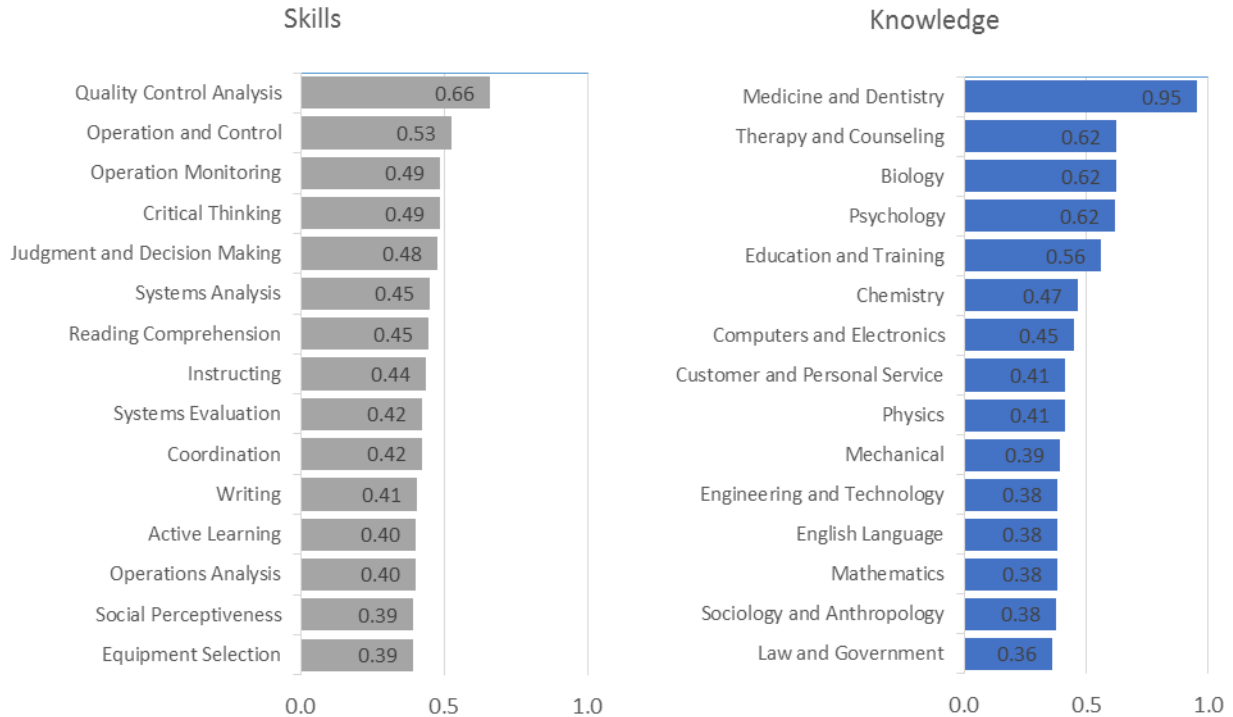
Information about the types of broad skill and knowledge requirements of the projected workforce are key to directing training and program initiatives that address workforce demands. The skill and knowledge requirements of in-demand occupations are essentially the key skill and knowledge domains that are in demand in the region.<sup>6</sup>

Figure 10 lists the top 15 most important skills and knowledge areas required of the in-demand and high wage occupations that require less than a 4 year degree. The average skill levels reflect a mix of basic communication, cognitive thinking, social interaction, and other soft skills, such as time management and service orientation. These are reflective of a more service based, cognitive oriented skill set. This is not to say that other skills are not important to specific occupations or industries. Similarly, the types of knowledge required of the in-demand, high-wage occupations include a mix across knowledge domains,

<sup>6</sup> The skill and knowledge occupational requirements do not represent the full range of necessary skills and knowledge, but rather this analysis provides a snapshot of the skills that will likely be more important to in-demand workers than the remainder of the workforce. The measures reflect the difference between a weighted average skill levels of in-demand occupations relative to the weighted average skill importance of all occupations.

but are also reflective of respective industries and skill requirements represented by this group of occupations, such as healthcare, STEM jobs, administrative and clerical, as well as production and processing.

**Figure 10: Top skill and knowledge requirements of in-demand and high-wage occupations with below a Bachelor’s degree educational requirement, 2022**



Source: EMSI, 2015.2; US BLS O\*Net database, Version 20; MCBER calculations

*In-demand, high wage occupations with a Bachelor’s or higher educational requirement*

In-demand high wage occupations that generally require a Bachelor’s or advanced degree are shown in Table 8 below. About 7 of these occupations require an advanced degree; a doctoral or master’s level. Among the most common, are occupations in healthcare, as well as business and professional services, and educational services. It is worth noting that a majority of healthcare related occupations are highly concentrated in the region relative to national shares. This reflects the nature of the region as an urban service center, but also indicative of a healthy pool of workers doing these types of occupations.

There are also several information technology related occupations that are in-demand, such as software developers and computer systems analysts. These occupations are likely reflective of demand across a number of industries rather than reflective of projected growth in the information technology industry sector, as IT is increasingly being absorbed in-house as opposed to growth in specific IT industries.

**Table 8: In-demand, high-wage occupations with high educational requirements**

Code	Occupation description	Jobs	Region growth	Median hourly	Concent ration	Education requirements	Annual openings	Projected growth '22
25-1099	Postsecondary Teachers	2,325	3.2%	\$31.00	0.73	Doctoral or prof	77	335
11-1021	General and Operations Managers	5,767	5.2%	\$38.55	1.28	Bachelor's	151	240
13-2011	Accountants and Auditors	2,287	3.6%	\$28.59	0.86	Bachelor's	95	210
15-1132	Software Developers, Applications	841	4.7%	\$42.34	0.56	Bachelor's	30	163
15-1121	Computer Systems Analysts	847	5.3%	\$36.85	0.74	Bachelor's	32	153
25-2021	Elementary School Teachers, Except Special Ed	3,163	0.5%	\$25.13	1.1	Bachelor's	97	151
29-1123	Physical Therapists	588	16.7%	\$37.05	1.36	Doctoral or prof	34	140
13-1161	Market Research Analysts and Marketing Specialists	429	0.5%	\$33.12	0.42	Bachelor's	16	110
11-9111	Medical and Health Services Managers	853	2.5%	\$41.68	1.26	Bachelor's	34	99
29-1069	Physicians and Surgeons, All Other	1116	2.8%	\$101.66	1.64	Doctoral or prof	42	86
29-1171	Nurse Practitioners	573	8.5%	\$46.95	2.17	Master's	22	77
17-2051	Civil Engineers	536	4.9%	\$37.84	0.93	Bachelor's	24	75
13-1111	Management Analysts	592	-5.4%	\$31.66	0.46	Bachelor's	18	75
29-1071	Physician Assistants	475	10.5%	\$50.47	2.39	Master's	18	72
29-1051	Pharmacists	592	4.2%	\$66.73	0.94	Doctoral or prof	25	68
15-1133	Software Developers, Systems Software	210	-10.3%	\$54.00	0.25	Bachelor's	9	67
11-3021	Computer and Information Systems Managers	618	3.9%	\$48.37	0.85	Bachelor's	18	64
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	431	5.6%	\$40.56	0.57	Bachelor's	18	62
29-1122	Occupational Therapists	403	10.7%	\$32.48	1.68	Master's	15	59
25-2022	Middle School Teachers, Except Special and Career/Technical Education	1143	0.0%	\$26.02	0.86	Bachelor's	35	56

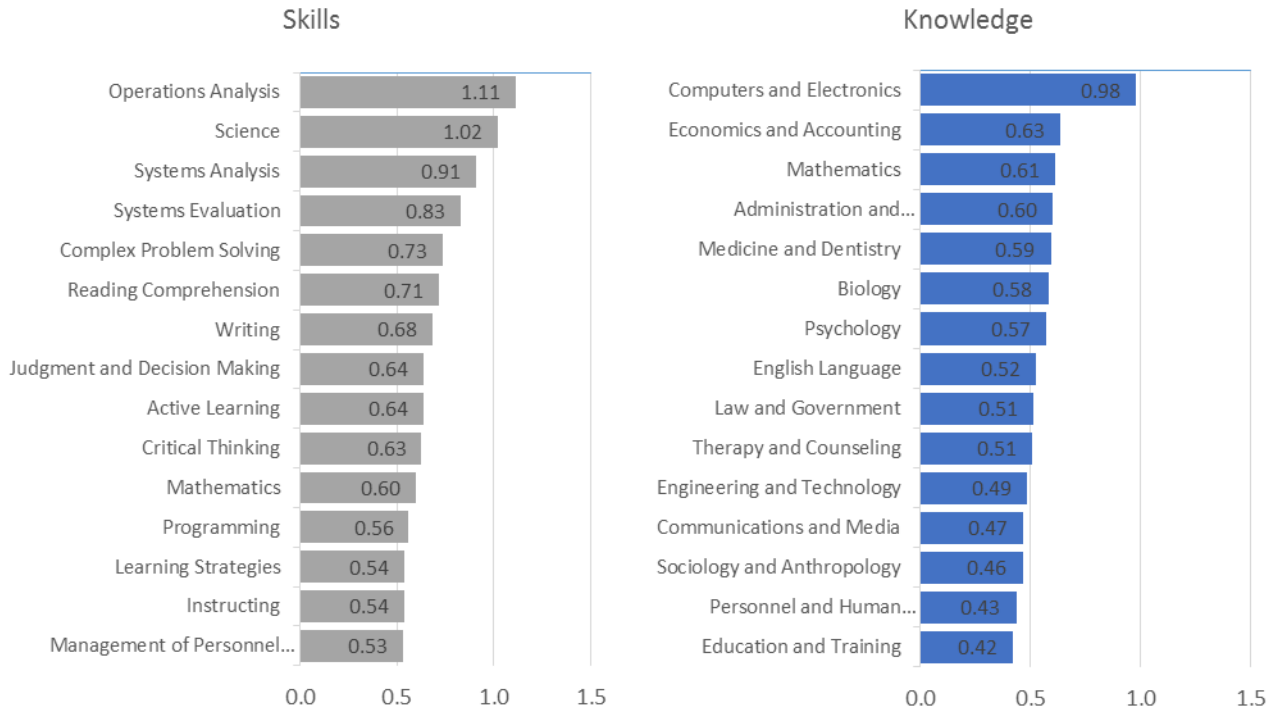
Source: EMSI, 2015.2; US BLS; ME DOL CWRI; MCBER calculations

The skills and knowledge requirements of the occupations in Table 8 are shown in Figure 11 below. The skill mix is slightly different than in-demand occupations with below a four year degree requirement. Skills of most importance to these occupations include critical thinking and cognitive problem solving skills, systems and operations thinking, as well as basic skills in science, math, and writing. Relative to the broader workforce, it is these skills that will be in most demand over the projection period through 2022.

Similarly, the in-demand knowledge requirements of the more educated workforce are somewhat different than in-demand occupations that require less than a four year degree. While science and health based knowledge is important, knowledge related to computers and electronics, math, engineering, and communications all rank high on the list.



**Figure 11: Top skill and knowledge requirements of in-demand and high-wage occupations with a Bachelor’s degree or higher educational requirement, 2022**



Source: EMSI, 2015.2; US BLS O\*Net database, Version 20; MCBER calculations

*In demand, high wage occupations in CCWI identified focus industries*

Coastal Counties Workforce Inc. has provided 4-5 industries that are identified as of interest.<sup>7</sup> These include advanced manufacturing, healthcare, transportation and logistics, information technology, and finance and banking (including insurance).

Table 10 provides a list of in demand, high wage occupation that and require less than a four year degree specific to the target industries. Of interest, a majority of these occupations are concentrated in respective industries. This is measured by the share of workers in a particular occupation that are employed in a respective industry. This has implications for targeted training programs. There may be broader industry wide support around training programs targeting occupational skills concentrated in a sector, such machinists or registered nurses. Whereas, occupations ubiquitous across industries, such as computer user support specialists, allow for a more transferable skill set and less reliant on industry fortunes. This is particularly true considering the share of growth projected in the sector versus the region as a whole. Only 7 computer user support specialists are expected to be added in the finance and banking sector through 2022, though 159 in total across all

<sup>7</sup> Working NAICS industry definitions for these sectors are found in Table A3 in the Appendices.

industries is projected to be added. These types of skill sets transferable across industries are good targets for training programs and career pathways. A more detailed analysis of the skills demanded of these industries will be included in our review of interview focus groups and collection of surveys.

**Table 9: In-demand, high wage occupations with low education requirements in focus industries, 2015-2022**

Industry	Occupational description	Change 2015-22			Share in industry	Educational requirements	Med hourly
		Jobs 2015	In sector	In region			
Manufacturing	Computer-Controlled Machine Tool Operators, Metal and Plastic	537	22	22	95.9%	High school diploma or equivalent	\$23.40
Manufacturing	Machinists	611	21	28	84.4%	High school diploma or equivalent	\$20.72
Manufacturing	Industrial Machinery Mechanics	164	16	23	34.5%	High school diploma or equivalent	\$25.86
Manufacturing	Mixing and Blending Machine Setters, Operators, and Tenders	121	15	12	65.4%	High school diploma or equivalent	\$22.52
Manufacturing	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	206	8	-2	74.9%	High school diploma or equivalent	\$27.09
Healthcare	Registered Nurses	5,724	820	829	86.5%	Associate's degree	\$31.18
Healthcare	Licensed Practical and Licensed Vocational Nurses	529	94	100	84.1%	Postsecondary non-degree award	\$21.79
Healthcare	Dental Hygienists	584	63	64	97.7%	Associate's degree	\$32.25
Healthcare	Radiologic Technologists	443	62	62	94.3%	Associate's degree	\$27.51
Healthcare	First-Line Supervisors of Office and Administrative Support Workers	340	48	143	12.7%	High school diploma or equivalent	\$22.74
Healthcare	Surgical Technologists	220	44	45	97.8%	Postsecondary non-degree award	\$20.91
Healthcare	Physical Therapist Assistants	133	43	44	98.5%	Associate's degree	\$25.51
Transport	Aircraft Mechanics and Service Technicians	65	25	20	43.6%	Postsecondary non-degree award	\$22.16
Transport	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	90	19	22	31.0%	High school diploma or equivalent	\$25.63
Transport	Commercial Pilots	19	12	15	48.7%	High school diploma or equivalent	\$23.76
Transport	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	115	12	17	25.9%	High school diploma or equivalent	\$24.37
Transport	Transportation, Storage, and Distribution Managers	81	9	10	29.8%	High school diploma or equivalent	\$36.34
Finance	Computer User Support Specialists	99	7	159	8.8%	Some college, no degree	\$22.44

Source: EMSI, 2015.2; US BLS O\*Net database, Version 20; MCBER calculations

**Section summary**

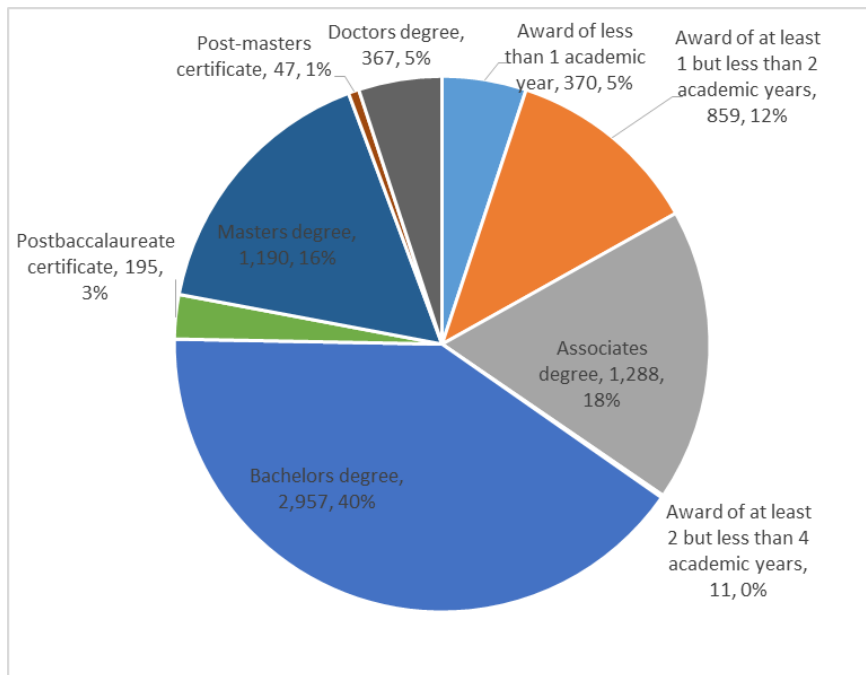
Currently, three quarters of the jobs in the CCWI region require less than a four year degree; that ratio will be 4 out of 5 for Maine. These ratios are projected to hold through 2022. This includes a majority of the fastest growing 20 occupations in the region, while the same fraction (3/4) pay less than the regional median wage. In demand occupations reflect various in demand industries, including healthcare workers and advanced manufacturing workers, as well as computer specialists. The average skill levels of in demand occupations requiring less than a 4 year degree reflect a mix of basic communication, cognitive thinking, social interaction, and other soft skills, such as time management and service orientation. Skill requirements of in-demand occupations requiring a bachelor’s degree or higher emphasize cognitive problem solving skills.

## Section V: Inventory and assessment of education and training service providers

In order to develop a plan to meet industry and workforce demands, an assessment of the regional capacity to provide appropriate training and educational services is important. This section provides a step in that direction by providing a brief overview of the existing training service providers and the pertinent programs available and identifies any gaps in meeting demands. We highlight training capacity in relation to in-demand occupations identified in the previous section.

In the CCWI region, there are twenty-two institutions that grant certificates and degrees; about 11 that grant primarily certificates and 11 that grant both degrees and certificate awards. In 2013, there were a total of 7,284 completions, an increase of 60 percent over 2003 levels – far surpassing the state and national change over that period. Approximately, two-thirds of these completions were for four year degrees of higher (Figure 12).

Figure 12: Completions in 2013 by award type



In addition to these institutions, there are upwards of 100 education training service providers located in the region, which does not include the numerous organizations that provide training statewide or nationally that might also service the CCWI region.<sup>8</sup> A vast majority of these organizations are specialized to particular topic, skill, or career area, while a selection provide training across multiple areas.

<sup>8</sup> This analysis is limited to Maine based service training providers and does not extend the analysis to service providers located outside of the region.

*In-demand occupation training gaps*

An inventory from public data sources was reviewed to determine the alignment and capacity of training programs with occupations identified as in-demand in the focus industries. These occupations and respective service providers are shown in Table 10 below. Data and information was sourced from specific training institutions, as well as the Career Center website.<sup>9</sup> Occupations in manufacturing appear to have good coverage including at the secondary education and post-secondary levels. Training for healthcare in-demand occupations appears to be a bit more dispersed across a variety of service providers. Of the in-demand occupations identified in the previous section, all but four appear to have specific programs to provide skill and knowledge training to meet those occupation's requirements located in the region. Two of these occupations include commercial pilots and aircraft mechanics in the transportation and logistics sector. Given the specialized training for these occupations this is no surprise. Our review was not able to identify specific training programs for industrial machinery mechanics or physical therapy assistants. However, it may be the case that training for these occupations would likely overlap with similar occupations.

**Section Summary**

This broad assessment of the workforce training system in the CCWI region suggests good capacity to meet demand across most occupational needs and industries, with the minor exceptions of a few occupations identified as in-demand. However, as the labor market continues to tighten, more career ready workers will find and be placed in jobs. As a result, training and the workforce system's emphasis will likely shift towards workers that have higher barriers to enter the labor force and access employment opportunities. Efforts will likely focus on target groups that may include the new Mainer population, the disabled, and other (potential) workers dislocated from the labor force. These groups will require supporting services beyond pure skills training, such as language competencies, access to training (transport), building soft skills, among other challenges. Another area of focus will likely be youth populations.

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<sup>9</sup> The web address can be accessed at <http://198.182.162.220/mecrs/training.asp>.

Table 10: In-demand occupations training capacity matrix

Industry	Occupational description	Educational requirements	High school, vocational	Certification	2 year	4 year	Gaps identified
Manufacturing	Computer-Controlled Machine Tool Operators, Metal and Plastic	High school diploma or equivalent	Windham School Dept.	Midcoast School of Tech, SMCC, Portland Adult Ed, Northeast Tech Inst, Windham School Dept.	SMCC		
	Machinists	High school diploma or equivalent	Windham School Dept.	Midcoast School of Tech, SMCC, Portland Adult Ed, Northeast Tech Inst, Windham School Dept.	SMCC		
	Industrial Machinery Mechanics	High school diploma or equivalent					Yes
	Mixing and Blending Machine Setters, Operators, and Tenders	High school diploma or equivalent	Windham School Dept.	Midcoast School of Tech, SMCC, Portland Adult Ed, Northeast Tech Inst, Windham School Dept.	SMCC		
	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	High school diploma or equivalent	Windham School Dept.	Midcoast School of Tech, SMCC, Portland Adult Ed, Northeast Tech Inst, Windham School Dept.	SMCC		
Healthcare	Registered Nurses	Associate's degree			SMCC, UC at Thomaston	USM	
	Licensed Practical and Licensed Vocational Nurses	Postsecondary non-degree award		InterCoast Career Institute (1-2 yrs)			
	Dental Hygienists	Associate's degree		UNE (1 Year) towards bachelors			
	Radiologic Technologists	Associate's degree			St. Joseph's College, SMCC		
	First-Line Supervisors of Office and Administrative Support Workers	High school diploma or equivalent		Various programs that may be relevant			
	Surgical Technologists	Postsecondary non-degree award		Maine Medical Center School of Surgical Tech			
	Physical Therapist Assistants	Associate's degree					Yes
Transport	Aircraft Mechanics and Service Technicians	Postsecondary non-degree award					Yes
	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	High school diploma or equivalent		University College at bath/Brunswick, 1600 Degrees	Various programs that may be relevant	Various programs	
	Commercial Pilots	High school diploma or equivalent					Yes
	Truck Drivers, Heavy	High school diploma or equivalent, post-secondary	Windham School Dept.	Midcoast School of Tech, Northeast Tech Inst, Pro Drive Driver, Crooked River, GoDriving Co			
	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	High school diploma or equivalent		University College at bath/Brunswick, 1600 Degrees	Various programs that may be relevant	Various programs	
Finance	Transportation, Storage, and Distribution Managers	High school diploma or equivalent					
Finance	Computer User Support Specialists	Some college, no degree		Numerous providers			

## Appendices

### Notes on data sources

Data on industry and occupational employment uses combined data from Economic Modeling Specialists Intl (EMSI) and publicly available sources including the ME Department of Labor and the US Bureau of Labor Statistics. EMSI data is comprised of a number of sources that include QCEW and non-QCEW employment, as well as self-employment data from the US Census, which are described in more detail below with text from EMSI. EMSI data and publicly available data are not directly comparable for these differences. However, EMSI data does provide a slightly more detailed picture of all workers in the region that is not limited to just covered employment.

#### **QCEW Employees**

A form of the BLS QCEW dataset that has been modified slightly by EMSI. Suppressions have been removed, public sector employment has been reorganized, and county and NAICS changes have been modified in past years for consistency. This dataset is designed to match QCEW in almost all cases, and should be used by clients who wish to match official sources. (Source: QCEW, modified using EMSI's proprietary methods)

#### **Non-QCEW Employees**

Attempts to cover jobs which fall under an employer-employee relationship but are not covered by QCEW. The major types of employment covered in this set include military jobs, railroad jobs, many nonprofit and religious workers, certain salespersons, miscellaneous Federal Government and some other government workers. (Source: Various sources, including the BEA's SPI and LPI datasets)

#### **Self-Employed**

Covers people who, when responding to Census surveys, consider self-employment to be a significant part of their income or time spent working. Most people normally considered “self-employed” would fall into this dataset. (Source: Census' ACS, combined with other sources and modified using EMSI's proprietary methods)

**Table A1: Workforce characteristics population aged 16-29**

	Number	Labor force participation		Unemployment rate	
	CCWI	CCWI	US	CCWI	US
Female	50,925	72.9%	64.4%	9.2%	13.9%
Male	51,821	73.3%	66.2%	13.3%	16.1%
<b>Total</b>	<b>102,746</b>	<b>73.1%</b>	<b>65.3%</b>	<b>11.3%</b>	<b>15.0%</b>

Sources: US Census ACS 5 year estimates 2010-2014

**Table A2: Characteristics of the veteran population**

	CCWI	US
<b>Total number</b>	57,497	2E+07
<b>Share of total population</b>	11.5%	8.7%
<b>Sex</b>		
Female percent	6.3%	7.6%
Male percent	93.7%	92.4%
<b>Age</b>		
18 to 34 years	5.6%	8.4%
35 to 54 years	25.6%	24.7%
55 to 64 years	22.4%	21.9%
65 to 74 years	22.5%	22.4%
75 years and over	23.9%	22.7%
<b>Employment status</b>		
Labor force participation rate	81.1%	75.0%
Unemployment rate	6.4%	8.2%

Sources: US Census ACS 5 year estimates 2010-2014

**Table A3: Top industries by county in the CCWI region**

NAICS	Industry	Employment	2014 LQ	2014 Wages	Wage relative to U.S.	% Change 10-14
<b>Cumberland</b>						
5241	Insurance Carriers	5,416	3.4	\$ 76,540	0.9	7%
3254	Pharmaceutical and Medicine Manufacturing	1,474	4.1	\$108,679	0.9	-4%
5223	Activities Related to Credit Intermediation	1,018	2.7	\$ 83,878	1.1	41%
5321	Automotive Equipment Rental and Leasing	662	2.8	\$ 37,971	0.9	8%
7212	RV (Recreational Vehicle) Parks and Recreational Camps	657	8.5	\$ 25,649	1.1	3%
1141	Fishing	643	14.2	\$ 30,786	0.8	13%
<b>Knox</b>						
1141	Fishing	1213	248.2	\$ 41,356	1.1	-2%
3366	Ship and Boat Building	313	16.7	\$ 40,857	0.7	7%
3331	Direct Selling Establishments	245	6.0	\$ 37,634	0.5	23%
4543	Other Food Manufacturing	173	6.0	\$ 57,471	1.6	n/a
3119	Other Textile Product Mills	154	5.1	\$ 29,335	0.6	16%
<b>Lincoln</b>						
1141	Fishing	575	171.9	\$ 21,676	0.6	7%
3366	Ship and Boat Building	232	18.1	\$ 54,784	0.9	10%
7212	RV (Recreational Vehicle) Parks and Recreational Camps	207	36.3	\$ 29,157	1.3	-7%
3211	Sawmills and Wood Preservation	89	10.2	\$ 32,310	0.8	32%
7121	Museums, Historical Sites, and Similar Institutions	66	4.7	\$ 29,141	0.9	8%
<b>Sagadahoc</b>						
3366	Ship and Boat Building	5,259	339.2	\$ 67,102	1.1	8%
6233	Continuing Care Retirement Communities and Assisted Living Facilities	390	4.1	\$ 24,565	1.0	11%
2373	Highway, Street, and Bridge Construction	334	9.5	\$ 59,148	1.0	-7%
1141	Fishing	238	58.9	\$ 20,787	0.6	14%
8134	Civic and Social Organizations	127	2.8	\$ 11,684	0.6	0%
<b>Waldo</b>						
5222	Nondepository Credit Intermediation	835	15.7	\$ 52,576	0.6	18%
5611	Office Administrative Services	679	15.7	\$ 54,016	0.7	41%
3219	Other Wood Product Manufacturing	270	13.5	\$ 35,034	1.0	40%
3117	Seafood Product Preparation and Packaging	219	64.5	\$ 28,187	0.7	30%
3152	Cut and Sew Apparel Manufacturing	138	11.9	\$ 20,725	0.6	30%
*postal services removed due in insufficient data						
<b>York</b>						
9011	Federal Government, Civilian	5,645	3.8	\$ 76,312	1.0	3%
3364	Aerospace Product and Parts Manufacturing	1,339	5.2	\$ 67,111	0.7	8%
4543	Direct Selling Establishments	354	3.3	\$ 47,136	1.3	19%
3121	Beverage Manufacturing	331	3.2	\$ 53,109	1.0	28%
1141	Fishing	288	15.5	\$ 24,633	0.7	1%



**Table A4: Top employers by county in the CCWI Region**

<b>County</b>	<b>Company</b>	<b>Employment Range</b>	<b>Business Description</b>
Cumberland	Maine Medical Center	6,501 to 7,000	General medical and surgical hospitals
	L.L.Bean, Inc.	5,001 to 5,500	Sporting goods-retail, e-commerce/shopping
	Unum Provident	3,001 to 3,500	Direct life insurance carriers
	Hannaford Bros Co	2,501 to 3,000	Supermarkets and other grocery stores
	Mercy Hospital	1,501 to 2,000	General medical and surgical hospitals
Knox	Penobscot Bay Medical Center	501 to 1,000	General medical and surgical hospitals
	Fisher Engineering	1 to 500	Construction machinery manufacturing
	O'hara Corporation	1 to 500	Finfish fishing
	Wal Mart / Sam's Club	1 to 500	Discount department stores
	Hannaford Bros Co	1 to 500	Supermarkets and other grocery stores
Lincoln	Lincolnhealth	501 to 1,000	General medical and surgical hospitals
	Coves Edge Inc	1 to 500	Nursing care facilities, skilled nursing
	Hannaford Bros Co	1 to 500	Supermarkets and other grocery stores
	The First	1 to 500	Commercial banking
	Mobius Inc	1 to 500	Vocational rehabilitation services
Sagadahoc	Bath Iron Works Corporation	5,001 to 5,500	Ship building and repairing
	Seacoast Management	1 to 500	Assisted living facilities for the elderly
	Providence Service Corporation	1 to 500	Child and youth services
	Reed & Reed Inc	1 to 500	Highway, street, and bridge construction
	Hannaford Bros Co	1 to 500	Supermarkets and other grocery stores
Waldo	Bank Of America Na	501 to 1,000	Commercial banking
	Athenahealth Inc	501 to 1,000	Office administrative services
	Waldo County General Hospital	501 to 1,000	General medical and surgical hospitals
	Group Home Foundation Inc	1 to 500	Residential developmental disability homes
	Unity College	1 to 500	Colleges and universities
York	Webber Hospital Association	1,501 to 2,000	General medical and surgical hospitals
	Pratt & Whitney Aircraft Group	1,001 to 1,500	Aircraft engine and engine parts mfg.
	Hannaford Bros Co	1,001 to 1,500	Supermarkets and other grocery stores
	York Hospital	1,001 to 1,500	General medical and surgical hospitals
	University Of New England	501 to 1,000	Colleges and universities
	Shaws Supermarkets Inc	501 to 1,000	Supermarkets and other grocery stores

**Table A5: NAICS industry definitions of focus sectors**

<b>Sector</b>	<b>Naics code</b>	<b>Naics description</b>
Precision Manufacturing	325	Chemical Manufacturing
Precision Manufacturing	326	Plastics and Rubber Products Manufacturing
Precision Manufacturing	331	Primary Metal Manufacturing
Precision Manufacturing	332	Fabricated Metal Product Manufacturing
Precision Manufacturing	333	Machinery Manufacturing
Precision Manufacturing	334	Computer and Electronic Product Manufacturing
Precision Manufacturing	335	Electrical Equipment, Appliance, and Component Manufacturing
Transportation and Logistics	481	Air Transportation
Transportation and Logistics	482	Rail Transportation
Transportation and Logistics	483	Water Transportation
Transportation and Logistics	484	Truck Transportation
IT	518	Data Processing, Hosting, and Related Services
IT	519	Other Information Services
Finance and Insurance	521	Monetary Authorities-Central Bank
Finance and Insurance	522	Credit Intermediation and Related Activities
Finance and Insurance	523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities
Finance and Insurance	524	Insurance Carriers and Related Activities
Finance and Insurance	525	Funds, Trusts, and Other Financial Vehicles
Professional and Business Services	541	Professional, Scientific, and Technical Services
Health Care	621	Ambulatory Health Care Services
Health Care	622	Hospitals
Health Care	623	Nursing and Residential Care Facilities