

PENNSYLVANIA'S STATE SYSTEM OF HIGHER EDUCATION



Central Pennsylvania's **WORKFORCE CHARACTERISTICS TECHNICAL REPORT**

A report for Pennsylvania's
State System of Higher Education

2016



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GLOSSARY OF TERMS

The following descriptions provide a point of reference to understand terminology as well as the types of data and analysis undertaken in this study, reflecting historic and contemporary narratives.

Industry Change: A measure of the change in employment within an industry, used to identify whether an industry is growing or declining, as well as the rate of change. Projected changes lay out expectations of growth/decline for specific industries.

Job Postings: The number of unique (de-duplicated) online postings for a job in a given occupation.

Location Quotient: A comparative statistic used to calculate the relative employment concentration of a given industry or occupation against the average employment of the industry in a larger geography (for example, countrywide). Industries with a higher location quotient (usually greater than 1.2) indicate that the region has a comparative advantage or specialization in the production of that good or service or has a high degree of specialization within its workforce. For example, in Silicon Valley, we would expect the concentration of computer programming occupations to be greater than the rest of the U.S., giving rise to the conclusion that Silicon Valley has a comparative advantage in the computer programming workforce.

New and Replacement Jobs: A demand-side estimate of the number of job openings in an occupation that result from new job growth as well as replacement demand. Replacement demand comprises occupation job leavers based on separations, retirement, and death.

Occupation Jobs: A measure of employment within an occupation category, used to identify which occupations have been growing or declining, as well as the rate of change. Projected changes lay out expectations of growth/decline for specific occupation categories.

State System Learner Capture Rate: The percentage of State System enrolled learners from a specific county that are attending a given Pennsylvania State System university. State System universities typically capture a higher proportion of State System enrolled learners from counties in proximity to the institution.

State System Learner Share: Represents the contribution of learners from a defined geographic area that are enrolled in a State System university.

Sub-regions: A geographic area within Pennsylvania defined for more focused workforce and education gap analyses. Sub-regions were determined primarily on Partnerships for Regional Economic Performance (PREP) boundaries. PREP is Pennsylvania's network of business assistance partners designed to help companies start, grow, and prosper. Please refer to Appendix A for mapping of the Sub-regions and PREP boundaries.

ACRONYMS USED

ACS: American Community Survey

BLS: Bureau of Labor Statistics

EMSI: Economic Modeling Specialists International

CEW: Center on Education and the Workforce (Georgetown University)

IPEDS: Integrated Postsecondary Education Data System

LAUS: Local Area Unemployment Statistics

LEHD: Longitudinal Employment and Housing Dynamics

NCES: National Center for Education Statistics

OES: Occupational Employment Statistics

O*NET: Occupational Network

PUMS: Public Use Microdata Sample

QCEW: Quarterly Census of Employment and Wages

SAIPE: Small Area Income and Poverty Estimates

USDOE: U.S. Department of Education

USDOL: U.S. Department of Labor

1. INTRODUCTION

Pennsylvania’s State System of Higher Education (State System) comprises 14 universities, four branch campuses, multiple regional centers and the McKeever Environmental Learning Center.¹ The universities are located in rural, suburban, and small-town settings around Pennsylvania. The State System’s two educational hubs (with locations in Harrisburg, the Dixon University Center, and Philadelphia, State System @ Center City) offer academic programs through a consortium of public and private colleges and universities. Per Act 188 of 1982, the State System’s mission “is the provision of instruction for undergraduate and graduate students to and beyond the master’s degree in the liberal arts and sciences, and in the applied fields, including the teaching profession.” In doing so, the State System’s purpose is “to provide high quality education at the lowest possible cost to students.”² Analysis and understanding of the economy and workforce the State System supports, as well as future demands for talent, advances the State System’s mission and philosophy—a key component of this report. Further, it enables effective and targeted strategies and decision-making, grounded in data-driven evidence.

Like all institutions of higher education, the State System’s universities face challenges in their efforts to identify and quantify program needs for Pennsylvania residents and businesses that demand talent. They must account for the changing economic and workforce dynamics within the region they support, such as industry and occupation growth/decline, as well as the changing quality of the area’s workforce. Furthermore, as technology progresses, a growing need to address increasingly complex and specialized occupational tasks requires additional customization to education. As a result, education institutions are increasingly called upon to incorporate relevant courses that meet the needs of students and businesses in their service area—a departure from traditional supply-based education towards a more employer demand-driven model.

A fundamental challenge for any higher education system is to first understand

1 One of the State System’s entities, System-wide Functions and Services, is primarily located at the Dixon University Center in Harrisburg and includes: System-wide shared administrative services; System leadership functions of the Chancellor and Board of Governors; some System-wide initiatives and grants managed on behalf of the universities; and the academic, student, and facilities support for the multi-university sites in Harrisburg and Philadelphia.

2 Source: The State System’s Economic and Employment Impact on the Commonwealth of Pennsylvania – released April 15, 2015.

the characteristics of the economy and workforce it supports. This study and the broader set of deliverables under the State System’s Supply/Demand Gap Analysis Project—hereinafter, Gap Analysis Project—will assist universities and education planners by providing an infrastructure of resources for internal planning, as well as external engagement. Understanding key economic aspects of the geography helps to better align policy and strategic direction in order to continue supporting the talent needs of Pennsylvania.

1.1 Goal of Report of the Workforce Characteristics Report

The first phase of the State System’s Gap Analysis Project was creating the context for the supply/demand analysis. This was possible with a Georgetown University-State System collaboration, which resulted in the production of the report “Degrees of Value: College Majors and the Pennsylvania State System’s Contribution to the Workforce”.³ Georgetown University’s Center on Education and the Workforce is a premier world-class independent, nonprofit research and policy institute that studies the link between education, career qualifications, and workforce demands. In their report, Georgetown’s Center on Education and the Workforce (CEW) provides contextual data on Baccalaureate-level education output in order to support and inform efforts associated with the State System’s Gap Analysis Project. This report is similar to previous national level work from CEW that examines earnings, employment, and occupational outcomes by major for bachelor’s degree (BD) holders. In this report, customized to the State System and Pennsylvania, CEW delves into the increasing importance of BD holders in the Pennsylvania workforce, the critical role of the State System as part of the state’s BD sector, and how earnings and employment vary by field of study and occupational area.

The Gap Analysis Project produced both a Workforce Characteristics Report and a Supply/Demand Gap Analysis Report for both the state and five sub-regions. The Workforce Characteristics Report contains a set of economic, workforce, demographic, and socio-economic information to contextualize the supply/demand gap analysis. The Supply/Demand Gap Analysis Report for Pennsylvania and its sub-regions provides a data-driven perspective of employer demand (new and replacement jobs by occupation in the state) and higher education supply (degree production by major program). The data sources used for the Gap Analysis Project are diverse including Bureau of Labor Statistics (BLS), U.S. Census Bureau, American Community Survey (ACS), System Research Office, National Center for Education Statistics (NCES,

³ Georgetown’s Center on Education and the Workforce analysis of degree production in the Pennsylvania Baccalaureate Sector.

Integrated Postsecondary Education Data System), IMPLAN (Input/Output Model), and Economic Modeling Specialists International (EMSI). Ultimately, the reports generated from this project will assist the State System universities with strategic engagement, program development and evaluation, student engagement, and marketing.

The intentions of this Workforce Characteristics Report are fourfold.

- First, it provides a baseline reporting structure to evaluate workforce characteristics at the state level and sub-region level within Pennsylvania, which can be repeated in the future.
- Second, it identifies sub-regions within Pennsylvania that will be used to conduct regionally specific analysis in subsequent reports.
- Third, it builds on CEW's State System degree production report. The Workforce Characteristics Report is a data-driven analysis and discussion of trends in Pennsylvania's economy, including projections of industry and occupational employment, key skilled in-demand occupations, and changes in socio-economic characteristics.
- Finally, this report creates the foundation to construct the State System's Gap Analysis reports for the state and its regions and complements the

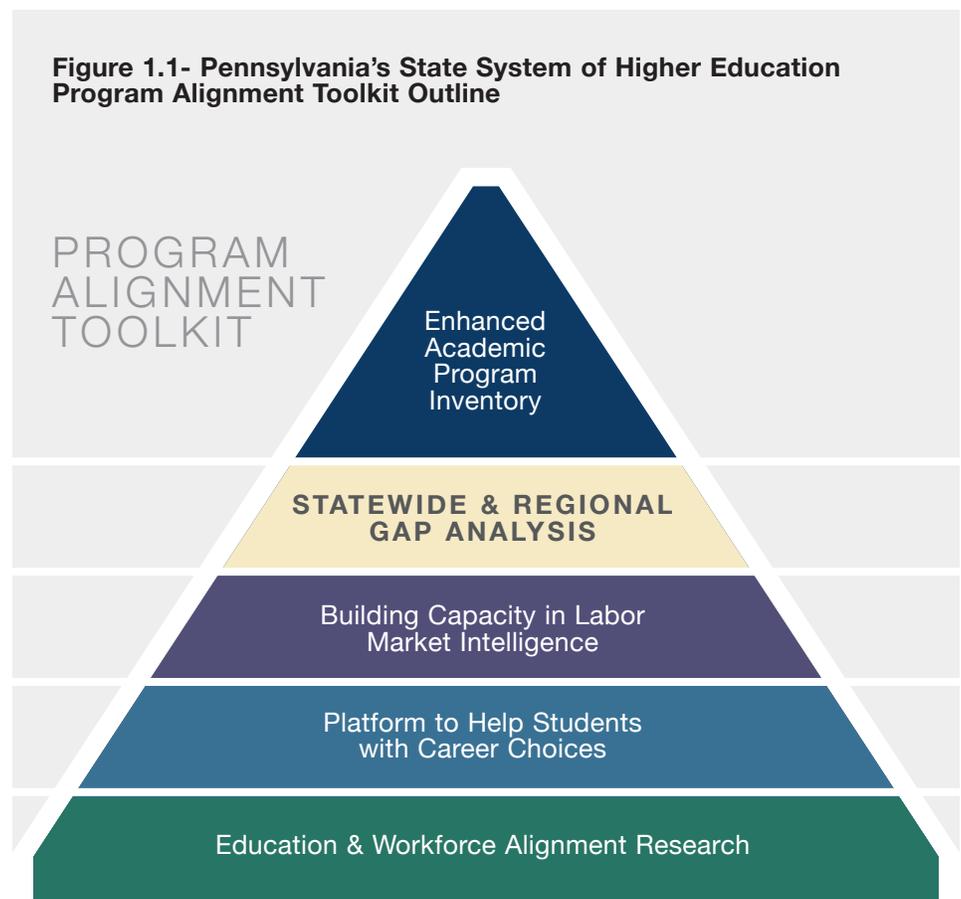
While the main body of this report provides a high-level summary, the Appendices provide an abundance of information for those seeking additional detail. Appendix A provides a map of the state sub-region boundaries along with PREP and WIA boundaries. Appendix B provides detail on the employment and enrollment by each county in Pennsylvania. Appendix C provides nearly 300 detailed industry employment projections for the region along with a measure of competitiveness for each industry. Lastly, Appendix D provides a description of occupation levels and employment projections for over 400 detailed occupations.

content of the supply/demand gap analysis reports.

1.2 Pennsylvania's State System of Higher Education Gap Analysis Project

In a fast-changing economic and social environment that is also experiencing rising costs for higher education, institutions are increasingly called upon to align their programs to the changing needs of the economy.

In response to improving career outcomes for its learners, Pennsylvania's State System of Higher Education (State System) has produced a Program Alignment Toolkit—a central clearinghouse for key academic planning information, developed in response to the State System's Strategic Plan "Rising to the Challenge 2020." The Program Alignment Toolkit helps provide multiple perspectives of how higher education can connect to the state's economy and lead to career success for students. A key component of this toolkit is the development of a statewide and regional gap analysis. Other high impact strategies that are a part of the State System's Program Alignment Toolkit are presented in the figure below. The ultimate goal of this plan is to assist the State System's fourteen universities to increase their individual and collective impact on Pennsylvania's economy.



The next section provides a high-level overview of the State System and its fourteen universities in terms of location, enrollment, and bachelor's degree output.

2. PENNSYLVANIA'S STATE SYSTEM OF HIGHER EDUCATION

During the fall of 2013, total enrollment in State System universities was 112,225—inclusive of resident and non-resident enrollment. Figure 2.1 depicts the geographic location of each university across Pennsylvania, while Table 2.1 shows the enrollment by university.

Figure 2.1 – Locations of Pennsylvania's State System of Higher Education Universities



Source: U.S. Department of the Interior – U.S. Geological Survey: Colleges and Universities (published 09-30-2010)

Table 2.1 – Pennsylvania's State System of Higher Education Enrollment by University

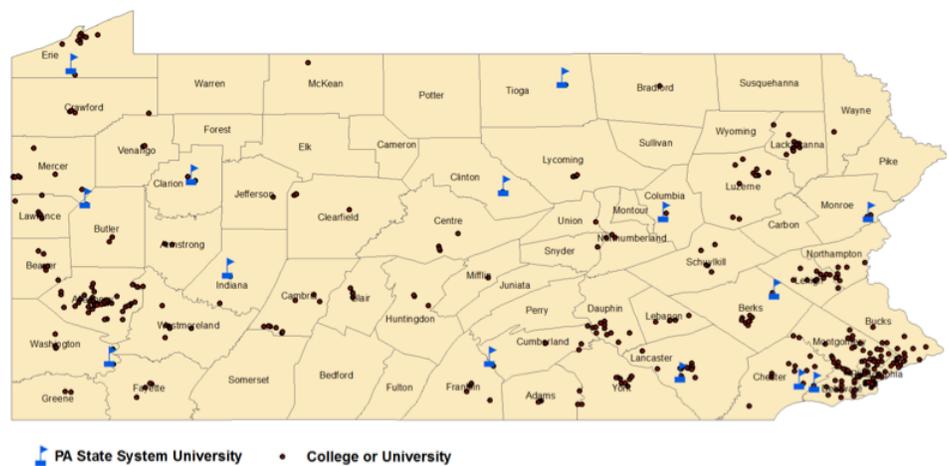
University	Fall 2013 Enrollment
Bloomsburg University of Pennsylvania	10,127
California University of Pennsylvania	8,243
Cheyney University of Pennsylvania	1,212
Clarion University of Pennsylvania	6,080
East Stroudsburg University of Pennsylvania	6,778
Edinboro University of Pennsylvania	7,098
Indiana University of Pennsylvania	14,925
Kutztown University of Pennsylvania	9,513
Lock Haven University	5,260
Mansfield University of Pennsylvania	2,970
Millersville University of Pennsylvania	8,279
Shippensburg University of Pennsylvania	7,548
Slippery Rock University of Pennsylvania	8,347
West Chester University of Pennsylvania	15,845

Source: National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS)

2.1 Universe of Postsecondary Degree Granting Institutions in Pennsylvania

There are approximately 400 postsecondary institutions in Pennsylvania with 394 reporting their enrollment data in 2013. Figure 2.2 illustrates the locations of colleges and universities in 2010—latest latitude and longitude data available—for institutions that report to IPEDS. Latest data indicate these 394 institutions had 814,120 students enrolled. This means approximately one in eight postsecondary enrollees in Pennsylvania institutions are from the fourteen State System universities.⁴ Furthermore, enrollment in the 166 four-year institutions during this time period was 618,738 indicating that one in six four-year enrollees came from the State System universities.

Figure 2.2 – Locations of Pennsylvania’s Colleges and Universities



Source: U.S. Department of the Interior – U.S. Geological Survey: Colleges and Universities (published 09-30-2010)

2.2 The State System’s Bachelor’s Degree Output

In response to “Rising to the Challenge 2020” strategic plan, the State System formed a unique partnership with Georgetown’s Center on Education and the Workforce (CEW) to produce a report on the statewide bachelor’s degree output from the State System universities and contextualize the output within Pennsylvania’s baccalaureate sector. The forthcoming report provides key data and analysis on the State System’s contribution to Pennsylvania’s production of

⁴ Source: National Center for Education Statistics’ [NCES], Integrated Postsecondary Education Data System [IPEDS].

bachelor's degrees, the top fields of study among completers, recent trends in the bachelor's degree population and workforce in the state, and occupational areas of employment among incumbent Pennsylvania workers with these undergraduate majors. High-level key findings from the report indicate:⁵

- In recent years, bachelor's degree-holders constituted a growing share of Pennsylvania's population and workforce. About one-out-of-five bachelor's degrees awarded in Pennsylvania were from State System institutions, and the most common State System major groups were STEM-H, Business, Education, Humanities & Liberal Arts, and Social Sciences.
- Pennsylvania bachelor's degree-holders in STEM, health, and business majors had relatively high earnings, while education, social science, and humanities and liberal arts majors typically made less than college-educated workers in the state overall.
- Workers with a bachelor's degree or better had the highest median earnings in the southeast region and the lowest in the northwest region, but the magnitude of these geographic differences varied by field of study.
- Pennsylvania workers with a bachelor's degree in education or health had tighter relationships with a single related occupational area, while humanities and liberal arts and social sciences majors had more varied occupational destinations. Business majors fell somewhere in between.

With an understanding of where institutions are located and a high-level view of degree production, the next section evaluates where State System learners originate. This provides additional geographic perspective of enrollment and workforce size.

⁵ Key findings are extracted from a forthcoming report from Georgetown University's Center on Education and the Workforce's State System Report.

3. IDENTIFYING THE STATE SYSTEM'S SUB-REGIONS

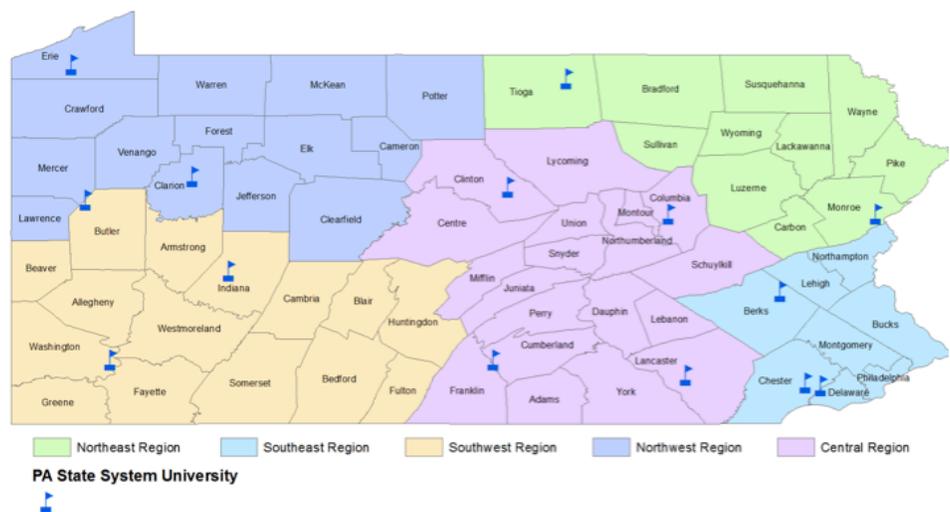
Pennsylvania's economically diverse geography supports the need for a more regionalized perspective of economic and workforce characteristics. The State System conducted original research to identify five broad sub-regions as well as fourteen university-specific workforce regions. It is important to note that these five regions align with Pennsylvania's Partnerships for Regional Economic Performance (PREP). The PREP regions are Pennsylvania's network of businesses as defined by the Department of Community and Economic Development (DCED). Aligning the State System's five regions to the PREP regions reflects a broader goal of the State System to connect higher education with economic development in the commonwealth.

The only exception to the PREP region boundary is Schuylkill County, which was allocated to the Central sub-region. This allocation balances enrollment between regions, although learners from Schuylkill were nearly evenly dispersed between the Central, Northeast and Southeast sub-regions.

Figure 3.1 illustrates the geographic areas for the sub-regions as well as the locations of the State System universities. Table 3.1 provides summary data of the population and learner enrollment for each respective sub-region.

For PREP geographic boundaries please see Appendix A.

Figure 3.1 – Pennsylvania State System Sub-regions



Source: Oxford Economics mapping

The counties in Central Pennsylvania's region are listed below:

Adams	Juniata	Northumberland
Centre	Lancaster	Perry
Clinton	Lebanon	Schuylkill
Columbia	Lycoming	Snyder
Cumberland	Mifflin	Union
Dauphin	Montour	York
Franklin		

Table 3.1 – Pennsylvania Population and State System Learner Enrollment by Sub-region

Pennsylvania Region	Number of Counties	Regional Population	Regional Population Share	PA Resident State System Learners*	Regional State System Learner Share
Northwest	14	941,584	7.4%	11,504	11.7%
Southwest	15	2,943,544	23.1%	21,741	22.1%
Central	19	2,690,436	21.1%	22,813	23.2%
Northeast	11	1,061,613	8.3%	8,202	8.4%
Southeast	8	5,094,204	40.0%	33,940	34.6%
Pennsylvania Total	67	12,731,381	100.0%	98,200	100.0%

* Enrollment represents a three-year average from 2012-2014.

Source: American Community Survey 2009-2013 five-year file; Pennsylvania's State System of Higher Education Research Office

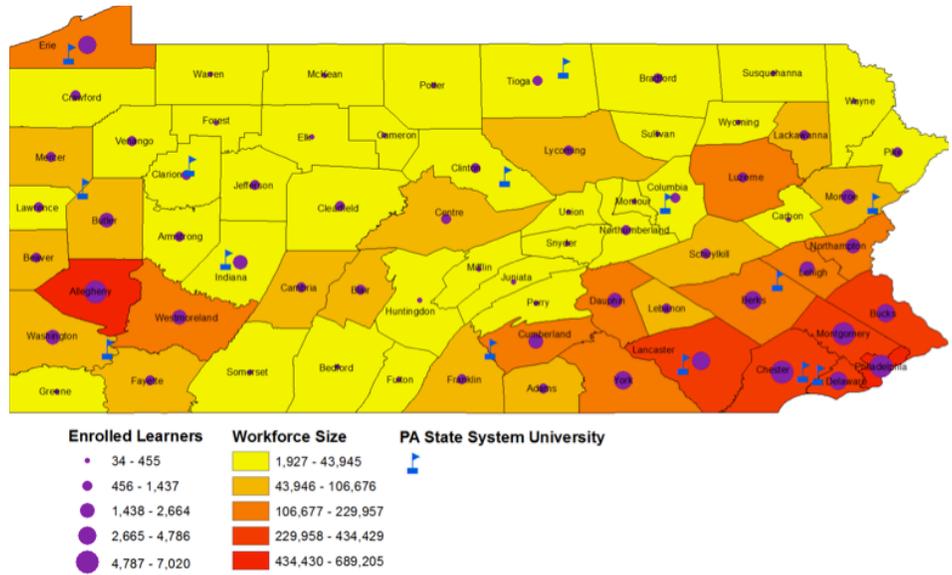
3.1 Pennsylvania's Sub-regions and State System Learner Origin

This section provides an overview of where State System learners come from within Pennsylvania and the region. Pennsylvania's total four-year institution enrollment in 2013 was approximately 618,700 learners. Of this, the Pennsylvania State System of Higher Education comprised 112,225 enrolled learners—of which almost 90% are Pennsylvania residents.⁶ The Commonwealth's urban and rural economic geography is very diverse, comprising of two distinct urban centers on the Western and Southeastern portions of the state, as well as key cities located throughout.

The map below (Figure 3.2) illustrates workforce size and the origin of Pennsylvania resident learners enrolled in Pennsylvania's State System of Higher Education.

⁶ Based on Fall 2013 enrollment.

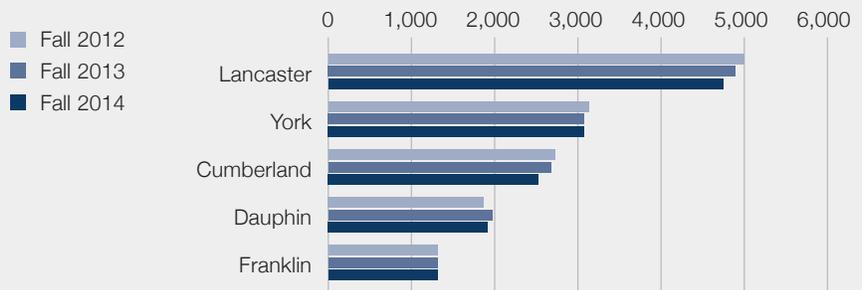
Figure 3.2 – State System Learner Origin and Workforce Size by County



Source: Pennsylvania's State System of Higher Education, Oxford Economics mapping

State System learners, originally from Central Pennsylvania, come from every county in the region. State system learner enrollment from the region accounts for about 21% of total resident enrollment in the State System. The top counties in the region include Lancaster, York, Cumberland, Dauphin, and Franklin. Figure 3.3 highlights the Central Pennsylvania resident fall enrollment numbers between 2012 and 2014 for the top 5 counties. Table 3.2 provides enrollment detail for all counties in Central Pennsylvania.

Figure 3.3 – Central Pennsylvania State System Learner Enrollment by County



Source: Pennsylvania's State System of Higher Education

Table 3.2 Central Pennsylvania State System Learner Enrollment by County

County	Fall 2012	Fall 2013	Fall 2014
Adams	818	742	705
Centre	718	742	699
Clinton	604	613	600
Columbia	1,089	1,100	1,074
Cumberland	2,775	2,703	2,537
Dauphin	1,898	1,966	1,952
Franklin	1,347	1,310	1,302
Juniata	149	135	123
Lancaster	5,030	4,964	4,786
Lebanon	834	833	803
Lycoming	1,133	1,077	1,013
Mifflin	298	276	290
Montour	318	310	340
Northumberland	997	945	938
Perry	325	344	319
Schuylkill	1,242	1,142	1,068
Snyder	247	271	269
Union	315	310	313
York	3,142	3,135	3,104
Total	23,279	22,918	22,235

Source: Pennsylvania's State System of Higher Education

The next section of this report describes key economic and workforce data and contextualizes Central Pennsylvania's economic environment.

4. OVERVIEW OF THE LABOR MARKET OF CENTRAL PENNSYLVANIA

The following sections outline a brief analysis of economic, workforce, demographic and socio-economic information. The purpose of providing this analysis is to gain better insight into how Central Pennsylvania’s workforce has changed over the past several years, as well as projections of how the region will continue to change over the next several years. Table 4.1 provides a high-level comparative summary of key workforce and economic indicators between Central Pennsylvania and the state.

Table 4.1 – Summary of Central Pennsylvania and Pennsylvania Workforce Characteristics

Workforce Characteristic	Central Pennsylvania	Pennsylvania	Source
Population	2.7 million	12.7 million	2009-2013 American Community Survey 5-Year Estimates
Employed	1.2 million	5.6 million	2014 BLS Quarterly Census of Employment and Wages
Unemployed	71,000	370,000	2014 BLS Local Area Unemployment Statistics
Unemployment Rate	5.20%	5.80%	2014 BLS Local Area Unemployment Statistics
Poverty Rate	12.00%	13.70%	2013 Census Small Area Income and Poverty Estimates
Business Establishments	62,000	347,000	2014 BLS Quarterly Census of Employment and Wages
Educational Attainment (% of 25+ Population with Bachelor's or Higher)	22.90%	27.40%	2009-2013 American Community Survey 5-Year Estimates
Bachelor's or Higher Completions	29,600	137,000	Integrated Postsecondary Education Data System 3-Year Average AY2010-11 to AY2012-13
Projected Employment in 2024	1.3 million	6.2 million	Oxford Economics Projections 2014-2024

The analysis in the following sections is broken into three key sections, namely:

1. Industries – an evaluation of historic and current changes in sector employment, as well as top employers in the state.

2. Occupations – an evaluation of historic and projected changes in occupations, as well as more detailed analysis of key skilled occupations that align to university education.

- Top Skilled Occupations: largest skilled employed occupations and new and replacement job demand.
- Key Skilled In-Demand Occupations: five key skilled occupations and new and replacement job demand.
- Job Posting Analytics: analysis of job postings vs. hires for five key skilled in-demand occupations.
- Industry Staffing Patterns: industry employment breakdown for five key skilled in-demand occupations.
- Key Occupational Profiles: regional demographic profiles for five key skilled in-demand occupations.

3. Demographics and Socio-economic Indicators – an evaluation of the demographic profile of Central Pennsylvania’s population. Also, a brief analysis of three key socio-economic indicators—educational attainment, unemployment, and poverty.

Each section is designed to provide additional context to the economic environment for the universities to consider broader aspects of strategic vision and program planning. Each section also provides the data-driven preparation for the next phase of research—namely the Supply/Demand Gap Analysis Report.

4.1 About Employment Projections

Currently, the industry and occupation employment projections available from Pennsylvania’s Department of Labor and Industry reflect the time period from 2012–2022 and therefore do not incorporate the post-recession recovery that has taken place between 2012 and 2014. In order to capture recovery and reflect current employment data, the State System used 4-digit NAICS (industry) and 5-digit SOC (occupation) projections to 2024 at the county level for Pennsylvania. The projections incorporate Quarterly Census of Employment and Wages (QCEW) data through 2014, and therefore contain the most recent

employment trends that further reflects the economic recovery. See Appendix C for 4-digit industry projections and Appendix D for 5-digit occupation projections.

Oxford Economics, a premier economic modeling and consulting firm, produced the projections. By updating the projections, Oxford Economics provided insight into new job growth and occupational demand over the next 10 years.

The next section provides an analysis of industries in Central Pennsylvania with a focus on the post-recession recovery period 2009 to 2014, as well as top employers in the region.

5. INDUSTRIES IN CENTRAL PENNSYLVANIA

Over the five years of 2009 to 2014, the Central Pennsylvania economy experienced significant growth in service-based sectors, while manufacturing and information saw a reduction in jobs. Sectors such as education and health care, professional and business services, and other services added a combined 39,000 new jobs between 2009 and 2014. Also during this period, natural resources and mining experienced significant growth (32%), adding 3,300 jobs. Construction declined modestly, while the largest job losses occurred within financial activities and information. Overall, the economy added about 28,000 jobs during this period, 2009 to 2014. This growth reflects the recovery period for Pennsylvania from one of the worst recessions since the Great Depression—the Great Recession which lasted from 2007 to 2009.

Figure 5.1 illustrates historic and current employment, while Table 5.1 provides data on broad industry categories by employment, growth and percentage change.

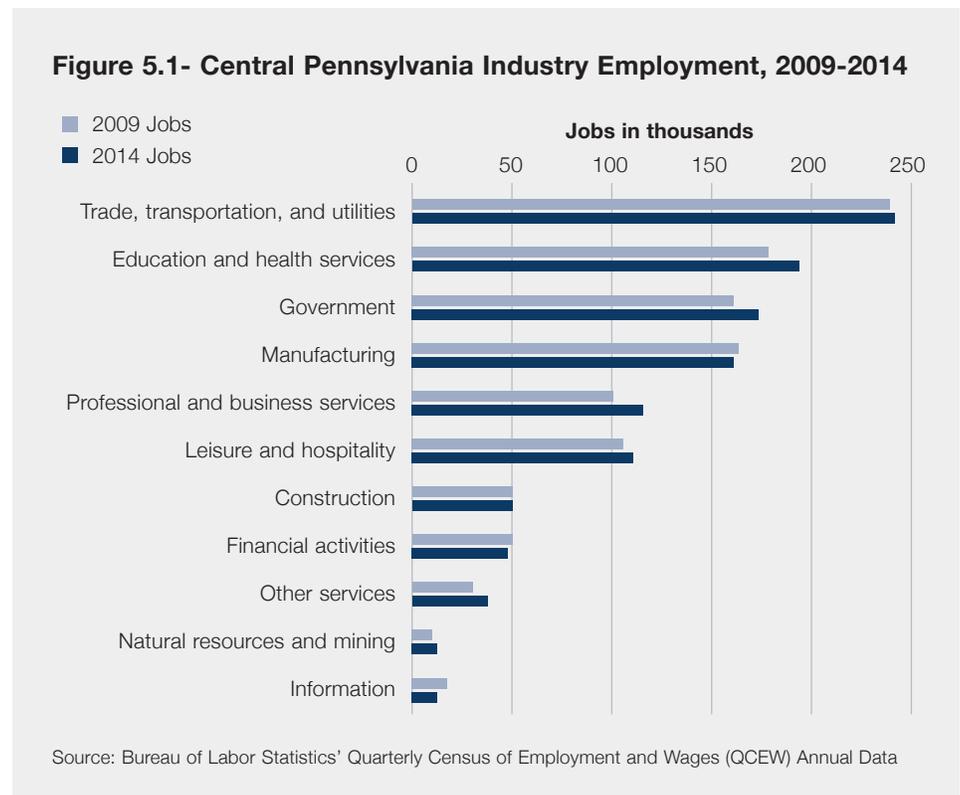


Table 5.1 – Central Pennsylvania Industry Employment, 2009-2014

Industry Employment	2009 Jobs	2014 Jobs	Absolute Change 09-14	% Change 09-14
Total, all industries	1,126,363	1,153,927	27,564	2.4%
Trade, transportation, and utilities	237,855	241,055	3,200	1.3%
Education and health services	177,757	192,904	15,147	8.5%
Government	159,673	172,011	12,338	7.7%
Manufacturing	162,662	159,904	-2,758	-1.7%
Professional and business services	98,759	114,325	15,566	15.8%
Leisure and hospitality	103,772	110,861	7,089	6.8%
Construction	50,394	49,763	-631	-1.3%
Financial activities	50,458	48,739	-1,719	-3.4%
Other services	28,808	37,117	8,309	28.8%
Natural resources and mining	10,306	13,624	3,318	32.2%
Information	16,467	13,334	-3,133	-19.0%

Source: Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW) Annual Data

Appendix C contains additional data on employment in detailed industry sectors as well as location quotients.

5.1 Top Employers in Central Pennsylvania

Amongst the top employers within Central Pennsylvania, education and health service establishments comprise a majority of the list. Other top employers in the region include federal, state, and local government as well several retail establishments.

Major employers in the region are listed in Table 5.2 on the next page.

While this section focused on the places where people in Central Pennsylvania work, the next section builds a perspective of occupational employment. This perspective describes the types of jobs people have in Central Pennsylvania and identifies the skills and characteristics of those people.

Table 5.2 – Top Employers in Central Pennsylvania

Firm Name
Bucknell University
Empire Kosher Poultry
Federal Government
Geisinger Medical Center
Geisinger System Services
Geisinger-Lewistown Hospital
Giant Food Stores
H E Rohrer
H. H. Knoebel Sons
Keystone Central School District
Knouse Foods Cooperative
Lancaster General Hospital
Mutual Assistance Group
Pennsylvania State System of Higher Education
Pennsylvania State University
Sapa Extrusions
State Government
Susquehanna health system
The Chambersburg Hospital
The Good Samaritan Hospital
Wal-Mart
Weis Markets
Wood Mode
York County
York Hospital

Source: Pennsylvania Department of Labor and Industry Quarterly Census of Employment and Wages (QCEW)

6. OCCUPATIONS IN CENTRAL PENNSYLVANIA

The workforce within the region can be evaluated from many different angles in order to build a deeper profile of the qualities and attributes of workers. The next five sub-sections provide insight into the qualities of Central Pennsylvania's workforce, answering questions such as:

- What are the largest skilled occupations employed within the region?
- What are the key skilled in-demand occupations that typically align to university-level education?
- Within the key skilled in-demand occupations what is the current market demand in terms of jobs postings and hires?
- What sectors typically employ the key skilled in-demand occupations?
- What type of demographic is typically found in key skilled in-demand occupations?

Each perspective provides data-driven content for the universities to consider when engaging businesses, learners and program planners.

6.1 Skilled Occupations

The O*NET program is the nation's primary source of occupational information. Essential to the project is the O*NET database, containing information on hundreds of standardized and occupation-specific descriptors.⁷

For this analysis a "skilled" occupation is defined as an occupation in O*NET Job Zones Three, Four, or Five. A Job Zone is a group of occupations that are similar in how much education people need to do the work, how much related experience people need to do the work, and how much on-the-job training people need to do the work.⁸

Most occupations in Job Zone Three require training in vocational schools, related on-the-job experience, or an associate's degree. Most occupations in Job Zone Four require a four-year bachelor's degree, but some do not. Most

⁷ <http://www.onetcenter.org/overview.html>

⁸ <https://www.onetonline.org/help/online/zones>

occupations in Job Zone Five 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). For a more detailed description of O*NET Job Zones and training requirements see Appendix D.

For the five key skilled high demand occupations, over 50% of those employed have attained an associate's degree or higher and are generally associated with university-level education.

6.2 Top Skilled Occupations in Central Pennsylvania

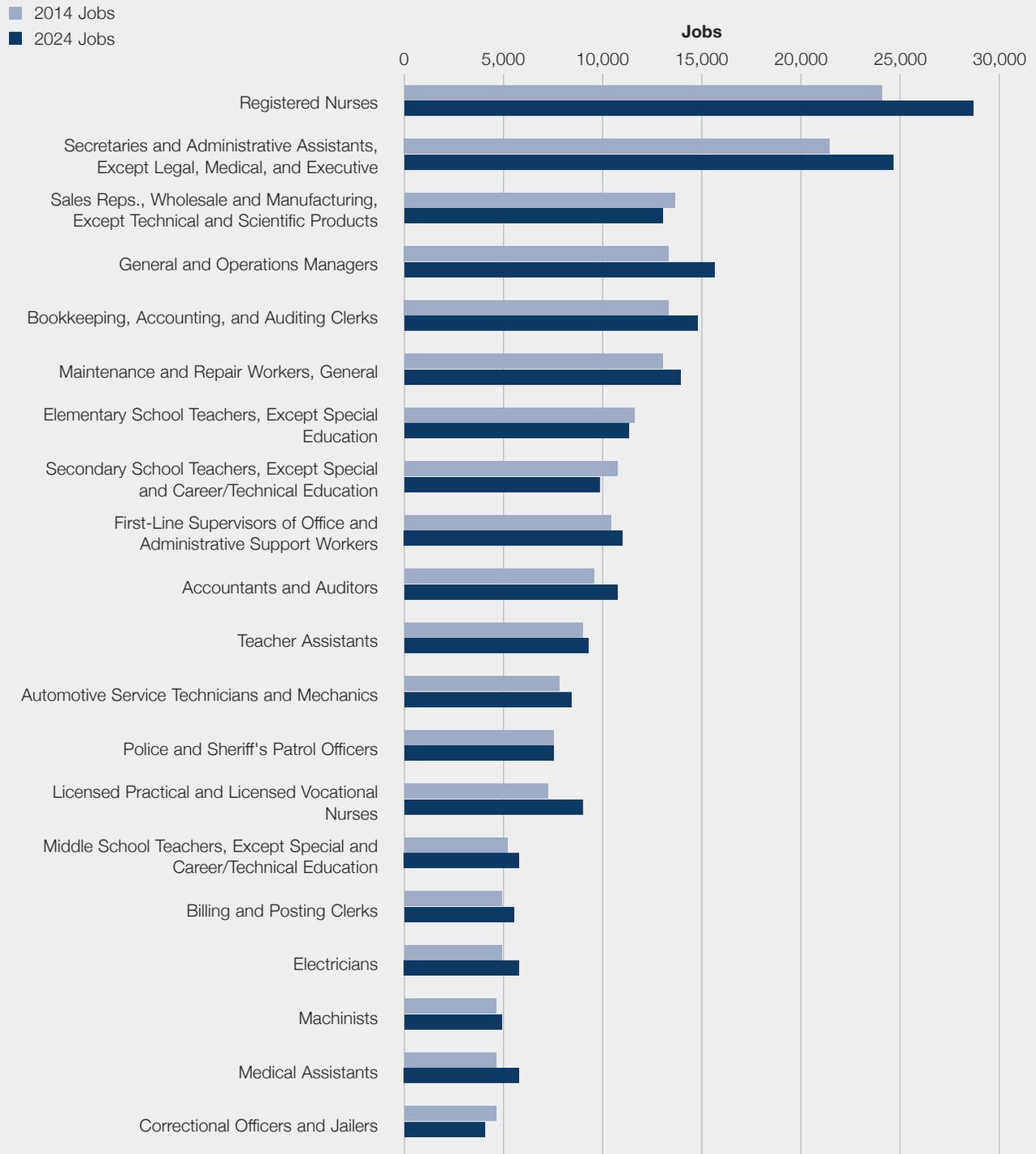
Top skilled occupations in the region are driven by industry composition. Medical centers employ a cadre of health professionals, while enterprise management companies employ a range of business professionals. Given the dominating presence of trade, transportation and utilities; healthcare and education services; and government establishments in Central Pennsylvania, top skilled occupations include: general and operations managers, police officers, secretaries and administrative assistants, registered nurses, and teachers. Figure 6.1 and Table 6.1 highlight the top 20 skilled occupations in the region, 10-year job growth projections, and new and replacement jobs.⁹

An important aspect to distinguish skilled occupations, in this sub-section, is that postsecondary education is not necessarily a pre-requisite for employment. However, a high percentage of those employed in the skilled occupations have a postsecondary education.

The next section provides a more narrow view of skilled occupations, focusing specifically on occupations that align to university-level education and have high demand for new and replacement jobs.

⁹ New and replacement job change takes into account demand for occupations based on: industry growth (new jobs), occupation productivity, workforce ageing, migration and other factors that would contribute to new and replacement job openings.

Figure 6.1 – Largest Skilled Occupations in Central Pennsylvania and Projections, 2014-2024



Source: BLS (QCEW and OES); Pennsylvania Department of Labor & Industry; Oxford Economics Projections

Table 6.1 – Largest Skilled Occupations in Central Pennsylvania and Projections, 2014-2024

29-1141	Registered Nurses	24,034	28,621	9,453
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	21,503	24,537	5,828
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	13,564	13,096	2,683
11-1021	General and Operations Managers	13,398	15,670	4,658
43-3031	Bookkeeping, Accounting, and Auditing Clerks	13,362	14,669	2,629
49-9071	Maintenance and Repair Workers, General	13,190	14,047	3,763
25-2021	Elementary School Teachers, Except Special Education	11,474	11,174	2,587
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	10,598	9,995	3,007
43-1011	First-Line Supervisors of Office and Administrative Support Workers	10,304	10,903	3,066
13-2011	Accountants and Auditors	9,658	10,614	4,171
25-9041	Teacher Assistants	8,994	9,275	2,517
49-3023	Automotive Service Technicians and Mechanics	7,720	8,525	3,050
33-3051	Police and Sheriff's Patrol Officers	7,605	7,400	2,523
29-2061	Licensed Practical and Licensed Vocational Nurses	7,363	9,063	3,645
25-2022	Middle School Teachers, Except Special and Career/Technical Education	5,094	5,717	1,902
43-3021	Billing and Posting Clerks	5,007	5,593	1,598
47-2111	Electricians	4,810	5,775	2,276
51-4041	Machinists	4,541	5,073	1,869
31-9092	Medical Assistants	4,527	5,670	2,052
33-3012	Correctional Officers and Jailers	4,515	4,137	1,022
43-6013	Medical Secretaries	4,753	5,683	1,484

Source: BLS (QCEW and OES); Pennsylvania Department of Labor & Industry; Oxford Economics Projections

6.3 Key Skilled in-Demand Occupations Aligning to University-level Education

Occupation demand can represent different perspectives of employment need. One perspective evaluates demand due to growth of new jobs. It also represents the need for replacement jobs. When combined, new and replacement job projections provide a more realistic perspective of labor demand.

To support the occupational demand for new and replacement jobs, this analysis also evaluates real-time job posting data. By measuring the number of unique job postings for a specific job title, which is then translated into an occupation classification, it is possible to gauge real-time demand—another perspective of employment need. The number of unique postings provides guidance on real-time changes in occupations that companies may be seeking to hire. As with all datasets, job posting data have caveats. Discrepancies between postings and actual hires can be challenging to measure—wherein a job posting may not result in a hire for one occupation, but another job posting for a different occupation may result in multiple hires.¹⁰

This section looks at both perspectives—occupation demand using projections of new and replacement jobs as well as real-time job postings—in order to draw specific insight into occupation demand within Central Pennsylvania.

6.3.1 New and Replacement Demand for Key Skilled In-Demand Occupations

Many skilled occupations exist in Pennsylvania. Demand for new and replacement jobs for key skilled high demand occupations that tie more closely to university-level programs are typically determined by the sheer size of the employment within the occupation and the demographic characteristics of those who are currently employed—specifically age. For example, Pennsylvania businesses employ approximately 54,400 accountants and auditors. Projections indicate that new employment for accountants and auditors will increase to about 60,000 by 2024—5,600 new jobs in 10 years. However, 47% of the employed accountants and auditors are over the age of 45, meaning that many of the currently employed accountants and auditors will likely retire over the next 10 years. This retirement will drive up the need to replace outgoing

¹⁰ When evaluating jobs postings, a specific caveat focuses on net openings and jobs filled (i.e. openings that result in an opportunity for a new entrant, rather than normal job turn wherein a worker moves to a different company in the region and their vacant job is filled by yet another incumbent worker at another company).

accountants and auditors with new workers—hence the reason we see nearly 23,700 new and replacement jobs (5,600 new and 18,100 replacement) for the occupation over the next 10 years.¹¹

Figure 6.2 and Table 6.2 outline the five key skilled in-demand occupations for new and replacement jobs over the next 10 years, specifically: registered nurses, general and operations managers, accountants and auditors, market research analysts and marketing specialists, and cost estimators.¹²

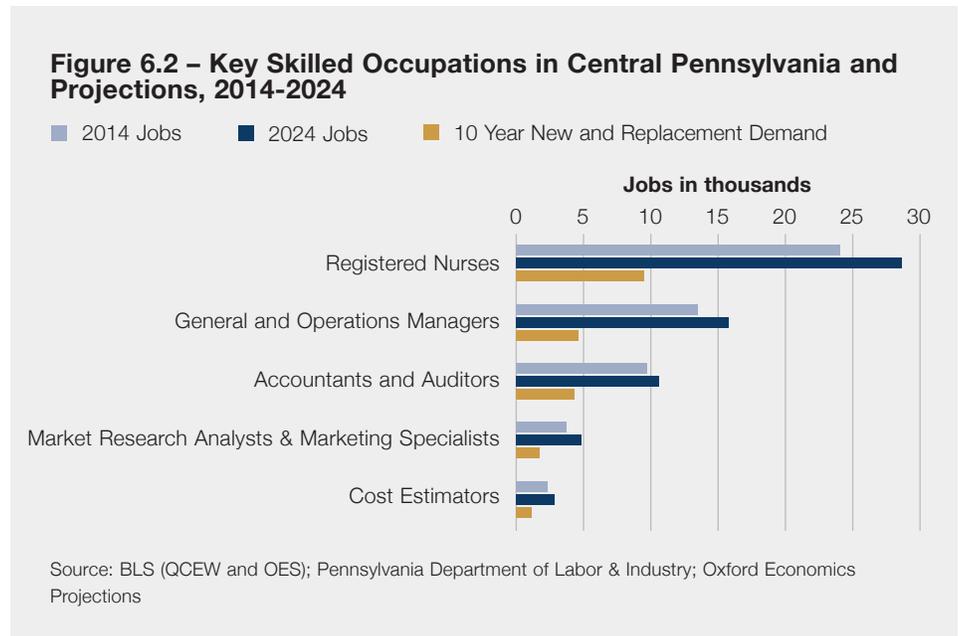


Table 6.2 –Key Skilled Occupations in Central Pennsylvania and Projections, 2014-2024

SOC Code	Occupation Title	2014 Jobs	2024 Jobs	10 Year New and Replacement Demand
29-1141	Registered Nurses	24,034	28,621	9,453
11-1021	General and Operations Managers	13,398	15,670	4,658
13-2011	Accountants and Auditors	9,658	10,614	4,171
13-1161	Market Research Analysts and Marketing Specialists	3,727	4,937	1,806
13-1051	Cost Estimators	2,376	2,731	1,162

Source: BLS (QCEW and OES); Pennsylvania Department of Labor & Industry; Oxford Economics Projections

11 Retirement is only one of the metrics factored into new and replacement jobs. Other metrics include out-migration and death.

12 Teachers (elementary and secondary) were found in the top skilled in-demand occupations. However, the analysis focuses on private sector jobs and opportunities.

While this section focused on 10-year new and replacement demand, the next section highlights the importance of current demand using real-time job posting analytics.

6.3.2 Real-time Job Postings for Key Skilled In-Demand Occupations

Analysis of job postings for key skilled in-demand occupations generally supports the findings from Section 6.3.1. Between July 2014 and July 2015 approximately 2,600 unique (de-duplicated) job postings appeared in Central Pennsylvania for the top five key skilled in-demand occupations (registered nurses, accountants and auditors, general and operations managers, market research analysts and marketing specialists, and cost estimators). Sizable job postings include: registered nurses (1,642 unique postings per month) and general and operations managers (482 unique postings per month).

Table 6.3 provides details on the average monthly job postings and the estimated average monthly hires between July 2014 and July 2015 for the key skilled in-demand occupations.

Table 6.3 – Job Postings and Hires for Key Skilled In-Demand Occupations in Central Pennsylvania

Occupation	Average Monthly Postings (Jul 2014 - Jul 2015)	Average Monthly Hires (Jul 2014 - Jul 2015)	Ratio of Postings to Hires
Registered Nurses	1,642	834	2.0
General and Operations Managers	482	693	0.7
Accountants and Auditors	357	492	0.7
Market Research Analysts and Marketing Specialists	129	158	0.8
Cost Estimators	27	129	0.2

Source: Economic Modeling Specialists International (EMSI)

Job posting analytics also provide insight into the skills and certifications that employers seek from qualified job candidates. Individuals seeking jobs in the key skilled in-demand occupations would increase their competitiveness by demonstrating skill proficiency and/or certifications. The following lists specific unique skills or certifications for each occupation that employers demand.

Registered Nurses

Unique skills: acute care, surgery, schedule/record keeping

Certifications: Cardiopulmonary Resuscitation (CPR), Basic Life Support (BLS),
Advanced Life Support (ALS), Registered Nurse (RN) license

Accountants and Auditors

Unique skills: audits, finance, Generally Accepted Accounting Principles (GAAP)

Certifications: Certified Public Accountant (CPA)

Market Research Analysts and Marketing Specialists

Unique skills: product marketing, product management, marketing concepts, market analysis, social media, product development, presentations

Certifications: Six Sigma, Project Management Professional (PMP)

General and Operations Managers

Unique skills: inventory management, payroll, recruiting/staffing, budgeting, meetings/presentations

Certifications: Six Sigma, Project Management Professional (PMP)

Cost Estimators

Unique skills: cost estimating, construction management, procurement

Certifications: Certified Public Accountant (CPA), Certified Estimating Professional (CPE)

This list of skills and certifications does not encompass the entirety of skills and certifications that may be required for different industry sectors and job functions. However, these skills reflect the general online job posting minimum qualifications for those seeking to apply to one of the occupations.

The next section builds a broader sense of which industry sectors typically employ each of the top five skilled in-demand occupations.

6.4 Staffing Patterns for Key Skilled In-Demand Occupations in Central Pennsylvania

Understanding which industries employ key skilled in-demand occupations is helpful when engaging businesses, as well as communicating programs and potential career opportunities to learners. Also knowing the industries that predominately employ certain occupations can help align program planning.

The following tables show the staffing patterns for the key skilled in-demand occupations by identifying the top five industries that employ each respective key skilled in-demand occupation within the region. For each occupation, the table contains:

- The number of jobs in each respective industry in 2014 (e.g. general medical and surgical hospitals employ over 12,800 registered nurses);
- The percentage of the occupation's employment in the region that is employed in the industry (e.g. the 12,800 registered nurses employed in general medical and surgical hospitals represent over 53% of the total registered nurse workforce in the region);
- The share of the industry sector's employment that is made up of the occupation (e.g. the 12,800 registered nurses make up about 27% of employment within general medical and surgical hospitals).

Staffing Patterns for Registered Nurses Employed in Central Pennsylvania

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
General Medical and Surgical Hospitals	12,825	27.2%	53.4%
Offices of Physicians	2,001	9.4%	8.3%
Nursing Care Facilities (Skilled Nursing Facilities)	1,587	9.9%	6.6%
Home Health Care Services	1,506	21.0%	6.3%
Outpatient Care Centers	1,307	15.9%	5.4%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

Staffing Patterns for General and Operations Managers Employed in Central Pennsylvania

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Management of Companies and Enterprises	588	2.7%	4.4%
Restaurants and Other Eating Places	328	0.5%	2.4%
Individual and Family Services	248	1.2%	1.9%
Wholesale Electronic Markets and Agents and Brokers	230	3.5%	1.7%
Warehousing and Storage	226	0.9%	1.7%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

Staffing Patterns for Accountants and Auditors Employed in Central Pennsylvania

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Accounting, Tax Preparation, Bookkeeping, and Payroll Services	2,076	38.6%	21.5%
Management of Companies and Enterprises	1,105	5.0%	11.4%
Insurance Carriers	327	2.4%	3.4%
Executive, Legislative, and Other General Government Support	220	0.8%	2.3%
Depository Credit Intermediation	184	1.3%	1.9%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

Staffing Patterns for Market Research Analysts and Marketing Specialists Employed in Central Pennsylvania

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Management of Companies and Enterprises	442	2.0%	11.9%
Management, Scientific, and Technical Consulting Services	328	6.0%	8.8%
Other Professional, Scientific, and Technical Services	239	4.8%	6.4%
Insurance Carriers	207	1.5%	5.6%
Computer Systems Design and Related Services	152	2.0%	4.1%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

Staffing Patterns for Cost Estimators Employed in Central Pennsylvania

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Building Equipment Contractors	283	2.0%	11.9%
Nonresidential Building Construction	276	3.9%	11.6%
Residential Building Construction	187	2.7%	7.9%
Foundation, Structure, and Building Exterior Contractors	163	2.5%	6.8%
Automotive Repair and Maintenance	146	1.8%	6.2%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

The above data establishes the top sectors where the key skilled in-demand occupations are employed. However, to further give a perspective on these occupation profiles, it is important to consider the types of people who generally fill these roles. The next section contains a demographic profile for people from Pennsylvania who work in these key skilled occupations.

6.5 Key Skilled In-Demand Occupational Profiles

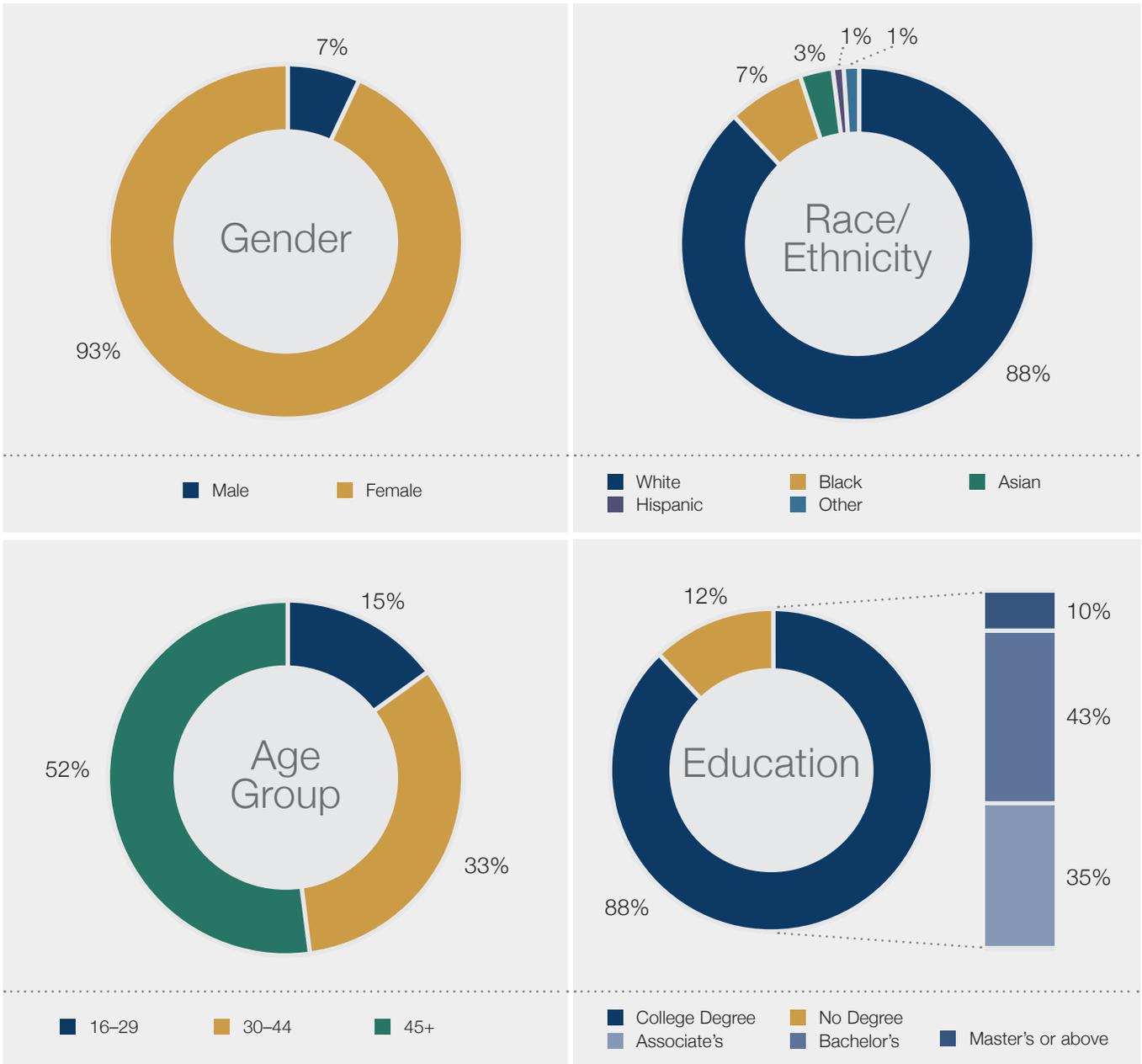
In addition to understanding the industries that employ key skilled in-demand occupations, another lens focuses on the characteristics of those employed. The following section outlines the demographics for people from Pennsylvania who work in these key skilled occupations by showing each occupation's composition by gender, race/ethnicity, age, and education. This lends further insight into who generally works in the occupation and answers questions such as:

- Are women or men typically found in the occupation?
- Do certain races/ethnicities occupy larger shares of the occupation?
- What is the age distribution of the occupation?
- What is the educational attainment of workers in the occupation?

For comparative purposes, the demographic composition of Central Pennsylvania's entire population is further described in Section 7 of the report.

REGISTERED NURSES IN PENNSYLVANIA

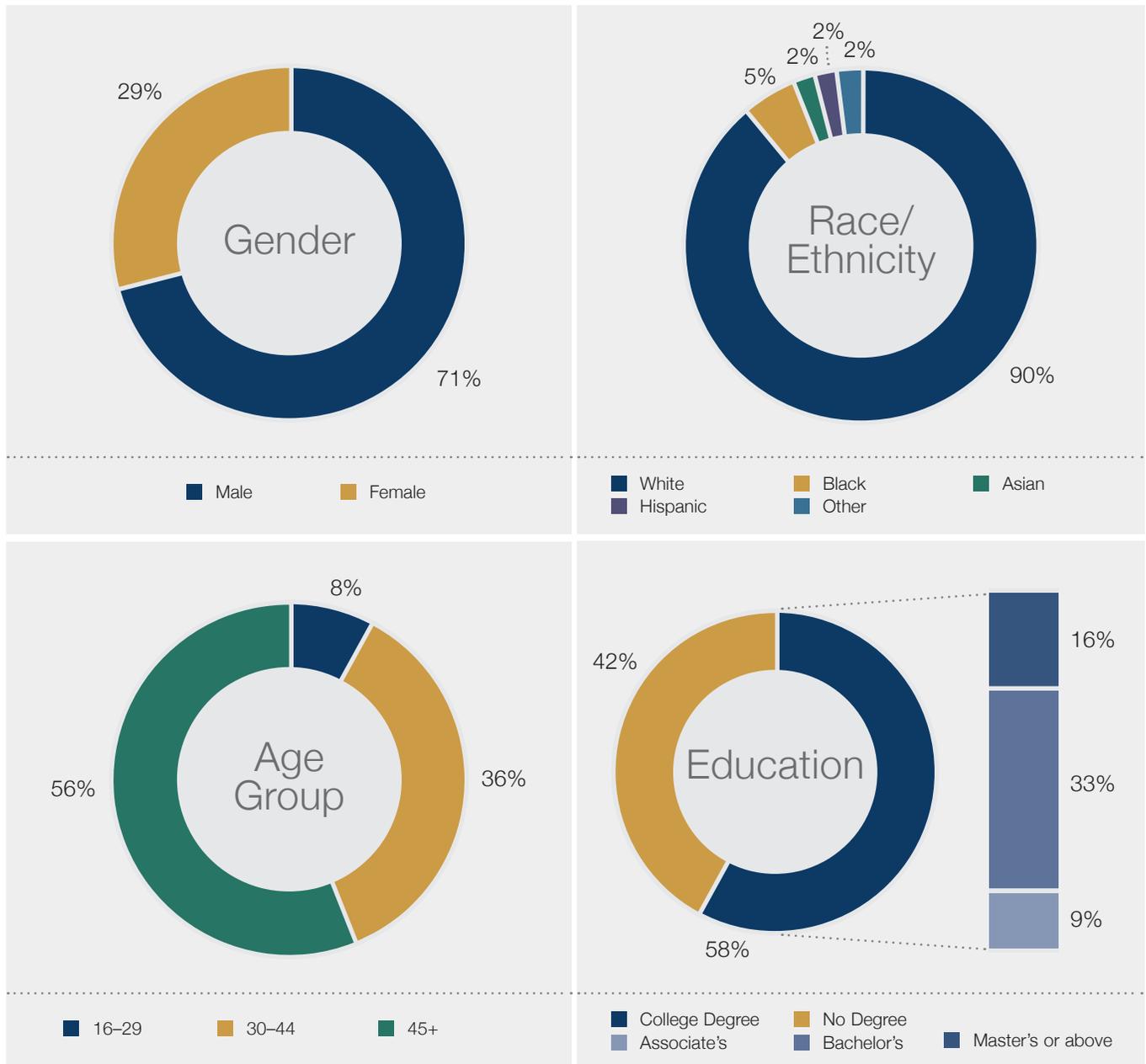
The demographic profile of registered nurses is dominated by white females. Age distribution indicates that registered nurses are a more mature cohort of workers (45 years and older), which can put increasing pressure on replacement jobs due to retirements over the next 10 years. Nearly 90% of registered nurses have an associate's degree or higher indicating that this is a highly educated occupation.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

GENERAL AND OPERATIONS MANAGERS IN PENNSYLVANIA

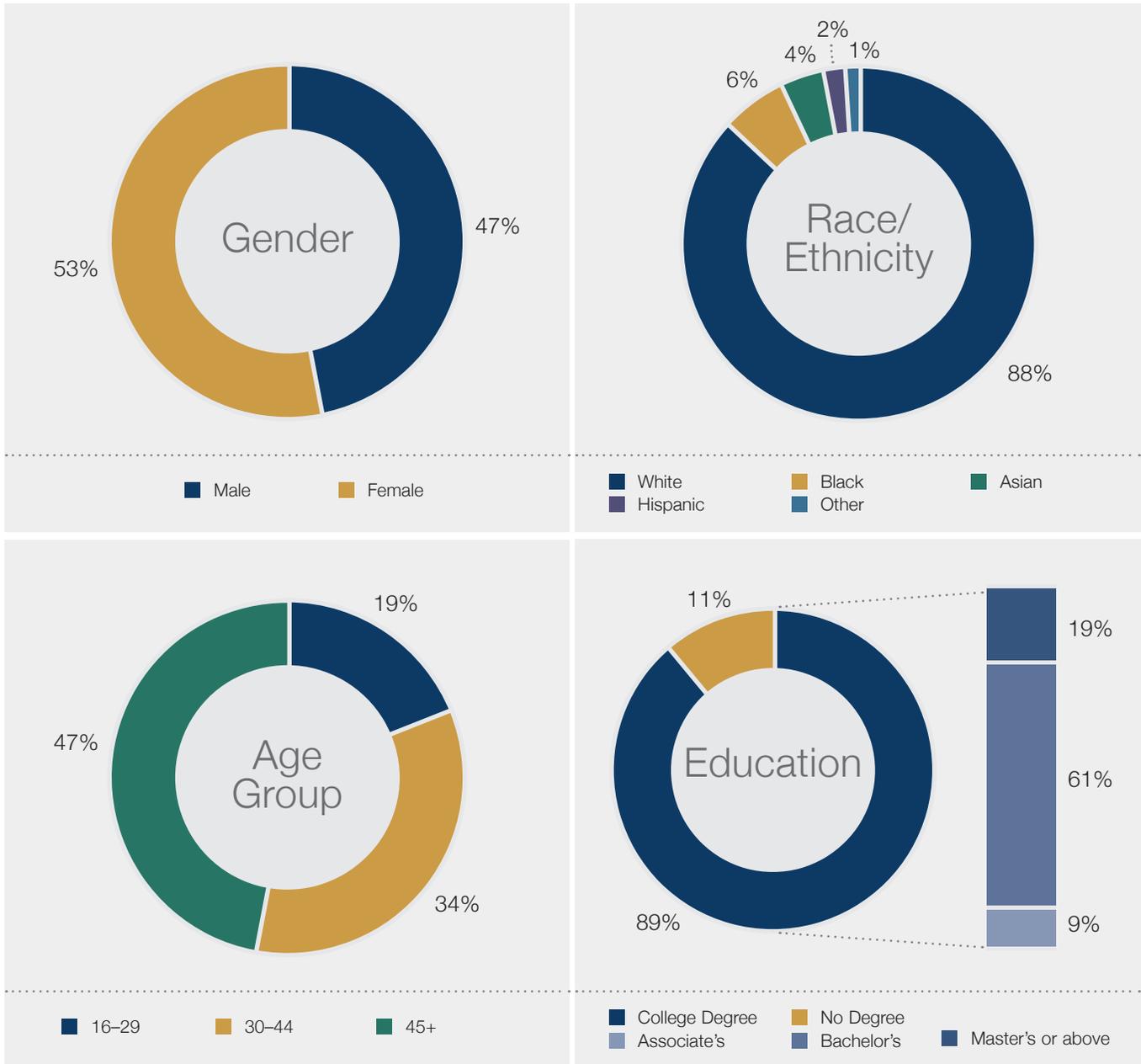
General and operations managers are typically male, though females occupy almost 30% of the employed population. The majority of those in this occupation are white. This occupation is represented by a more mature cohort of workers (45 years and older), though mid-career workers also occupy a significant proportion of the employment. Nearly 60% of general and operations managers have an associate's degree or higher.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

ACCOUNTANTS AND AUDITORS IN PENNSYLVANIA

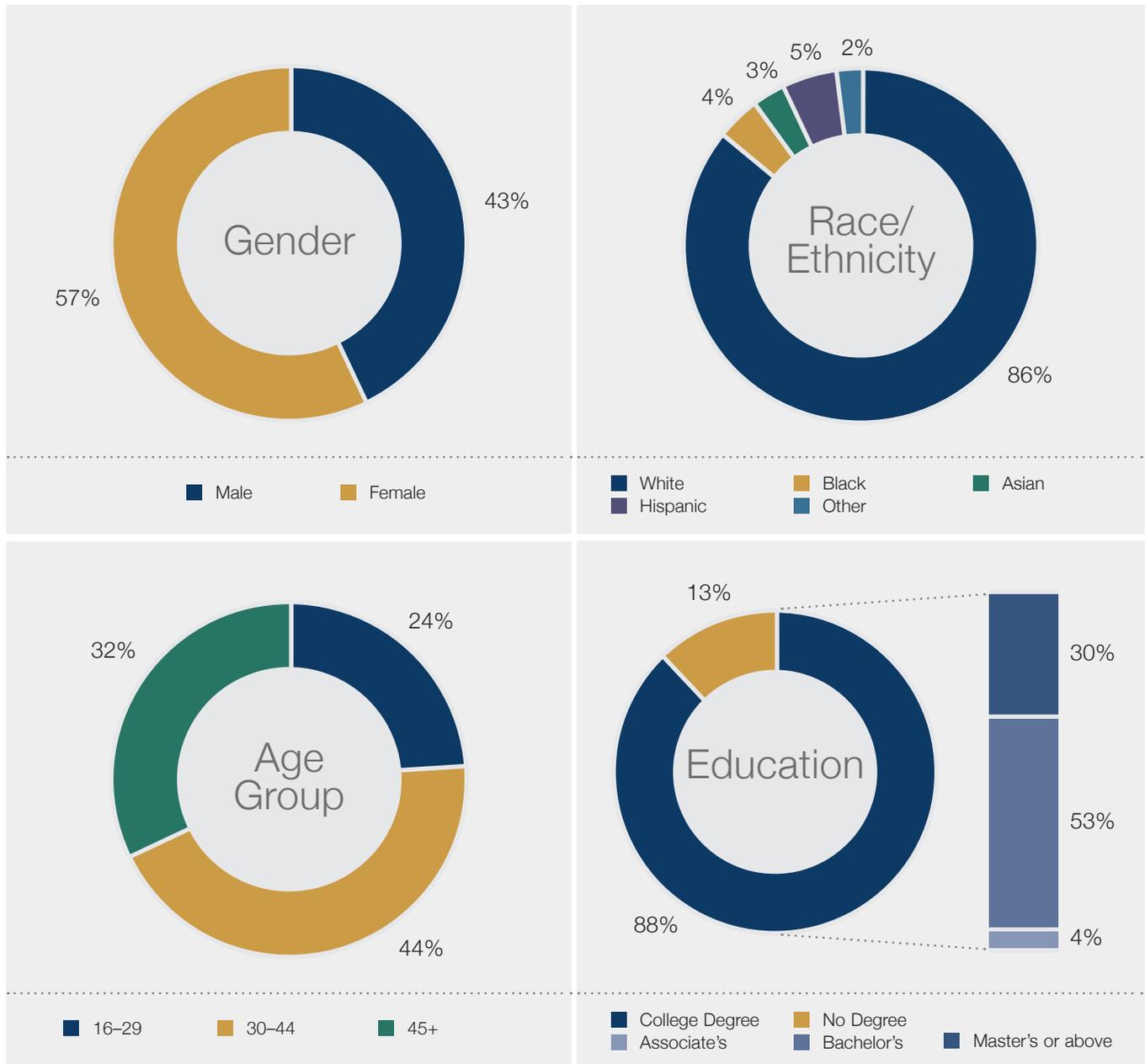
Accountants and auditors are fairly evenly split between male and female, though a slightly higher percent of employed accountants and auditors are female. A high proportion of white individuals are found in the occupation. Additionally, the age distribution is fairly even between entry-level and mature workers, indicating that the occupation provides good opportunities for first destinations of recent college graduates. Nearly 90% of accountants and auditors have an associate's degree or higher indicating that this is a highly educated occupation.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

MARKET RESEARCH ANALYSTS AND MARKETING SPECIALISTS IN PENNSYLVANIA

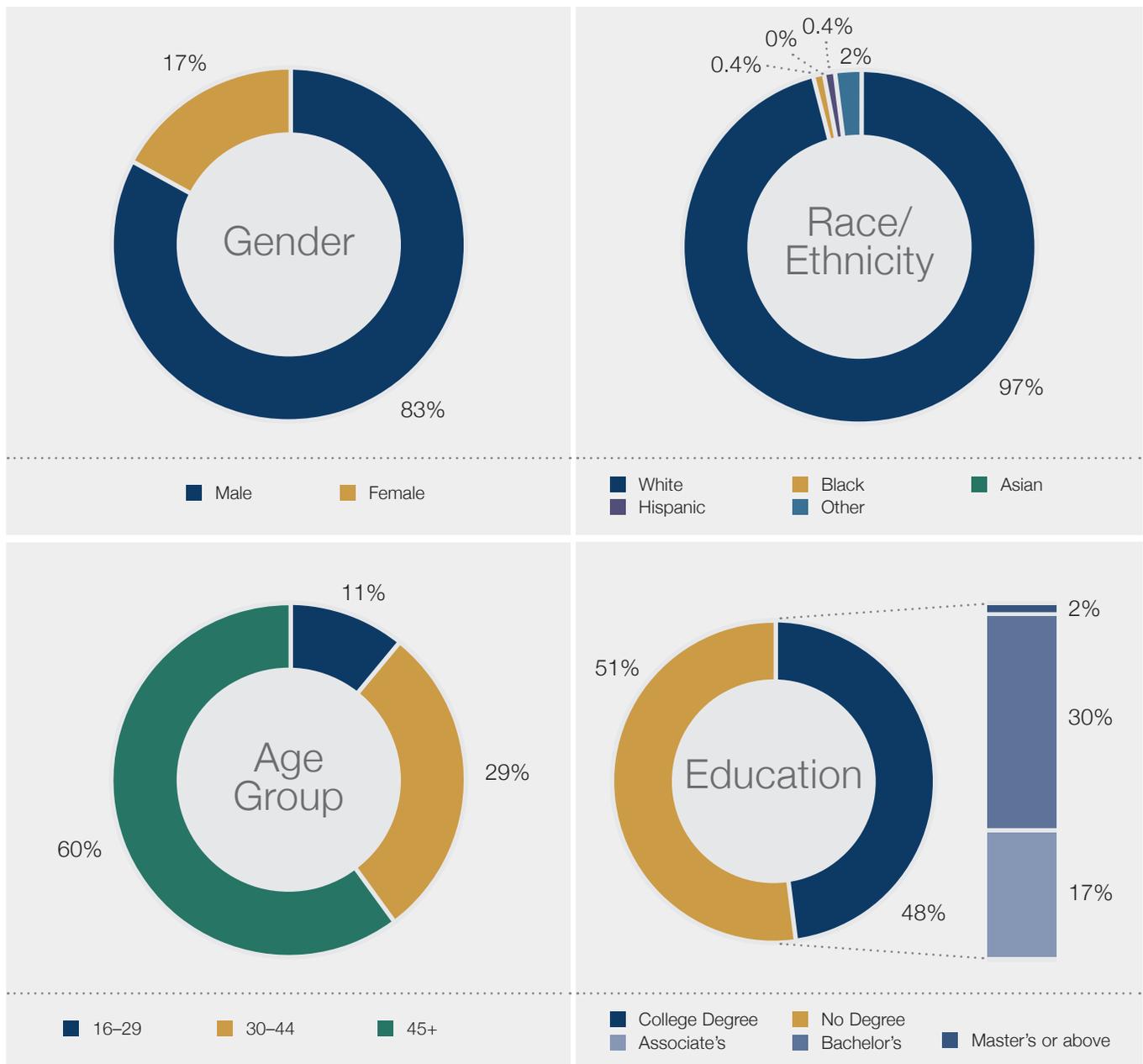
Market research analysts and marketing specialists indicate a larger proportion of females within the occupation compared to males. The race/ethnicity distribution within the occupation is predominately white. Additionally, the age distribution of the occupation, tends to favor a younger demographic. More than two thirds of the employed market research analysts and marketing specialists are under 45 years old. Nearly 90% of market research analysts and marketing specialists have an associate's degree or higher indicating that this is a highly educated occupation.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

COST ESTIMATORS IN PENNSYLVANIA

Cost estimators indicate a larger proportion of males within the occupation compared to females. The large majority of those in this occupation are white. This occupation is represented by a more mature cohort of workers (45 years and older), though mid-career workers also occupy a significant proportion of the employment. Nearly 50% of Cost estimators have an associate's degree or higher.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

The final section of this report explores Central Pennsylvania's demographic and socio-economic characteristics. While not tied to a specific occupation, the analysis further contextualizes the region's population and workforce.

7. DEMOGRAPHIC AND SOCIO-ECONOMIC INDICATORS IN CENTRAL PENNSYLVANIA

This section provides further information about the regional demographic and socio-economic composition of Central Pennsylvania’s workforce in order to better understand the characteristics of the population. An additional focus evaluates changes in age cohorts for university-age residents.

Analysis of three socio-economic indicators—education, unemployment, and poverty—also provides insight into the segment of the population that may be considered economically disadvantaged. Areas with high proportions of economically disadvantaged learners may require additional considerations in education and financial support.

7.1 Central Pennsylvania’s Demographics

The Central Pennsylvania region has a population of about 2.7 million people. As shown in Figure 7.1, females make up a slightly larger share of the population compared to males. Figure 7.2 illustrates that the majority of the region is represented by a White demographic, with Hispanics representing the next largest group, followed by Blacks.

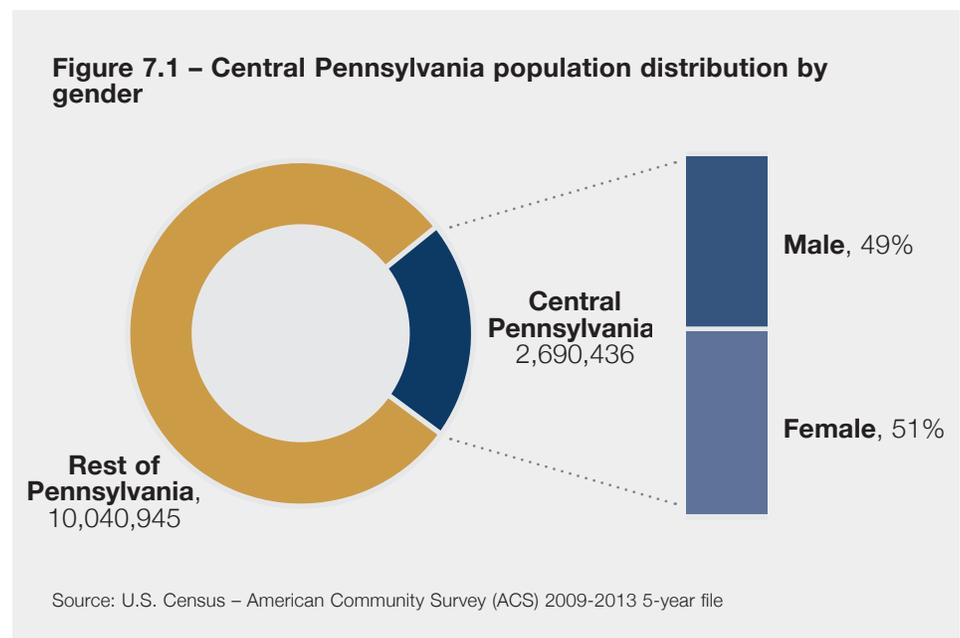
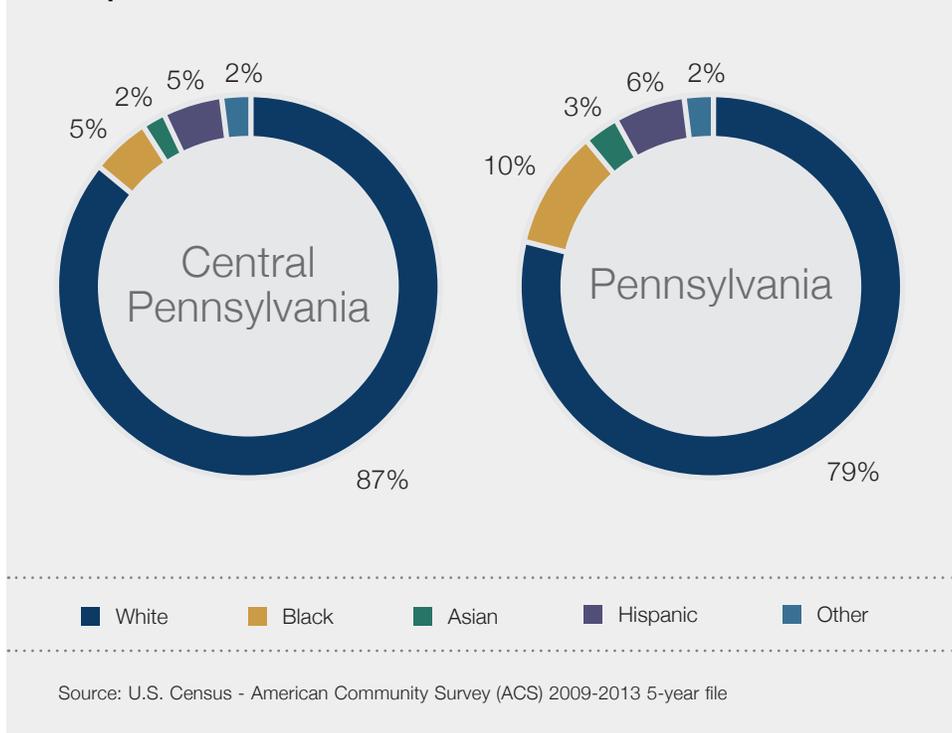


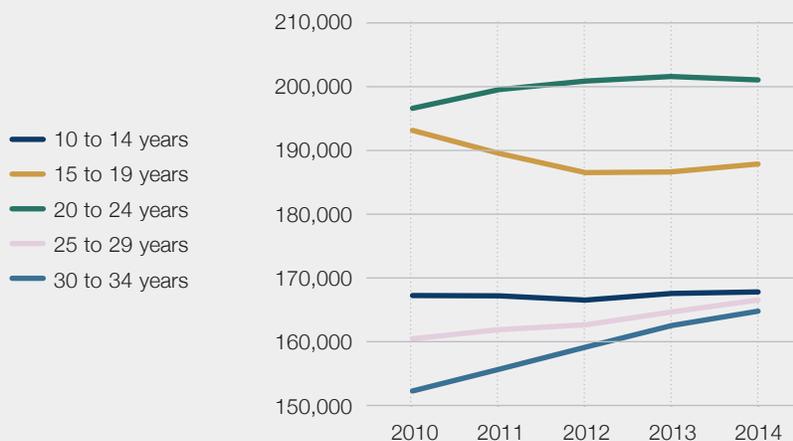
Figure 7.2 – Central Pennsylvania and Pennsylvania Race/Ethnicity Composition



Fall 2014 data from the State System Research Office indicates that approximately 83% (90,966) of learners within the State System are traditional students—ages 18 to 22 year old high school graduates—and 17% (18,640) are adult learners. A view of the change in population by age indicates a diminishing number in the traditional age cohort and a growing number of adults aged 25 to 34 years old. As illustrated in figure 7.3, the 10 to 19 year old cohort population declined by over 4,500 people between 2010 and 2014—a 1.2% decline. Conversely, the 25-34 year old cohort increased by 6%, or 18,800 people, over the same time period. This demographic shift presents an opportunity to incorporate a broader university recruitment strategy.

The next sub-section further explores the shifting socio-economic characteristics in Central Pennsylvania by identifying three inter-related variables.

Figure 7.3 – Pennsylvania Changes in Age Cohorts



Source: U.S. Census

7.2 Central Pennsylvania’s Socio-economic Indicators

This final section outlines three key socio-economic variables—educational attainment, poverty, and unemployment. Poverty data provides understanding on relative income inequality within an area. If poverty rates decline, then the standard of living, social inclusion, and equality of opportunity are typically considered to be increasing. Economic opportunities are often linked with access to jobs and training. Regions with high unemployment indicate the population is unable to find work or is not adequately trained to perform work in the jobs available within the region.

7.2.1 Educational Attainment in Central Pennsylvania

The levels of educational attainment in a population indicate several characteristics in an economy. Areas with better educated workers earn higher wages, are more productive and can typically adjust more quickly to changing economic conditions. Additionally, an educated workforce is less likely to be unemployed, require social assistance, and more likely to lead a healthier lifestyle—aspects that bolster value in an economy.^{13, 14}

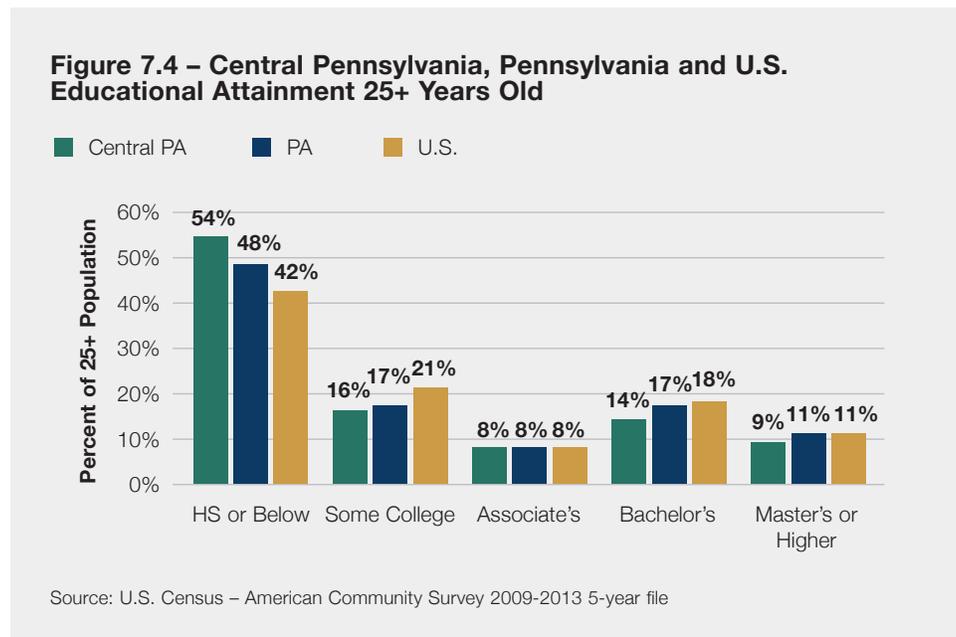
13 Feinstein et. al. (2006), “The effects of education on health: Concepts, evidence and policy implications: A review for the OECD Center for Educational Research and Innovation (CERI)”, unpublished manuscript, OECD, Paris.

14 Mitra, Dana (2011), “Pennsylvania’s Best Investment: The Social and Economic Benefits of Public Education.” Report published for the Education Law Center.

A view of Central Pennsylvania’s educational attainment indicates that less than half (46%) of those over 25 years old have had some postsecondary education or higher. Some college is defined by ACS as having some college, but less than one year or one or more years of college credit, but no degree. This lags behind the national average of 58% of the population having had at least some postsecondary education or higher.

When comparing degree completion, Central Pennsylvania is near the national average for the proportion of the population with an associate’s degree but below the national average for the proportion of the population with a bachelor’s degree and master’s degrees or higher.

Figure 7.4 compares the educational attainment of the 25 years and older population in the U.S., Pennsylvania, and Central Pennsylvania.

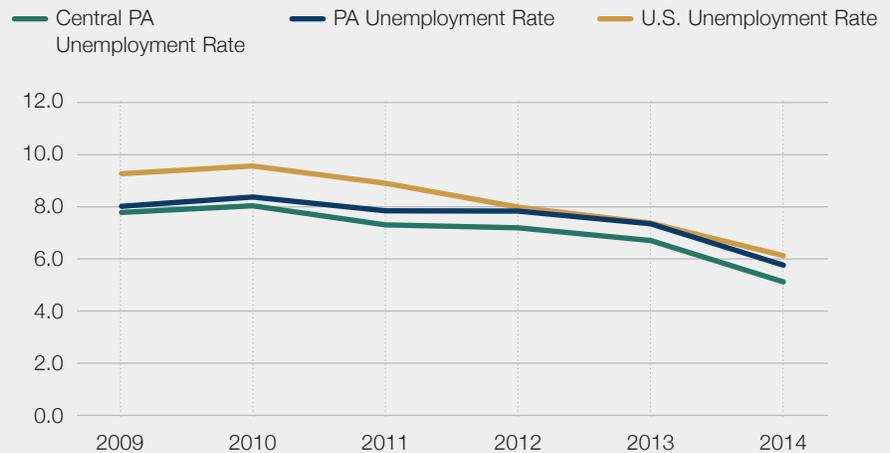


7.2.2 Unemployment and Poverty in Central Pennsylvania

Central Pennsylvania’s unemployment rate—5.2% in 2014—trended closely with the state and national unemployment rate since 2009 but declined more rapidly starting in 2011. This suggests that on average there are more opportunities for dislocated workers in the region compared to the rest of the nation.

Figure 7.5 shows the convergence of the unemployment rates of Central Pennsylvania, Pennsylvania, and the U.S. from 2009 to 2014.

Figure 7.5 – Central Pennsylvania, Pennsylvania and U.S. Unemployment Rates



Source: Bureau of Labor Statistics – Local Area Unemployment Statistics

In Central Pennsylvania, the poverty rate trended upward since 2009, but declined slightly from 2012 to 2013. The region’s poverty rate is below both the state poverty rate and the U.S. poverty rate.¹⁵ Given the lower poverty rate compared with the nation, there is an underlying assumption that the compensation associated with the jobs in Central Pennsylvania may be higher than the national average.

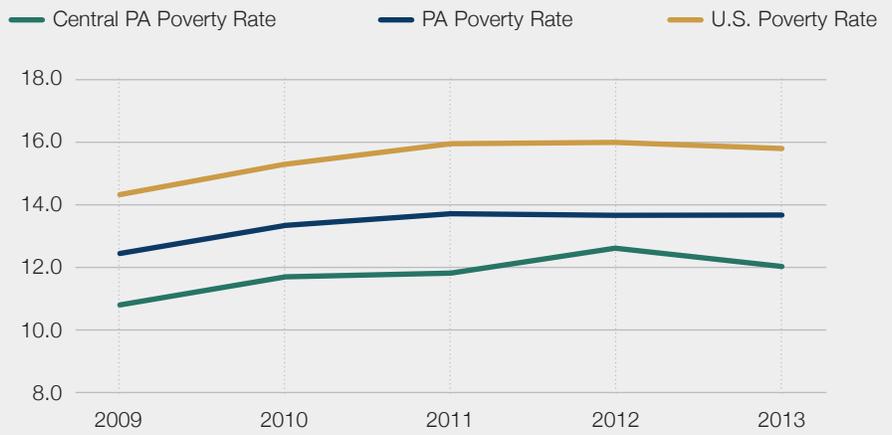
Figure 7.6 compares the poverty rates of Central Pennsylvania, Pennsylvania, and the U.S. from 2009 to 2013.

When unemployment and poverty are evaluated together, a significant decline in unemployment to pre-recession levels, coupled with a small uptick in the poverty rate, suggests an underlying cause that is contributing to marginally increased poverty rates. This cause may be associated with the quality of new jobs that have emerged since the recession, which have done little to abate poverty rates, despite decreasing unemployment.

Although the poverty rate indicates an overall small increasing trend, the unemployment rate shows a decreasing trend, meaning a larger proportion of the workforce is either employed or is no longer seeking employment.

¹⁵ Poverty estimates are based on U.S. Census Bureau’s Small Area Income and Poverty Estimates data series. Calculations comprise the total number of individuals (all ages) in the geography, divided by the number of individuals (all ages) that are classified as being in poverty.

Figure 7.6 – Central Pennsylvania, Pennsylvania and U.S. Poverty Rates



Source: U.S. Census – Small Area Income & Poverty Estimates (SAIPE)

8. NEXT STEPS

This report sets the foundation for program planning by accomplishing three key tasks:

- Defining the state's sub-region workforce areas.
- Describing key economic, workforce and demographic attributes in the regional economy.
- Forecasting the initial demand for skilled occupations.

The next steps for research to support Pennsylvania's State System of Higher Education Program Alignment Toolkit are the development of an education supply and workforce demand gap analysis. Key data-driven aspects in the gap analysis research include:

- Development of an education program to occupation crosswalk.
- Analysis of completion data from the State System institutions as well as other institutions in Pennsylvania.
- Comparison of the occupation forecasts against the recent completions of education programs.
- Identification of programs that may require expansion or development, as well as programs that indicate a potential surplus of talent within the state.

DATA SOURCES KEY

Bureau of Labor Statistics (BLS):

- QCEW - Quarterly Census of Employment & Wages (Bureau of Labor Statistics) - <http://www.bls.gov/cew/>
- OES – Occupational Employment Statistics (Bureau of Labor Statistics) - <http://www.bls.gov/oes/>
- LAUS – Local Area Unemployment Statistics (Bureau of Labor Statistics) - <http://www.bls.gov/lau/>

U.S. Census Bureau (Census):

- LEHD – Longitudinal Employer-Household Dynamics - <http://lehd.census.gov/>
- ACS – American Community Survey - <http://www.census.gov/acs/www/>
- SAIPE – Small Area Income and Poverty Estimates - <http://www.census.gov/did/www/saipe/>

National Center for Education Statistics (NCES):

- IPEDS – Integrated Postsecondary Education Data System (National Center for Education Statistics) - <https://nces.ed.gov/ipeds/>

Pennsylvania Department of Labor and Industry (PADLI):

- CWIA – Center for Workforce Information & Analysis (PA Department of Labor & Industry) – www.paworkstats.pa.gov

O*NET Resource Center (O*NET)

- Job Zones www.onetonline.org/help/online/zones

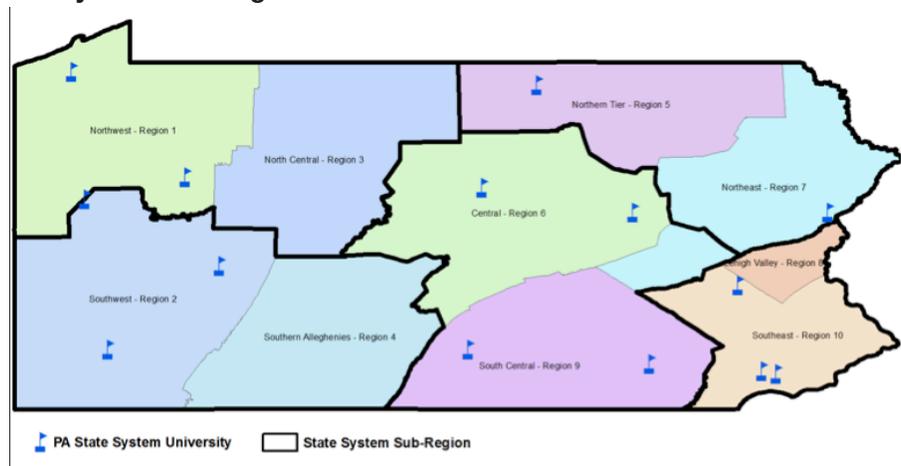
Economic Modeling Specialists International (EMSI)

APPENDIX A: STATE SYSTEM SUB-REGIONS WITH PREP REGIONS AND WIA REGIONS

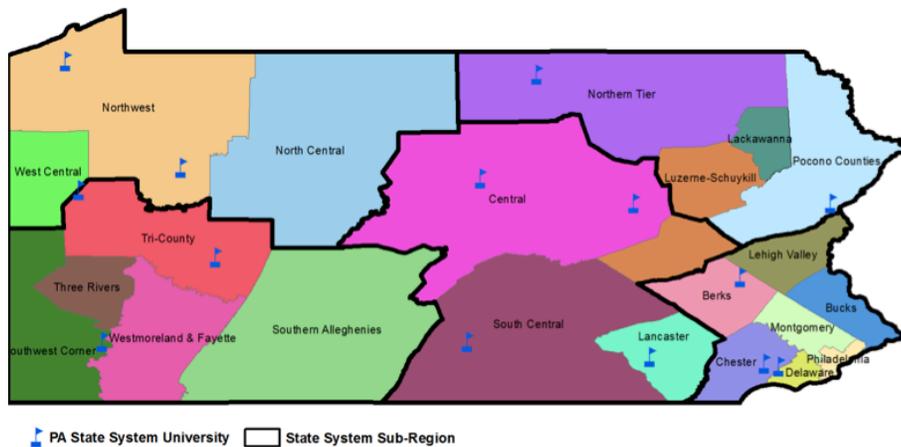
Partnerships for Regional Economic Performance (PREP) regions provide geographic context of how the Pennsylvania Department of Community & Economic Development divides resources and services to support business development, start-ups, investment and other economic development initiatives. To define sub-regions for this project, PREP regions served as the starting point. The following figures outline the sub-regions in relation to PREP regions.

An additional map of Pennsylvania's Workforce Investment Act (WIA) regional boundaries is also provided.

State System Sub-regions and PREP Boundaries



State System Sub-regions and WIA Boundaries



APPENDIX B: PENNSYLVANIA STATE AND COUNTY ENROLLMENT AND EMPLOYMENT

County	Fall 2014 Enrollment in PA's State System	2014 QCEW Employment
Allegheny	7,020	683,111
Chester	5,996	240,469
Montgomery	5,401	472,655
Philadelphia	5,263	640,987
Lancaster	4,786	225,673
Delaware	4,206	216,261
Bucks	4,145	250,889
Berks	3,759	166,792
Erie	3,469	124,095
York	3,104	172,145
Lehigh	2,664	180,757
Westmoreland	2,606	132,312
Cumberland	2,537	126,939
Monroe	2,532	52,933
Northampton	2,514	105,825
Butler	2,067	84,472
Dauphin	1,952	176,004
Washington	1,915	86,961
Indiana	1,645	32,653
Luzerne	1,437	140,329
Franklin	1,302	56,715
Fayette	1,137	39,979
Beaver	1,121	52,811
Mercer	1,095	48,028
Columbia	1,074	24,974
Schuylkill	1,068	50,049
Cambria	1,032	53,915
Crawford	1,024	31,113
Lycoming	1,013	53,197
Lackawanna	986	97,259

County	Fall 2014 Enrollment in PA's State System	2014 QCEW Employment
Northumberland	938	27,985
Clarion	883	13,586
Clearfield	881	29,938
Venango	840	19,251
Armstrong	814	17,582
Lawrence	810	29,500
Lebanon	803	48,869
Adams	705	34,139
Centre	699	67,147
Tioga	656	12,973
Bradford	641	24,568
Pike	633	10,748
Clinton	600	13,043
Jefferson	587	15,435
Blair	584	58,233
Carbon	455	16,974
Elk	398	14,994
Wayne	356	14,651
Montour	340	15,578
Warren	324	15,031
Somerset	323	24,398
Perry	319	7,661
Union	313	16,597
Mifflin	290	15,544
McKean	277	15,770
Snyder	269	15,522
Susquehanna	219	9,281
Bedford	202	15,397
Greene	201	14,844
Huntingdon	182	12,343
Wyoming	162	10,181
Potter	140	5,291
Juniata	123	6,146
Fulton	81	4,807
Cameron	65	2,015
Forest	57	2,053
Sullivan	34	1,772
Total Pennsylvania	96,074	5,643,676

Source: Enrollment- Pennsylvania State System of Higher Education Website, Employment- BLS QCEW

APPENDIX C: INDUSTRY PROJECTIONS 2014-2024 FOR CENTRAL PENNSYLVANIA

A common measure of industry competitiveness is through the use of a location quotient statistic. Location quotients (LQ) provide a relative perspective on local comparative advantages in specific industry classifications by comparing employment within a local or state economy to a larger geographic area (e.g. nation). On its own, the analysis achieves little. However, when evaluated jointly with the employment data and growth, one gains a sense of the industry sectors that might benefit from efforts to align educational opportunities with economic development (i.e. industries that State System universities may consider engaging in larger conversations about aligning employer and educational needs).

To interpret results, LQs equal to 1 indicate that the area's industry concentration is equal the national concentration of the same industry. Industries with a higher location quotient (usually greater than 1.2) indicate that an area has a relatively higher concentration of jobs in the sector and therefore concludes that the area has a comparative advantage or specialization in the production of that good or service, compared to the national average. Note: High employment industries do not necessarily result in large location quotients, as this is a comparative statistic.

The following table provides the industry LQs at the 4-digit NAICS level in Pennsylvania. Also included in the table are the number of jobs in 2014 and the projected job growth/decline to 2024.

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
Total	All Industries	1,179,500	1,298,075	10.1%	1.0
1111	Oilseed and Grain Farming	426	470	10.3%	0.9
1112	Vegetable and Melon Farming	665	753	13.2%	0.8
1113	Fruit and Tree Nut Farming	1,187	1,232	3.8%	0.7
1114	Greenhouse, Nursery, and Floriculture Production	1,470	1,549	5.4%	1.2
1119	Other Crop Farming	132	148	12.1%	0.2
1121	Cattle Ranching and Farming	1,561	1,720	10.2%	1.2
1122	Hog and Pig Farming	302	321	6.3%	1.1
1123	Poultry and Egg Production	1,368	1,451	6.1%	4.0
1124	Sheep and Goat Farming	5	6	20.0%	0.4
1125	Aquaculture	74	83	12.2%	1.3
1129	Other Animal Production	425	447	5.2%	2.6
1131	Timber Tract Operations	17	22	29.4%	0.3
1132	Forest Nurseries and Gathering of Forest Products	12	12	0.0%	0.6
1133	Logging	171	190	11.1%	0.4
1142	Hunting and Trapping	21	12	-42.9%	1.3
1151	Support Activities for Crop Production	884	1,079	22.1%	0.3
1152	Support Activities for Animal Production	615	740	20.3%	2.6
1153	Support Activities for Forestry	43	53	23.3%	0.3
2111	Oil and Gas Extraction	154	166	7.8%	0.1
2121	Coal Mining	646	550	-14.9%	1.0
2123	Nonmetallic Mineral Mining and Quarrying	1,327	1,525	14.9%	1.7
2131	Support Activities for Mining	3,000	3,298	9.9%	0.8
2211	Electric Power Generation, Transmission and Distribution	2,442	2,242	-8.2%	0.6
2212	Natural Gas Distribution	547	572	4.6%	0.5
2213	Water, Sewage and Other Systems	2,576	2,723	5.7%	1.4
2361	Residential Building Construction	7,005	8,571	22.4%	1.2
2362	Nonresidential Building Construction	6,990	7,940	13.6%	1.2
2371	Utility System Construction	4,654	6,045	29.9%	1.2
2372	Land Subdivision	99	134	35.4%	0.3
2373	Highway, Street, and Bridge Construction	5,411	7,179	32.7%	1.6
2379	Other Heavy and Civil Engineering Construction	189	263	39.2%	0.2
2381	Foundation, Structure, and Building Exterior Contractors	6,526	7,742	18.6%	1.0
2382	Building Equipment Contractors	14,434	16,492	14.3%	0.9
2383	Building Finishing Contractors	4,148	4,801	15.7%	0.7
2389	Other Specialty Trade Contractors	6,592	7,593	15.2%	1.3
3111	Animal Food Manufacturing	2,328	2,238	-3.9%	4.9

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
3112	Grain and Oilseed Milling	700	736	5.1%	1.4
3113	Sugar and Confectionery Product Manufacturing	4,624	4,722	2.1%	7.7
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	3,665	3,598	-1.8%	2.5
3115	Dairy Product Manufacturing	3,415	3,273	-4.2%	2.9
3116	Animal Slaughtering and Processing	6,449	6,919	7.3%	1.6
3118	Bakeries and Tortilla Manufacturing	4,506	4,348	-3.5%	1.8
3119	Other Food Manufacturing	6,500	6,941	6.8%	4.0
3121	Beverage Manufacturing	1,358	1,561	14.9%	0.8
3122	Tobacco Manufacturing	79	82	3.8%	0.7
3131	Fiber, Yarn, and Thread Mills	90	84	-6.7%	0.4
3132	Fabric Mills	500	314	-37.2%	1.1
3133	Textile and Fabric Finishing and Fabric Coating Mills	201	197	-2.0%	0.7
3141	Textile Furnishings Mills	1,253	859	-31.4%	2.8
3149	Other Textile Product Mills	613	535	-12.7%	1.1
3151	Apparel Knitting Mills	108	66	-38.9%	0.9
3152	Cut and Sew Apparel Manufacturing	842	513	-39.1%	0.9
3159	Apparel Accessories and Other Apparel Manufacturing	155	129	-16.8%	1.6
3161	Leather and Hide Tanning and Finishing	175	211	20.6%	4.6
3162	Footwear Manufacturing	44	52	18.2%	0.4
3169	Other Leather and Allied Product Manufacturing	157	161	2.5%	1.6
3211	Sawmills and Wood Preservation	1,225	1,524	24.4%	1.6
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	1,099	1,403	27.7%	1.8
3219	Other Wood Product Manufacturing	7,332	9,226	25.8%	4.1
3221	Pulp, Paper, and Paperboard Mills	803	743	-7.5%	0.9
3222	Converted Paper Product Manufacturing	7,822	8,442	7.9%	3.4
3231	Printing and Related Support Activities	9,275	8,062	-13.1%	2.4
3241	Petroleum and Coal Products Manufacturing	911	946	3.8%	1.0
3251	Basic Chemical Manufacturing	808	796	-1.5%	0.6
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	214	231	7.9%	0.3
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	200	253	26.5%	0.6
3254	Pharmaceutical and Medicine Manufacturing	1,336	1,163	-12.9%	0.6
3255	Paint, Coating, and Adhesive Manufacturing	372	336	-9.7%	0.7
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	936	892	-4.7%	1.0
3259	Other Chemical Product and Preparation Manufacturing	629	635	1.0%	0.9
3261	Plastics Product Manufacturing	9,453	9,886	4.6%	2.0
3262	Rubber Product Manufacturing	1,429	1,594	11.5%	1.3

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
3271	Clay Product and Refractory Manufacturing	721	868	20.4%	2.1
3272	Glass and Glass Product Manufacturing	781	820	5.0%	1.1
3273	Cement and Concrete Product Manufacturing	3,294	3,726	13.1%	2.2
3274	Lime and Gypsum Product Manufacturing	264	292	10.6%	2.1
3279	Other Nonmetallic Mineral Product Manufacturing	680	794	16.8%	1.1
3311	Iron and Steel Mills and Ferroalloy Manufacturing	745	640	-14.1%	0.9
3312	Steel Product Manufacturing from Purchased Steel	1,567	1,692	8.0%	3.0
3313	Alumina and Aluminum Production and Processing	2,140	2,302	7.6%	4.3
3314	Nonferrous Metal (except Aluminum) Production and Processing	1,120	1,161	3.7%	2.1
3315	Foundries	2,976	2,991	0.5%	2.7
3321	Forging and Stamping	1,331	1,253	-5.9%	1.5
3322	Cutlery and Handtool Manufacturing	356	389	9.3%	1.1
3323	Architectural and Structural Metals Manufacturing	7,062	7,899	11.9%	2.3
3324	Boiler, Tank, and Shipping Container Manufacturing	1,441	1,621	12.5%	1.7
3325	Hardware Manufacturing	324	357	10.2%	1.6
3326	Spring and Wire Product Manufacturing	788	848	7.6%	2.1
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	4,091	4,349	6.3%	1.3
3328	Coating, Engraving, Heat Treating, and Allied Activities	1,111	1,252	12.7%	0.9
3329	Other Fabricated Metal Product Manufacturing	2,355	2,421	2.8%	1.0
3331	Agriculture, Construction, and Mining Machinery Manufacturing	4,367	4,388	0.5%	2.0
3332	Industrial Machinery Manufacturing	1,366	1,322	-3.2%	1.4
3333	Commercial and Service Industry Machinery Manufacturing	415	413	-0.5%	0.6
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	2,621	2,669	1.8%	2.4
3335	Metalworking Machinery Manufacturing	1,830	1,817	-0.7%	1.2
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	1,461	1,241	-15.1%	1.7
3339	Other General Purpose Machinery Manufacturing	2,430	2,648	9.0%	1.1
3341	Computer and Peripheral Equipment Manufacturing	175	204	16.6%	0.1
3342	Communications Equipment Manufacturing	473	422	-10.8%	0.6
3343	Audio and Video Equipment Manufacturing	160	183	14.4%	0.9
3344	Semiconductor and Other Electronic Component Manufacturing	3,380	3,147	-6.9%	1.1
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	1,993	1,900	-4.7%	0.6
3346	Manufacturing and Reproducing Magnetic and Optical Media	41	46	12.2%	0.3
3351	Electric Lighting Equipment Manufacturing	275	248	-9.8%	0.7
3353	Electrical Equipment Manufacturing	613	558	-9.0%	0.5
3359	Other Electrical Equipment and Component Manufacturing	4,177	3,888	-6.9%	3.8

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
3361	Motor Vehicle Manufacturing	0	0	0.0%	0.0
3362	Motor Vehicle Body and Trailer Manufacturing	1,873	2,092	11.7%	1.5
3363	Motor Vehicle Parts Manufacturing	1,694	1,678	-0.9%	0.4
3364	Aerospace Product and Parts Manufacturing	2,237	2,731	22.1%	0.5
3365	Railroad Rolling Stock Manufacturing	332	390	17.5%	1.4
3369	Other Transportation Equipment Manufacturing	2,033	2,273	11.8%	7.3
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	4,943	4,691	-5.1%	2.5
3372	Office Furniture (including Fixtures) Manufacturing	1,184	1,155	-2.4%	1.3
3379	Other Furniture Related Product Manufacturing	137	136	-0.7%	0.5
3391	Medical Equipment and Supplies Manufacturing	2,291	2,125	-7.2%	0.9
3399	Other Miscellaneous Manufacturing	2,825	2,895	2.5%	1.2
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	6,399	6,941	8.5%	2.2
4232	Furniture and Home Furnishing Merchant Wholesalers	404	461	14.1%	0.5
4233	Lumber and Other Construction Materials Merchant Wholesalers	1,823	1,972	8.2%	1.0
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	3,275	3,226	-1.5%	0.6
4235	Metal and Mineral (except Petroleum) Merchant Wholesalers	712	697	-2.1%	0.7
4236	Household Appliances and Electrical and Electronic Goods Merchant Wholesalers	2,075	2,143	3.3%	0.7
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	1,980	2,334	17.9%	1.0
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	6,347	6,746	6.3%	1.1
4239	Miscellaneous Durable Goods Merchant Wholesalers	1,845	2,258	22.4%	0.7
4241	Paper and Paper Product Merchant Wholesalers	769	761	-1.0%	0.7
4242	Drugs and Druggists' Sundries Merchant Wholesalers	902	1,018	12.9%	0.5
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers	275	245	-10.9%	0.2
4244	Grocery and Related Product Merchant Wholesalers	6,367	7,295	14.6%	1.0
4245	Farm Product Raw Material Merchant Wholesalers	375	417	11.2%	0.6
4246	Chemical and Allied Products Merchant Wholesalers	636	723	13.7%	0.6
4247	Petroleum and Petroleum Products Merchant Wholesalers	868	813	-6.3%	1.0
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	548	617	12.6%	0.3
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	2,691	2,482	-7.8%	0.9
4251	Wholesale Electronic Markets and Agents and Brokers	6,625	6,827	3.0%	0.9
4411	Automobile Dealers	12,366	14,251	15.2%	1.2
4412	Other Motor Vehicle Dealers	1,198	1,321	10.3%	1.0
4413	Automotive Parts, Accessories, and Tire Stores	3,939	4,151	5.4%	0.9
4421	Furniture Stores	1,511	1,452	-3.9%	0.8

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
4422	Home Furnishings Stores	1,957	1,983	1.3%	1.0
4431	Electronics and Appliance Stores	3,323	3,324	0.0%	0.8
4441	Building Material and Supplies Dealers	9,463	10,221	8.0%	1.0
4442	Lawn and Garden Equipment and Supplies Stores	1,765	1,928	9.2%	1.4
4451	Grocery Stores	28,280	29,591	4.6%	1.2
4452	Specialty Food Stores	2,353	2,414	2.6%	1.2
4453	Beer, Wine, and Liquor Stores	3,220	3,746	16.3%	2.4
4461	Health and Personal Care Stores	7,452	7,503	0.7%	0.8
4471	Gasoline Stations	9,976	9,882	-0.9%	1.3
4481	Clothing Stores	6,805	6,364	-6.5%	0.8
4482	Shoe Stores	1,444	1,497	3.7%	0.8
4483	Jewelry, Luggage, and Leather Goods Stores	1,055	1,055	0.0%	0.9
4511	Sporting Goods, Hobby, and Musical Instrument Stores	4,482	4,670	4.2%	1.0
4512	Book Stores and News Dealers	717	536	-25.2%	0.9
4521	Department Stores	9,738	8,579	-11.9%	0.8
4529	Other General Merchandise Stores	13,454	14,404	7.1%	0.9
4531	Florists	686	633	-7.7%	1.3
4532	Office Supplies, Stationery, and Gift Stores	2,496	2,004	-19.7%	1.0
4533	Used Merchandise Stores	1,506	1,923	27.7%	1.1
4539	Other Miscellaneous Store Retailers	2,910	3,107	6.8%	1.1
4541	Electronic Shopping and Mail-Order Houses	1,577	1,610	2.1%	0.6
4542	Vending Machine Operators	357	385	7.8%	1.1
4543	Direct Selling Establishments	2,598	2,683	3.3%	2.3
4811	Scheduled Air Transportation	336	308	-8.3%	0.1
4812	Nonscheduled Air Transportation	52	64	23.1%	0.2
4832	Inland Water Transportation	29	38	31.0%	0.1
4841	General Freight Trucking	17,130	20,602	20.3%	2.1
4842	Specialized Freight Trucking	5,542	6,835	23.3%	1.4
4851	Urban Transit Systems	329	338	2.7%	0.2
4852	Interurban and Rural Bus Transportation	73	87	19.2%	0.4
4853	Taxi and Limousine Service	218	249	14.2%	0.3
4854	School and Employee Bus Transportation	5,821	6,482	11.4%	2.7
4855	Charter Bus Industry	402	439	9.2%	1.6
4859	Other Transit and Ground Passenger Transportation	524	681	30.0%	0.6
4862	Pipeline Transportation of Natural Gas	183	237	29.5%	0.7
4869	Other Pipeline Transportation	28	32	14.3%	0.4
4871	Scenic and Sightseeing Transportation, Land	120	128	6.7%	1.0

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
4872	Scenic and Sightseeing Transportation, Water	47	54	14.9%	0.4
4881	Support Activities for Air Transportation	400	462	15.5%	0.2
4882	Support Activities for Rail Transportation	204	240	17.6%	0.7
4883	Support Activities for Water Transportation	26	33	26.9%	0.0
4884	Support Activities for Road Transportation	1,167	1,663	42.5%	1.2
4885	Freight Transportation Arrangement	1,031	1,288	24.9%	0.6
4889	Other Support Activities for Transportation	475	570	20.0%	1.7
4911	Postal Service	5,268	4,112	-21.9%	1.0
4921	Couriers and Express Delivery Services	5,043	5,204	3.2%	1.1
4922	Local Messengers and Local Delivery	239	269	12.6%	0.5
4931	Warehousing and Storage	25,549	31,138	21.9%	3.9
5111	Newspaper, Periodical, Book, and Directory Publishers	4,046	3,510	-13.2%	1.1
5112	Software Publishers	759	830	9.4%	0.3
5121	Motion Picture and Video Industries	1,288	1,405	9.1%	0.4
5122	Sound Recording Industries	15	14	-6.7%	0.1
5151	Radio and Television Broadcasting	1,438	1,459	1.5%	0.8
5152	Cable and Other Subscription Programming	50	53	6.0%	0.1
5171	Wired Telecommunications Carriers	3,470	3,293	-5.1%	0.7
5172	Wireless Telecommunications Carriers (except Satellite)	261	216	-17.2%	0.2
5174	Satellite Telecommunications	14	14	0.0%	0.2
5179	Other Telecommunications	126	108	-14.3%	0.2
5182	Data Processing, Hosting, and Related Services	1,635	1,754	7.3%	0.7
5191	Other Information Services	1,571	1,835	16.8%	0.5
5221	Depository Credit Intermediation	13,750	13,523	-1.7%	0.9
5222	Nondepository Credit Intermediation	1,557	1,560	0.2%	0.3
5223	Activities Related to Credit Intermediation	499	515	3.2%	0.2
5231	Securities and Commodity Contracts Intermediation and Brokerage	1,024	1,214	18.6%	0.3
5232	Securities and Commodity Exchanges	5	6	20.0%	0.1
5239	Other Financial Investment Activities	1,600	2,086	30.4%	0.4
5241	Insurance Carriers	13,745	12,927	-6.0%	1.3
5242	Agencies, Brokerages, and Other Insurance Related Activities	9,914	11,831	19.3%	1.1
5251	Insurance and Employee Benefit Funds	1	0	-100.0%	0.0
5259	Other Investment Pools and Funds	338	410	21.3%	11.1
5311	Lessors of Real Estate	2,904	3,171	9.2%	0.5
5312	Offices of Real Estate Agents and Brokers	1,223	1,410	15.3%	0.5
5313	Activities Related to Real Estate	2,415	2,680	11.0%	0.4
5321	Automotive Equipment Rental and Leasing	1,399	1,662	18.8%	0.9

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
5322	Consumer Goods Rental	1,049	1,182	12.7%	0.8
5323	General Rental Centers	438	530	21.0%	1.3
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	737	954	29.4%	0.6
5331	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	42	54	28.6%	0.2
5411	Legal Services	5,620	5,762	2.5%	0.6
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	5,377	5,721	6.4%	0.6
5413	Architectural, Engineering, and Related Services	10,373	12,059	16.3%	0.8
5414	Specialized Design Services	353	417	18.1%	0.3
5415	Computer Systems Design and Related Services	7,746	10,830	39.8%	0.5
5416	Management, Scientific, and Technical Consulting Services	5,438	6,417	18.0%	0.5
5417	Scientific Research and Development Services	1,237	1,466	18.5%	0.2
5418	Advertising, Public Relations, and Related Services	2,617	2,931	12.0%	0.6
5419	Other Professional, Scientific, and Technical Services	4,980	5,734	15.1%	0.9
5511	Management of Companies and Enterprises	22,019	26,794	21.7%	1.2
5611	Office Administrative Services	384	448	16.7%	0.1
5612	Facilities Support Services	1,303	1,766	35.5%	1.1
5613	Employment Services	29,751	39,889	34.1%	1.0
5614	Business Support Services	5,443	5,916	8.7%	0.7
5615	Travel Arrangement and Reservation Services	1,015	1,016	0.1%	0.6
5616	Investigation and Security Services	3,631	4,643	27.9%	0.5
5617	Services to Buildings and Dwellings	13,194	15,708	19.1%	0.8
5619	Other Support Services	2,737	3,538	29.3%	1.0
5621	Waste Collection	1,745	2,181	25.0%	1.2
5622	Waste Treatment and Disposal	1,141	1,272	11.5%	1.1
5629	Remediation and Other Waste Management Services	1,057	1,211	14.6%	0.9
6111	Elementary and Secondary Schools	60,136	57,938	-3.7%	0.9
6112	Junior Colleges	3,346	3,414	2.0%	0.5
6113	Colleges, Universities, and Professional Schools	29,643	32,537	9.8%	1.2
6114	Business Schools and Computer and Management Training	348	374	7.5%	0.6
6115	Technical and Trade Schools	906	1,110	22.5%	0.7
6116	Other Schools and Instruction	1,714	1,998	16.6%	0.5
6117	Educational Support Services	475	653	37.5%	0.4
6211	Offices of Physicians	21,182	24,119	13.9%	1.0
6212	Offices of Dentists	6,763	7,701	13.9%	0.9
6213	Offices of Other Health Practitioners	7,868	10,580	34.5%	1.2
6214	Outpatient Care Centers	8,211	10,598	29.1%	1.2

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
6215	Medical and Diagnostic Laboratories	1,239	1,445	16.6%	0.6
6216	Home Health Care Services	7,183	10,513	46.4%	0.7
6219	Other Ambulatory Health Care Services	2,777	3,638	31.0%	1.1
6221	General Medical and Surgical Hospitals	47,160	52,276	10.8%	1.0
6222	Psychiatric and Substance Abuse Hospitals	2,261	2,629	16.3%	1.1
6223	Specialty (except Psychiatric and Substance Abuse) Hospitals	2,461	3,035	23.3%	1.1
6231	Nursing Care Facilities (Skilled Nursing Facilities)	15,995	18,075	13.0%	1.1
6232	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	9,437	10,459	10.8%	1.5
6233	Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	18,629	22,844	22.6%	2.5
6239	Other Residential Care Facilities	1,825	2,264	24.1%	1.2
6241	Individual and Family Services	20,135	27,934	38.7%	1.1
6242	Community Food and Housing, and Emergency and Other Relief Services	1,353	1,756	29.8%	1.0
6243	Vocational Rehabilitation Services	2,181	2,601	19.3%	0.7
6244	Child Day Care Services	7,292	8,651	18.6%	1.0
7111	Performing Arts Companies	1,235	1,356	9.8%	1.2
7112	Spectator Sports	698	728	4.3%	0.6
7113	Promoters of Performing Arts, Sports, and Similar Events	340	375	10.3%	0.3
7114	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	11	10	-9.1%	0.1
7115	Independent Artists, Writers, and Performers	226	260	15.0%	0.5
7121	Museums, Historical Sites, and Similar Institutions	1,207	1,473	22.0%	0.6
7131	Amusement Parks and Arcades	2,087	2,121	1.6%	1.3
7132	Gambling Industries	3,209	4,039	25.9%	1.4
7139	Other Amusement and Recreation Industries	9,964	11,410	14.5%	0.9
7211	Traveler Accommodation	12,327	12,717	3.2%	0.8
7212	RV (Recreational Vehicle) Parks and Recreational Camps	1,070	1,165	8.9%	2.1
7213	Rooming and Boarding Houses	83	82	-1.2%	0.7
7223	Special Food Services	5,391	6,348	17.8%	1.0
7224	Drinking Places (Alcoholic Beverages)	2,780	2,780	0.0%	0.9
7225	Restaurants and Other Eating Places	71,479	79,188	10.8%	0.9
8111	Automotive Repair and Maintenance	8,234	9,086	10.3%	1.1
8112	Electronic and Precision Equipment Repair and Maintenance	1,575	1,859	18.0%	1.8
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	2,027	2,368	16.8%	1.2
8114	Personal and Household Goods Repair and Maintenance	493	484	-1.8%	0.8
8121	Personal Care Services	6,113	6,995	14.4%	1.1

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
8122	Death Care Services	1,490	1,721	15.5%	1.3
8123	Drycleaning and Laundry Services	1,529	1,465	-4.2%	0.6
8129	Other Personal Services	1,197	1,527	27.6%	0.5
8131	Religious Organizations	1,336	1,373	2.8%	0.8
8132	Grantmaking and Giving Services	1,275	1,224	-4.0%	1.1
8133	Social Advocacy Organizations	1,118	1,228	9.8%	0.6
8134	Civic and Social Organizations	7,819	8,099	3.6%	2.3
8139	Business, Professional, Labor, Political, and Similar Organizations	4,002	4,179	4.4%	1.1
8141	Private Households	531	495	-6.8%	0.2
9211	Executive, Legislative, and Other General Government Support	27,542	26,082	-5.3%	1.1
9221	Justice, Public Order, and Safety Activities	13,515	13,647	1.0%	0.8
9231	Administration of Human Resource Programs	5,331	5,169	-3.0%	0.8
9241	Administration of Environmental Quality Programs	3,463	3,580	3.4%	1.3
9251	Administration of Housing Programs, Urban Planning, and Community Development	830	832	0.2%	1.2
9261	Administration of Economic Programs	4,950	4,876	-1.5%	1.0
9281	National Security and International Affairs	10,056	9,190	-8.6%	2.0

Source: Bureau of Labor Statistics, Occupational Employment Statistics (OES), Pennsylvania Department of Labor & Industry, Oxford Economics Projections

APPENDIX D: OCCUPATION PROJECTIONS 2014-2024 FOR CENTRAL PENNSYLVANIA

For this analysis a “skilled” occupation is defined as an occupation in O*NET Job Zones¹⁶ Three, Four or Five. Most occupations in Job Zone Three require training in vocational schools, related on-the-job experience, or an associate’s degree.

The 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.¹⁷

JOB ZONE ONE: Little or No Preparation Needed

- *Education* – Some of these occupations may require a high school diploma or GED certificate.
- *Related Experience* – 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.
- *Job Training* – 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.
- *Job Zone Examples* – These occupations involve following instructions and helping others. Examples include taxi drivers, amusement and recreation attendants, counter and rental clerks, nonfarm animal caretakers, continuous mining machine operators, and waiters/waitresses.

JOB ZONE TWO: Some Preparation Needed

- *Education* – These occupations usually require a high school diploma.

¹⁶ <https://www.onetonline.org/help/online/zones>

¹⁷ <http://www.onetcenter.org/overview.html>

- *Related Experience* – Some previous work-related skill, knowledge, or experience is usually needed. For example, a teller would benefit from experience working directly with the public.
- *Job Training* – 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.
- *Job Zone Examples* – 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.

JOB ZONE THREE: Medium Preparation Needed

- *Education* – Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree.
- *Related Experience* – 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.
- *Job Training* – 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.
- *Job Zone Examples* – 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, occupational therapy assistants, and medical assistants.

JOB ZONE FOUR: Considerable Preparation Needed

- *Education* – Most of these occupations require a four-year bachelor's degree, but some do not.
- *Related Experience* – 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.

- *Job Training* – Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.
- *Job Zone Examples* – Many of these occupations involve coordinating, supervising, managing, or training others. Examples include accountants, sales managers, database administrators, teachers, chemists, art directors, and cost estimators.

JOB ZONE FIVE: Extensive Preparation Needed

- *Education* – 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).
- *Related Experience* – 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.
- *Job Training* – 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.
- *Job Zone Examples* – 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, sports medicine physicians, wildlife biologists, school psychologists, surgeons, treasurers, and controllers.

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
Total	All Occupations	NA	1,179,500	1,298,075	10.1%	454,589
11-1011	Chief Executives	5	2,305	2,284	-0.9%	526
11-1021	General and Operations Managers	4	13,398	15,670	17.0%	4,658
11-1031	Legislators	4	574	468	-18.5%	44
11-2011	Advertising and Promotions Managers	4	113	99	-12.4%	24
11-2021	Marketing Managers	4	884	1,000	13.1%	307
11-2022	Sales Managers	4	1,976	1,987	0.6%	438
11-2031	Public Relations and Fundraising Managers	4	304	294	-3.3%	55
11-3011	Administrative Services Managers	3	1,466	1,528	4.2%	286
11-3021	Computer and Information Systems Managers	4	1,700	2,236	31.5%	785
11-3031	Financial Managers	4	2,591	2,619	1.1%	507
11-3051	Industrial Production Managers	4	1,699	1,658	-2.4%	351
11-3061	Purchasing Managers	4	390	386	-1.0%	84
11-3071	Transportation, Storage, and Distribution Managers	4	913	1,054	15.4%	366
11-3111	Compensation and Benefits Managers	4	121	106	-12.4%	22
11-3121	Human Resources Managers	4	641	789	23.1%	314
11-3131	Training and Development Managers	4	153	185	20.9%	72
11-9021	Construction Managers	4	1,340	1,735	29.5%	590
11-9031	Education Administrators, Preschool and Childcare Center/Program	4	369	409	10.8%	139
11-9032	Education Administrators, Elementary and Secondary School	5	1,582	1,463	-7.5%	403
11-9033	Education Administrators, Postsecondary	5	1,031	1,108	7.5%	369
11-9039	Education Administrators, All Other	5	124	146	17.7%	57
11-9041	Architectural and Engineering Managers	5	981	1,038	5.8%	311
11-9051	Food Service Managers	3	1,165	1,311	12.5%	382
11-9061	Funeral Service Managers	3	110	117	6.4%	40
11-9071	Gaming Managers	3	54	64	18.5%	22
11-9081	Lodging Managers	3	239	272	13.8%	137
11-9111	Medical and Health Services Managers	5	2,480	2,730	10.1%	853
11-9121	Natural Sciences Managers	5	161	182	13.0%	61
11-9131	Postmasters and Mail Superintendents	3	204	115	-43.6%	2
11-9141	Property, Real Estate, and Community Association Managers	4	528	626	18.6%	234
11-9151	Social and Community Service Managers	4	1,140	1,394	22.3%	516
11-9161	Emergency Management Directors	4	95	80	-15.8%	1
11-9199	Managers, All Other	4	1,502	1,630	8.5%	456

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
13-1011	Agents and Business Managers of Artists, Performers, and Athletes	4	12	10	-16.7%	2
13-1021	Buyers and Purchasing Agents, Farm Products	4	99	103	4.0%	30
13-1022	Wholesale and Retail Buyers, Except Farm Products	3	862	838	-2.8%	211
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	4	3,154	3,269	3.6%	789
13-1031	Claims Adjusters, Examiners, and Investigators	4	2,921	2,890	-1.1%	835
13-1032	Insurance Appraisers, Auto Damage	3	141	168	19.1%	78
13-1041	Compliance Officers	4	2,092	2,381	13.8%	723
13-1051	Cost Estimators	4	2,376	2,731	14.9%	1,162
13-1071	Human Resources Specialists	4	3,990	4,999	25.3%	1,861
13-1075	Labor Relations Specialists	4	1,148	907	-21.0%	98
13-1081	Logisticians	4	1,242	1,564	25.9%	488
13-1111	Management Analysts	4	3,151	3,736	18.6%	1,110
13-1121	Meeting, Convention, and Event Planners	4	560	739	32.0%	265
13-1131	Fundraisers	4	552	663	20.1%	235
13-1141	Compensation, Benefits, and Job Analysis Specialists	4	662	634	-4.2%	120
13-1151	Training and Development Specialists	4	1,858	2,159	16.2%	670
13-1161	Market Research Analysts and Marketing Specialists	4	3,727	4,937	32.5%	1,806
13-1199	Business Operations Specialists, All Other	4	3,247	3,183	-2.0%	320
13-2011	Accountants and Auditors	4	9,658	10,614	9.9%	4,171
13-2021	Appraisers and Assessors of Real Estate	4	296	282	-4.7%	31
13-2031	Budget Analysts	4	376	424	12.8%	206
13-2041	Credit Analysts	4	347	420	21.0%	177
13-2051	Financial Analysts	4	1,674	2,006	19.8%	770
13-2052	Personal Financial Advisors	4	803	1,085	35.1%	432
13-2053	Insurance Underwriters	4	1,025	1,038	1.3%	412
13-2061	Financial Examiners	4	282	291	3.2%	99
13-2071	Credit Counselors	4	316	404	27.8%	156
13-2072	Loan Officers	3	1,893	2,138	12.9%	769
13-2081	Tax Examiners and Collectors, and Revenue Agents	3	1,125	963	-14.4%	294
13-2082	Tax Preparers	3	325	286	-12.0%	59
13-2099	Financial Specialists, All Other	4	670	635	-5.2%	56
15-1111	Computer and Information Research Scientists	5	39	41	5.1%	7
15-1121	Computer Systems Analysts	4	3,519	4,898	39.2%	2,001
15-1122	Information Security Analysts	4	386	547	41.7%	220
15-1131	Computer Programmers	4	2,090	2,772	32.6%	1,366

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
15-1132	Software Developers, Applications	4	3,355	4,618	37.6%	1,741
15-1133	Software Developers, Systems Software	4	1,403	1,500	6.9%	269
15-1134	Web Developers	3	603	803	33.2%	298
15-1141	Database Administrators	4	894	1,111	24.3%	402
15-1142	Network and Computer Systems Administrators	4	2,567	2,516	-2.0%	390
15-1143	Computer Network Architects	4	555	670	20.7%	204
15-1151	Computer User Support Specialists	3	4,215	5,473	29.8%	2,012
15-1152	Computer Network Support Specialists	4	839	902	7.5%	223
15-1199	Computer Occupations, All Other	4	1,417	1,672	18.0%	505
15-2011	Actuaries	4	267	331	24.0%	150
15-2031	Operations Research Analysts	5	425	477	12.2%	153
15-2041	Statisticians	5	299	357	19.4%	161
17-1011	Architects, Except Landscape and Naval	4	498	611	22.7%	290
17-1012	Landscape Architects	4	144	200	38.9%	101
17-1021	Cartographers and Photogrammetrists	4	49	52	6.1%	13
17-1022	Surveyors	4	287	343	19.5%	131
17-2011	Aerospace Engineers	4	130	160	23.1%	64
17-2021	Agricultural Engineers	4	11	15	36.4%	7
17-2031	Biomedical Engineers	4	116	121	4.3%	37
17-2041	Chemical Engineers	4	222	219	-1.4%	63
17-2051	Civil Engineers	4	2,383	2,847	19.5%	1,114
17-2061	Computer Hardware Engineers	4	178	174	-2.2%	32
17-2071	Electrical Engineers	4	1,179	1,368	16.0%	482
17-2072	Electronics Engineers, Except Computer	4	544	469	-13.8%	60
17-2081	Environmental Engineers	5	545	666	22.2%	279
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	4	215	222	3.3%	77
17-2112	Industrial Engineers	4	1,971	2,007	1.8%	704
17-2131	Materials Engineers	4	221	275	24.4%	138
17-2141	Mechanical Engineers	4	2,172	2,244	3.3%	892
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	4	57	56	-1.8%	21
17-2161	Nuclear Engineers	4	283	338	19.4%	151
17-2171	Petroleum Engineers	4	61	76	24.6%	36
17-2199	Engineers, All Other	4	727	903	24.2%	323
17-3011	Architectural and Civil Drafters	4	887	1,025	15.6%	352
17-3012	Electrical and Electronics Drafters	3	217	184	-15.2%	4
17-3013	Mechanical Drafters	3	897	816	-9.0%	115

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
17-3019	Drafters, All Other	3	37	48	29.7%	16
17-3021	Aerospace Engineering and Operations Technicians	4	23	28	21.7%	10
17-3022	Civil Engineering Technicians	3	415	510	22.9%	198
17-3023	Electrical and Electronics Engineering Technicians	3	775	662	-14.6%	78
17-3024	Electro-Mechanical Technicians	3	98	83	-15.3%	15
17-3025	Environmental Engineering Technicians	4	210	248	18.1%	93
17-3026	Industrial Engineering Technicians	3	413	431	4.4%	121
17-3027	Mechanical Engineering Technicians	3	333	406	21.9%	153
17-3029	Engineering Technicians, Except Drafters, All Other	3	650	834	28.3%	346
17-3031	Surveying and Mapping Technicians	3	272	353	29.8%	140
19-1012	Food Scientists and Technologists	4	169	206	21.9%	96
19-1013	Soil and Plant Scientists	5	25	30	20.0%	15
19-1021	Biochemists and Biophysicists	5	82	105	28.0%	48
19-1022	Microbiologists	5	119	152	27.7%	73
19-1023	Zoologists and Wildlife Biologists	5	52	50	-3.8%	12
19-1029	Biological Scientists, All Other	5	88	76	-13.6%	16
19-1031	Conservation Scientists	4	138	153	10.9%	60
19-1032	Foresters	4	103	104	1.0%	32
19-1041	Epidemiologists	5	28	23	-17.9%	2
19-1042	Medical Scientists, Except Epidemiologists	5	526	638	21.3%	238
19-1099	Life Scientists, All Other	5	45	51	13.3%	15
19-2012	Physicists	5	39	37	-5.1%	6
19-2021	Atmospheric and Space Scientists	4	18	16	-11.1%	1
19-2031	Chemists	4	609	669	9.9%	257
19-2032	Materials Scientists	5	48	50	4.2%	16
19-2041	Environmental Scientists and Specialists, Including Health	4	430	534	24.2%	242
19-2042	Geoscientists, Except Hydrologists and Geographers	4	173	191	10.4%	79
19-2043	Hydrologists	4	30	27	-10.0%	6
19-2099	Physical Scientists, All Other	5	87	69	-20.7%	2
19-3011	Economists	5	93	112	20.4%	50
19-3022	Survey Researchers	5	477	461	-3.4%	137
19-3031	Clinical, Counseling, and School Psychologists	5	1,038	1,061	2.2%	338
19-3039	Psychologists, All Other	5	103	126	22.3%	53
19-3041	Sociologists	5	21	21	0.0%	11
19-3051	Urban and Regional Planners	5	407	422	3.7%	210

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
19-3091	Anthropologists and Archeologists	5	2	3	50.0%	1
19-3093	Historians	5	25	19	-24.0%	0
19-3099	Social Scientists and Related Workers, All Other	4	128	120	-6.3%	19
19-4011	Agricultural and Food Science Technicians	3	166	144	-13.3%	42
19-4021	Biological Technicians	4	439	471	7.3%	177
19-4031	Chemical Technicians	3	532	618	16.2%	255
19-4041	Geological and Petroleum Technicians	4	104	124	19.2%	72
19-4051	Nuclear Technicians	3	184	200	8.7%	97
19-4061	Social Science Research Assistants	4	118	139	17.8%	76
19-4091	Environmental Science and Protection Technicians, Including Health	4	288	367	27.4%	209
19-4092	Forensic Science Technicians	4	42	39	-7.1%	15
19-4093	Forest and Conservation Technicians	3	99	101	2.0%	50
19-4099	Life, Physical, and Social Science Technicians, All Other	3	439	485	10.5%	229
21-1011	Substance Abuse and Behavioral Disorder Counselors	5	1,429	1,504	5.2%	482
21-1012	Educational, Guidance, School, and Vocational Counselors	5	2,146	2,198	2.4%	557
21-1013	Marriage and Family Therapists	5	222	300	35.1%	128
21-1014	Mental Health Counselors	5	2,082	2,342	12.5%	829
21-1015	Rehabilitation Counselors	5	1,353	1,678	24.0%	706
21-1019	Counselors, All Other	5	214	217	1.4%	50
21-1021	Child, Family, and School Social Workers	4	3,241	3,810	17.6%	1,327
21-1022	Healthcare Social Workers	5	1,506	1,936	28.6%	780
21-1023	Mental Health and Substance Abuse Social Workers	5	1,920	2,331	21.4%	951
21-1029	Social Workers, All Other	5	229	243	6.1%	66
21-1091	Health Educators	4	518	605	16.8%	228
21-1092	Probation Officers and Correctional Treatment Specialists	4	1,136	1,089	-4.1%	321
21-1093	Social and Human Service Assistants	4	4,169	4,673	12.1%	1,748
21-1094	Community Health Workers	4	210	214	1.9%	57
21-1099	Community and Social Service Specialists, All Other	4	321	346	7.8%	103
21-2011	Clergy	5	342	399	16.7%	141
21-2021	Directors, Religious Activities and Education	4	252	293	16.3%	154
21-2099	Religious Workers, All Other	4	65	53	-18.5%	9
23-1011	Lawyers	5	3,430	3,681	7.3%	837
23-1012	Judicial Law Clerks	5	326	319	-2.1%	61

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers	5	200	179	-10.5%	19
23-1022	Arbitrators, Mediators, and Conciliators	5	61	73	19.7%	22
23-1023	Judges, Magistrate Judges, and Magistrates	5	75	63	-16.0%	4
23-2011	Paralegals and Legal Assistants	3	1,381	1,661	20.3%	514
23-2091	Court Reporters	3	211	220	4.3%	65
23-2093	Title Examiners, Abstractors, and Searchers	3	388	414	6.7%	113
23-2099	Legal Support Workers, All Other	3	198	189	-4.5%	26
25-1011	Business Teachers, Postsecondary	5	965	1,131	17.2%	311
25-1021	Computer Science Teachers, Postsecondary	5	423	492	16.3%	133
25-1022	Mathematical Science Teachers, Postsecondary	5	586	658	12.3%	161
25-1031	Architecture Teachers, Postsecondary	5	102	122	19.6%	36
25-1032	Engineering Teachers, Postsecondary	5	583	715	22.6%	219
25-1041	Agricultural Sciences Teachers, Postsecondary	5	75	77	2.7%	13
25-1042	Biological Science Teachers, Postsecondary	5	768	867	12.9%	215
25-1043	Forestry and Conservation Science Teachers, Postsecondary	5	28	29	3.6%	5
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	5	178	206	15.7%	55
25-1052	Chemistry Teachers, Postsecondary	5	319	375	17.6%	104
25-1053	Environmental Science Teachers, Postsecondary	5	65	69	6.2%	15
25-1054	Physics Teachers, Postsecondary	5	222	262	18.0%	74
25-1061	Anthropology and Archeology Teachers, Postsecondary	5	71	88	23.9%	28
25-1062	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	5	99	111	12.1%	28
25-1063	Economics Teachers, Postsecondary	5	235	278	18.3%	79
25-1064	Geography Teachers, Postsecondary	5	73	80	9.6%	19
25-1065	Political Science Teachers, Postsecondary	5	242	269	11.2%	64
25-1066	Psychology Teachers, Postsecondary	5	485	546	12.6%	134
25-1067	Sociology Teachers, Postsecondary	5	322	384	19.3%	110
25-1069	Social Sciences Teachers, Postsecondary, All Other	5	101	125	23.8%	39
25-1071	Health Specialties Teachers, Postsecondary	5	1,426	1,565	9.7%	353
25-1072	Nursing Instructors and Teachers, Postsecondary	5	622	662	6.4%	134
25-1081	Education Teachers, Postsecondary	5	742	809	9.0%	180
25-1082	Library Science Teachers, Postsecondary	5	73	86	17.8%	24
25-1111	Criminal Justice and Law Enforcement Teachers, Postsecondary	5	110	122	10.9%	29
25-1112	Law Teachers, Postsecondary	5	113	129	14.2%	33

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
25-1113	Social Work Teachers, Postsecondary	5	130	137	5.4%	28
25-1121	Art, Drama, and Music Teachers, Postsecondary	5	1,011	1,238	22.5%	379
25-1122	Communications Teachers, Postsecondary	5	327	375	14.7%	98
25-1123	English Language and Literature Teachers, Postsecondary	5	895	968	8.2%	209
25-1124	Foreign Language and Literature Teachers, Postsecondary	5	372	436	17.2%	119
25-1125	History Teachers, Postsecondary	5	303	341	12.5%	84
25-1126	Philosophy and Religion Teachers, Postsecondary	5	317	363	14.5%	94
25-1191	Graduate Teaching Assistants	5	317	368	16.1%	100
25-1192	Home Economics Teachers, Postsecondary	5	24	25	4.2%	4
25-1193	Recreation and Fitness Studies Teachers, Postsecondary	5	203	215	5.9%	43
25-1194	Vocational Education Teachers, Postsecondary	3	937	993	6.0%	199
25-1199	Postsecondary Teachers, All Other	5	892	1,062	19.1%	304
25-2011	Preschool Teachers, Except Special Education	3	2,631	3,424	30.1%	1,549
25-2012	Kindergarten Teachers, Except Special Education	4	1,191	1,127	-5.4%	303
25-2021	Elementary School Teachers, Except Special Education	4	11,474	11,174	-2.6%	2,587
25-2022	Middle School Teachers, Except Special and Career/Technical Education	4	5,094	5,717	12.2%	1,902
25-2023	Career/Technical Education Teachers, Middle School	4	127	147	15.7%	58
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	4	10,598	9,995	-5.7%	3,007
25-2032	Career/Technical Education Teachers, Secondary School	4	919	791	-13.9%	172
25-2051	Special Education Teachers, Preschool	4	133	157	18.0%	48
25-2052	Special Education Teachers, Kindergarten and Elementary School	4	2,180	2,207	1.2%	522
25-2053	Special Education Teachers, Middle School	4	763	751	-1.6%	162
25-2054	Special Education Teachers, Secondary School	4	1,590	1,598	0.5%	394
25-2059	Special Education Teachers, All Other	4	52	61	17.3%	16
25-3011	Adult Basic and Secondary Education and Literacy Teachers and Instructors	4	278	268	-3.6%	48
25-3021	Self-Enrichment Education Teachers	3	1,396	1,402	0.4%	303
25-3097	Teachers and Instructors, All Other, Except Substitute Teachers	3	874	1,042	19.2%	318
25-3098	Substitute Teachers	3	3,366	2,935	-12.8%	270
25-4011	Archivists	5	58	69	19.0%	25
25-4012	Curators	5	80	104	30.0%	44

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
25-4013	Museum Technicians and Conservators	4	91	126	38.5%	59
25-4021	Librarians	5	1,068	1,053	-1.4%	249
25-4031	Library Technicians	4	600	610	1.7%	348
25-9011	Audio-Visual and Multimedia Collections Specialists	4	47	51	8.5%	13
25-9021	Farm and Home Management Advisors	5	10	8	-20.0%	0
25-9031	Instructional Coordinators	5	766	829	8.2%	129
25-9041	Teacher Assistants	3	8,994	9,275	3.1%	2,517
25-9099	Education, Training, and Library Workers, All Other	4	166	171	3.0%	20
27-1011	Art Directors	4	200	228	14.0%	86
27-1012	Craft Artists	2	17	16	-5.9%	3
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	3	63	59	-6.3%	17
27-1014	Multimedia Artists and Animators	4	76	93	22.4%	37
27-1019	Artists and Related Workers, All Other	4	31	23	-25.8%	0
27-1021	Commercial and Industrial Designers	4	159	123	-22.6%	14
27-1022	Fashion Designers	3	54	49	-9.3%	12
27-1023	Floral Designers	2	450	361	-19.8%	143
27-1024	Graphic Designers	4	1,567	1,596	1.9%	525
27-1025	Interior Designers	4	182	218	19.8%	108
27-1026	Merchandise Displayers and Window Trimmers	3	546	657	20.3%	270
27-1027	Set and Exhibit Designers	5	60	79	31.7%	36
27-1029	Designers, All Other	4	1	1	0.0%	0
27-2011	Actors	2	411	374	-9.0%	122
27-2012	Producers and Directors	4	499	568	13.8%	287
27-2021	Athletes and Sports Competitors	2	121	136	12.4%	61
27-2022	Coaches and Scouts	4	1,488	1,465	-1.5%	449
27-2023	Umpires, Referees, and Other Sports Officials	3	55	50	-9.1%	11
27-2031	Dancers	3	27	22	-18.5%	5
27-2032	Choreographers	4	29	33	13.8%	14
27-2041	Music Directors and Composers	3	189	153	-19.0%	31
27-2042	Musicians and Singers	3	224	214	-4.5%	77
27-2099	Entertainers and Performers, Sports and Related Workers, All Other	3	18	19	5.6%	2
27-3011	Radio and Television Announcers	3	244	234	-4.1%	104
27-3012	Public Address System and Other Announcers	2	46	54	17.4%	21
27-3022	Reporters and Correspondents	4	280	213	-23.9%	80
27-3031	Public Relations Specialists	4	1,659	1,663	0.2%	258

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
27-3041	Editors	4	638	600	-6.0%	168
27-3042	Technical Writers	4	227	240	5.7%	84
27-3043	Writers and Authors	4	280	281	0.4%	72
27-3091	Interpreters and Translators	4	181	229	26.5%	70
27-3099	Media and Communication Workers, All Other	4	60	56	-6.7%	5
27-4011	Audio and Video Equipment Technicians	3	300	327	9.0%	93
27-4012	Broadcast Technicians	3	121	126	4.1%	38
27-4014	Sound Engineering Technicians	3	51	46	-9.8%	8
27-4021	Photographers	3	383	334	-12.8%	63
27-4031	Camera Operators, Television, Video, and Motion Picture	3	89	82	-7.9%	5
27-4032	Film and Video Editors	3	56	50	-10.7%	2
27-4099	Media and Communication Equipment Workers, All Other	3	49	38	-22.4%	3
29-1011	Chiropractors	5	247	355	43.7%	163
29-1021	Dentists, General	5	737	830	12.6%	277
29-1022	Oral and Maxillofacial Surgeons	5	27	29	7.4%	9
29-1023	Orthodontists	5	20	26	30.0%	10
29-1029	Dentists, All Other Specialists	5	23	19	-17.4%	4
29-1031	Dietitians and Nutritionists	5	607	629	3.6%	102
29-1041	Optometrists	5	258	357	38.4%	186
29-1051	Pharmacists	5	2,137	2,273	6.4%	700
29-1061	Anesthesiologists	5	293	323	10.2%	111
29-1062	Family and General Practitioners	5	1,241	1,364	9.9%	470
29-1063	Internists, General	5	189	181	-4.2%	38
29-1064	Obstetricians and Gynecologists	5	65	81	24.6%	30
29-1065	Pediatricians, General	5	71	92	29.6%	35
29-1066	Psychiatrists	5	180	175	-2.8%	45
29-1067	Surgeons	5	400	528	32.0%	234
29-1069	Physicians and Surgeons, All Other	5	2,845	3,171	11.5%	1,073
29-1071	Physician Assistants	5	943	1,087	15.3%	329
29-1081	Podiatrists	5	97	140	44.3%	82
29-1122	Occupational Therapists	5	1,116	1,454	30.3%	513
29-1123	Physical Therapists	5	1,908	2,562	34.3%	1,194
29-1124	Radiation Therapists	3	150	146	-2.7%	27
29-1125	Recreational Therapists	4	278	285	2.5%	75
29-1126	Respiratory Therapists	3	930	1,100	18.3%	304
29-1127	Speech-Language Pathologists	5	875	1,097	25.4%	351

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
29-1128	Exercise Physiologists	5	63	80	27.0%	25
29-1129	Therapists, All Other	4	75	106	41.3%	39
29-1131	Veterinarians	5	511	668	30.7%	339
29-1141	Registered Nurses	3	24,034	28,621	19.1%	9,453
29-1151	Nurse Anesthetists	5	395	452	14.4%	140
29-1161	Nurse Midwives	5	29	39	34.5%	15
29-1171	Nurse Practitioners	5	723	959	32.6%	368
29-1181	Audiologists	5	105	134	27.6%	53
29-1199	Health Diagnosing and Treating Practitioners, All Other	5	118	106	-10.2%	14
29-2011	Medical and Clinical Laboratory Technologists	4	1,442	1,585	9.9%	580
29-2012	Medical and Clinical Laboratory Technicians	3	1,656	1,893	14.3%	709
29-2021	Dental Hygienists	3	1,852	2,324	25.5%	974
29-2031	Cardiovascular Technologists and Technicians	3	546	691	26.6%	227
29-2032	Diagnostic Medical Sonographers	3	440	542	23.2%	163
29-2033	Nuclear Medicine Technologists	3	194	206	6.2%	40
29-2034	Radiologic Technologists	3	1,773	2,080	17.3%	581
29-2035	Magnetic Resonance Imaging Technologists	3	237	306	29.1%	106
29-2041	Emergency Medical Technicians and Paramedics	3	1,961	2,395	22.1%	1,080
29-2051	Dietetic Technicians	2	625	849	35.8%	298
29-2052	Pharmacy Technicians	3	2,463	2,695	9.4%	517
29-2053	Psychiatric Technicians	3	279	304	9.0%	81
29-2054	Respiratory Therapy Technicians	3	93	87	-6.5%	3
29-2055	Surgical Technologists	3	664	851	28.2%	251
29-2056	Veterinary Technologists and Technicians	3	773	1,029	33.1%	337
29-2057	Ophthalmic Medical Technicians	3	213	295	38.5%	108
29-2061	Licensed Practical and Licensed Vocational Nurses	3	7,363	9,063	23.1%	3,645
29-2071	Medical Records and Health Information Technicians	3	1,456	1,778	22.1%	715
29-2081	Opticians, Dispensing	3	560	760	35.7%	391
29-2091	Orthotists and Prosthetists	5	51	68	33.3%	22
29-2092	Hearing Aid Specialists	3	24	26	8.3%	5
29-2099	Health Technologists and Technicians, All Other	3	437	538	23.1%	136
29-9011	Occupational Health and Safety Specialists	4	482	532	10.4%	192
29-9012	Occupational Health and Safety Technicians	3	116	132	13.8%	48
29-9091	Athletic Trainers	5	246	334	35.8%	160
29-9099	Healthcare Practitioners and Technical Workers, All Other	4	171	168	-1.8%	40

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
31-1011	Home Health Aides	2	9,968	13,535	35.8%	6,308
31-1013	Psychiatric Aides	2	335	376	12.2%	126
31-1014	Nursing Assistants	2	15,174	17,689	16.6%	5,579
31-1015	Orderlies	2	463	529	14.3%	156
31-2011	Occupational Therapy Assistants	3	449	606	35.0%	296
31-2012	Occupational Therapy Aides	3	104	169	62.5%	94
31-2021	Physical Therapist Assistants	3	838	1,196	42.7%	584
31-2022	Physical Therapist Aides	2	405	554	36.8%	244
31-9011	Massage Therapists	3	406	569	40.1%	204
31-9091	Dental Assistants	3	2,537	2,941	15.9%	960
31-9092	Medical Assistants	3	4,527	5,670	25.2%	2,052
31-9093	Medical Equipment Preparers	2	353	413	17.0%	127
31-9094	Medical Transcriptionists	3	726	645	-11.2%	116
31-9095	Pharmacy Aides	2	273	223	-18.3%	15
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	3	467	446	-4.5%	77
31-9097	Phlebotomists	3	845	1,071	26.7%	422
31-9099	Healthcare Support Workers, All Other	3	280	242	-13.6%	7
33-1011	First-Line Supervisors of Correctional Officers	3	368	384	4.3%	157
33-1012	First-Line Supervisors of Police and Detectives	3	802	915	14.1%	380
33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers	3	220	250	13.6%	131
33-1099	First-Line Supervisors of Protective Service Workers, All Other	3	334	410	22.8%	179
33-2011	Firefighters	3	1,362	1,381	1.4%	431
33-2021	Fire Inspectors and Investigators	3	67	55	-17.9%	12
33-3011	Bailiffs	2	58	45	-22.4%	5
33-3012	Correctional Officers and Jailers	3	4,515	4,137	-8.4%	1,022
33-3021	Detectives and Criminal Investigators	3	752	750	-0.3%	192
33-3041	Parking Enforcement Workers	2	122	137	12.3%	62
33-3051	Police and Sheriff's Patrol Officers	3	7,605	7,400	-2.7%	2,523
33-3052	Transit and Railroad Police	3	22	17	-22.7%	2
33-9011	Animal Control Workers	2	56	58	3.6%	17
33-9021	Private Detectives and Investigators	3	225	214	-4.9%	75
33-9031	Gaming Surveillance Officers and Gaming Investigators	2	172	223	29.7%	129
33-9032	Security Guards	2	6,129	7,526	22.8%	3,113
33-9091	Crossing Guards	1	1,031	915	-11.3%	138

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
33-9092	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	2	1,277	1,395	9.2%	1,043
33-9093	Transportation Security Screeners	2	354	324	-8.5%	67
33-9099	Protective Service Workers, All Other	2	794	937	18.0%	712
35-1011	Chefs and Head Cooks	3	992	1,047	5.5%	252
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	2	6,230	7,051	13.2%	2,734
35-2011	Cooks, Fast Food	1	1,856	1,659	-10.6%	208
35-2012	Cooks, Institution and Cafeteria	2	3,677	3,704	0.7%	790
35-2014	Cooks, Restaurant	2	8,556	11,074	29.4%	4,507
35-2015	Cooks, Short Order	1	1,553	1,833	18.0%	663
35-2021	Food Preparation Workers	1	7,420	7,062	-4.8%	1,988
35-3011	Bartenders	2	6,454	6,886	6.7%	3,154
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	1	28,191	32,733	16.1%	16,652
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	1	2,383	2,289	-3.9%	1,443
35-3031	Waiters and Waitresses	1	20,569	23,278	13.2%	13,595
35-3041	Food Servers, Nonrestaurant	1	2,862	3,285	14.8%	1,346
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	1	3,187	3,317	4.1%	1,671
35-9021	Dishwashers	1	4,516	4,413	-2.3%	2,089
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	1	3,136	3,374	7.6%	2,771
35-9099	Food Preparation and Serving Related Workers, All Other	1	254	308	21.3%	201
37-1011	First-Line Supervisors of Housekeeping and Janitorial Workers	2	1,240	1,366	10.2%	470
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	3	529	581	9.8%	115
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2	17,519	18,802	7.3%	5,300
37-2012	Maids and Housekeeping Cleaners	2	7,672	8,387	9.3%	2,672
37-2019	Building Cleaning Workers, All Other	2	63	60	-4.8%	9
37-2021	Pest Control Workers	2	298	393	31.9%	189
37-3011	Landscaping and Groundskeeping Workers	1	6,295	7,381	17.3%	2,920
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	2	93	87	-6.5%	19
37-3013	Tree Trimmers and Pruners	2	511	724	41.7%	388
37-3019	Grounds Maintenance Workers, All Other	2	20	18	-10.0%	1
39-1011	Gaming Supervisors	2	371	465	25.3%	294
39-1012	Slot Supervisors	2	20	25	25.0%	9

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
39-1021	First-Line Supervisors of Personal Service Workers	3	1,451	1,850	27.5%	687
39-2011	Animal Trainers	2	29	27	-6.9%	12
39-2021	Nonfarm Animal Caretakers	1	765	948	23.9%	302
39-3011	Gaming Dealers	2	1,610	2,045	27.0%	1,245
39-3012	Gaming and Sports Book Writers and Runners	2	29	36	24.1%	18
39-3019	Gaming Service Workers, All Other	2	24	29	20.8%	7
39-3021	Motion Picture Projectionists	2	52	41	-21.2%	19
39-3031	Ushers, Lobby Attendants, and Ticket Takers	2	602	667	10.8%	438
39-3091	Amusement and Recreation Attendants	1	2,947	3,245	10.1%	1,972
39-3092	Costume Attendants	2	40	40	0.0%	22
39-3093	Locker Room, Coatroom, and Dressing Room Attendants	2	164	154	-6.1%	79
39-3099	Entertainment Attendants and Related Workers, All Other	2	135	146	8.1%	91
39-4021	Funeral Attendants	2	407	491	20.6%	215
39-4031	Morticians, Undertakers, and Funeral Directors	3	246	320	30.1%	146
39-5011	Barbers	3	115	121	5.2%	42
39-5012	Hairdressers, Hairstylists, and Cosmetologists	3	4,073	4,647	14.1%	1,726
39-5092	Manicurists and Pedicurists	2	553	613	10.8%	117
39-5093	Shampooers	2	236	249	5.5%	53
39-5094	Skincare Specialists	3	191	201	5.2%	21
39-6011	Baggage Porters and Bellhops	2	181	189	4.4%	77
39-6012	Concierges	3	147	192	30.6%	84
39-7011	Tour Guides and Escorts	3	234	243	3.8%	134
39-7012	Travel Guides	3	12	10	-16.7%	6
39-9011	Childcare Workers	3	4,299	4,130	-3.9%	1,115
39-9021	Personal Care Aides	2	11,509	17,745	54.2%	7,773
39-9031	Fitness Trainers and Aerobics Instructors	3	2,232	2,632	17.9%	791
39-9032	Recreation Workers	4	2,908	3,681	26.6%	1,121
39-9041	Residential Advisors	3	1,469	1,869	27.2%	1,137
39-9099	Personal Care and Service Workers, All Other	3	274	242	-11.7%	45
41-1011	First-Line Supervisors of Retail Sales Workers	2	9,202	9,621	4.6%	2,491
41-1012	First-Line Supervisors of Non-Retail Sales Workers	4	1,645	1,537	-6.6%	137
41-2011	Cashiers	1	33,286	32,073	-3.6%	14,440
41-2012	Gaming Change Persons and Booth Cashiers	2	98	119	21.4%	107
41-2021	Counter and Rental Clerks	1	2,932	3,199	9.1%	1,132
41-2022	Parts Salespersons	2	2,400	2,765	15.2%	1,083

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
41-2031	Retail Salespersons	2	40,490	43,276	6.9%	17,485
41-3011	Advertising Sales Agents	3	1,008	932	-7.5%	336
41-3021	Insurance Sales Agents	4	3,431	3,615	5.4%	1,224
41-3031	Securities, Commodities, and Financial Services Sales Agents	4	1,372	1,435	4.6%	446
41-3041	Travel Agents	3	350	315	-10.0%	147
41-3099	Sales Representatives, Services, All Other	4	5,112	6,638	29.9%	2,992
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	4	1,616	1,495	-7.5%	237
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	4	13,564	13,096	-3.5%	2,683
41-9011	Demonstrators and Product Promoters	2	323	333	3.1%	108
41-9012	Models	1	24	28	16.7%	12
41-9021	Real Estate Brokers	4	160	140	-12.5%	5
41-9022	Real Estate Sales Agents	3	1,130	1,270	12.4%	329
41-9031	Sales Engineers	4	508	528	3.9%	130
41-9041	Telemarketers	2	1,310	1,207	-7.9%	524
41-9091	Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	2	22	19	-13.6%	2
41-9099	Sales and Related Workers, All Other	3	316	307	-2.8%	47
43-1011	First-Line Supervisors of Office and Administrative Support Workers	3	10,304	10,903	5.8%	3,066
43-2011	Switchboard Operators, Including Answering Service	2	1,058	892	-15.7%	210
43-2021	Telephone Operators	2	44	27	-38.6%	0
43-3011	Bill and Account Collectors	2	2,234	2,275	1.8%	794
43-3021	Billing and Posting Clerks	2	5,007	5,593	11.7%	1,598
43-3031	Bookkeeping, Accounting, and Auditing Clerks	3	13,362	14,669	9.8%	2,629
43-3041	Gaming Cage Workers	2	98	121	23.5%	73
43-3051	Payroll and Timekeeping Clerks	2	1,606	1,651	2.8%	433
43-3061	Procurement Clerks	3	587	525	-10.6%	167
43-3071	Tellers	2	4,153	3,698	-11.0%	1,981
43-3099	Financial Clerks, All Other	2	208	251	20.7%	114
43-4011	Brokerage Clerks	3	317	342	7.9%	145
43-4021	Correspondence Clerks	2	132	144	9.1%	56
43-4031	Court, Municipal, and License Clerks	3	668	704	5.4%	149
43-4041	Credit Authorizers, Checkers, and Clerks	3	224	177	-21.0%	2
43-4051	Customer Service Representatives	2	20,591	23,292	13.1%	8,923
43-4061	Eligibility Interviewers, Government Programs	3	2,386	2,248	-5.8%	380

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
43-4071	File Clerks	2	986	863	-12.5%	165
43-4081	Hotel, Motel, and Resort Desk Clerks	2	1,866	1,848	-1.0%	1,114
43-4111	Interviewers, Except Eligibility and Loan	2	1,603	1,833	14.3%	581
43-4121	Library Assistants, Clerical	2	888	889	0.1%	410
43-4131	Loan Interviewers and Clerks	3	1,111	1,275	14.8%	327
43-4141	New Accounts Clerks	2	194	184	-5.2%	66
43-4151	Order Clerks	2	1,815	1,696	-6.6%	529
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	3	1,286	1,184	-7.9%	283
43-4171	Receptionists and Information Clerks	2	7,904	8,010	1.3%	2,294
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	2	91	71	-22.0%	7
43-4199	Information and Record Clerks, All Other	2	739	524	-29.1%	15
43-5011	Cargo and Freight Agents	2	209	205	-1.9%	70
43-5021	Couriers and Messengers	2	515	436	-15.3%	40
43-5031	Police, Fire, and Ambulance Dispatchers	2	803	768	-4.4%	221
43-5032	Dispatchers, Except Police, Fire, and Ambulance	2	1,697	2,054	21.0%	889
43-5041	Meter Readers, Utilities	2	306	290	-5.2%	110
43-5051	Postal Service Clerks	2	656	522	-20.4%	152
43-5052	Postal Service Mail Carriers	2	2,593	2,103	-18.9%	1,004
43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	2	1,206	805	-33.3%	60
43-5061	Production, Planning, and Expediting Clerks	3	2,974	3,190	7.3%	1,052
43-5071	Shipping, Receiving, and Traffic Clerks	2	6,575	6,515	-0.9%	1,902
43-5081	Stock Clerks and Order Fillers	2	18,322	18,776	2.5%	6,856
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	2	607	707	16.5%	256
43-6011	Executive Secretaries and Executive Administrative Assistants	3	4,329	4,214	-2.7%	584
43-6012	Legal Secretaries	3	1,487	1,604	7.9%	414
43-6013	Medical Secretaries	3	4,126	5,473	32.6%	1,829
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	3	21,503	24,537	14.1%	5,828
43-9011	Computer Operators	3	627	588	-6.2%	127
43-9021	Data Entry Keyers	2	1,692	1,408	-16.8%	307
43-9022	Word Processors and Typists	2	1,722	1,276	-25.9%	38
43-9031	Desktop Publishers	3	164	144	-12.2%	26
43-9041	Insurance Claims and Policy Processing Clerks	3	2,294	2,270	-1.0%	723
43-9051	Mail Clerks and Mail Machine Operators, Except Postal Service	2	1,267	1,054	-16.8%	275

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
43-9061	Office Clerks, General	2	26,181	26,131	-0.2%	5,979
43-9071	Office Machine Operators, Except Computer	2	563	466	-17.2%	128
43-9081	Proofreaders and Copy Markers	4	106	87	-17.9%	11
43-9111	Statistical Assistants	4	113	120	6.2%	41
43-9199	Office and Administrative Support Workers, All Other	3	1,018	1,185	16.4%	462
45-1011	First-Line Supervisors of Farming, Fishing, and Forestry Workers	3	177	187	5.6%	59
45-2011	Agricultural Inspectors	2	103	92	-10.7%	30
45-2041	Graders and Sorters, Agricultural Products	1	69	81	17.4%	29
45-2091	Agricultural Equipment Operators	2	159	187	17.6%	86
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1	738	623	-15.6%	186
45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	1	579	639	10.4%	295
45-2099	Agricultural Workers, All Other	1	2	2	0.0%	0
45-4011	Forest and Conservation Workers	3	47	54	14.9%	14
45-4021	Fallers	1	22	13	-40.9%	0
45-4022	Logging Equipment Operators	1	187	233	24.6%	124
45-4023	Log Graders and Scalers	3	28	34	21.4%	11
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	3	4,252	5,122	20.5%	1,391
47-2011	Boilermakers	3	167	202	21.0%	123
47-2021	Brickmasons and Blockmasons	2	765	988	29.2%	303
47-2022	Stonemasons	3	105	103	-1.9%	3
47-2031	Carpenters	2	8,547	9,783	14.5%	2,494
47-2041	Carpet Installers	2	397	440	10.8%	142
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	2	82	77	-6.1%	13
47-2044	Tile and Marble Setters	2	170	213	25.3%	73
47-2051	Cement Masons and Concrete Finishers	2	1,428	1,667	16.7%	410
47-2053	Terrazzo Workers and Finishers	2	17	16	-5.9%	1
47-2061	Construction Laborers	2	8,084	10,248	26.8%	4,120
47-2071	Paving, Surfacing, and Tamping Equipment Operators	2	597	729	22.1%	257
47-2072	Pile-Driver Operators	2	13	16	23.1%	6
47-2073	Operating Engineers and Other Construction Equipment Operators	2	4,542	4,860	7.0%	1,633
47-2081	Drywall and Ceiling Tile Installers	2	327	316	-3.4%	57
47-2082	Tapers	2	98	116	18.4%	34
47-2111	Electricians	3	4,810	5,775	20.1%	2,276

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
47-2121	Glaziers	2	343	395	15.2%	165
47-2131	Insulation Workers, Floor, Ceiling, and Wall	2	123	153	24.4%	55
47-2132	Insulation Workers, Mechanical	2	90	112	24.4%	34
47-2141	Painters, Construction and Maintenance	2	1,096	1,313	19.8%	447
47-2142	Paperhangers	2	28	25	-10.7%	2
47-2151	Pipelayers	2	280	270	-3.6%	62
47-2152	Plumbers, Pipefitters, and Steamfitters	3	3,246	3,476	7.1%	821
47-2161	Plasterers and Stucco Masons	1	79	105	32.9%	27
47-2171	Reinforcing Iron and Rebar Workers	2	76	93	22.4%	31
47-2181	Roofers	2	1,065	1,138	6.9%	483
47-2211	Sheet Metal Workers	2	1,227	1,269	3.4%	305
47-2221	Structural Iron and Steel Workers	2	459	517	12.6%	233
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	2	245	276	12.7%	60
47-3012	Helpers--Carpenters	2	239	337	41.0%	131
47-3013	Helpers--Electricians	2	321	465	44.9%	206
47-3014	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	1	36	39	8.3%	11
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	2	257	254	-1.2%	37
47-3016	Helpers--Roofers	2	100	133	33.0%	57
47-3019	Helpers, Construction Trades, All Other	2	72	78	8.3%	13
47-4011	Construction and Building Inspectors	3	1,124	1,436	27.8%	622
47-4021	Elevator Installers and Repairers	3	84	75	-10.7%	19
47-4031	Fence Erectors	2	213	196	-8.0%	43
47-4041	Hazardous Materials Removal Workers	3	465	533	14.6%	233
47-4051	Highway Maintenance Workers	2	3,097	3,090	-0.2%	591
47-4061	Rail-Track Laying and Maintenance Equipment Operators	2	38	47	23.7%	17
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	1	265	277	4.5%	97
47-4099	Construction and Related Workers, All Other	3	103	94	-8.7%	4
47-5011	Derrick Operators, Oil and Gas	1	95	84	-11.6%	42
47-5012	Rotary Drill Operators, Oil and Gas	2	319	336	5.3%	253
47-5013	Service Unit Operators, Oil, Gas, and Mining	2	209	231	10.5%	156
47-5021	Earth Drillers, Except Oil and Gas	2	242	313	29.3%	179
47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	2	48	56	16.7%	21
47-5041	Continuous Mining Machine Operators	1	69	67	-2.9%	30
47-5042	Mine Cutting and Channeling Machine Operators	2	71	65	-8.5%	22
47-5049	Mining Machine Operators, All Other	2	13	8	-38.5%	2

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
47-5051	Rock Splitters, Quarry	1	133	158	18.8%	77
47-5061	Roof Bolters, Mining	2	58	51	-12.1%	22
47-5071	Roustabouts, Oil and Gas	1	243	299	23.0%	170
47-5081	Helpers--Extraction Workers	2	224	237	5.8%	126
47-5099	Extraction Workers, All Other	2	34	28	-17.6%	4
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	3	3,472	3,969	14.3%	1,484
49-2011	Computer, Automated Teller, and Office Machine Repairers	3	968	1,046	8.1%	384
49-2021	Radio, Cellular, and Tower Equipment Installers and Repairers	3	46	46	0.0%	6
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	3	836	878	5.0%	256
49-2091	Avionics Technicians	3	66	80	21.2%	35
49-2092	Electric Motor, Power Tool, and Related Repairers	3	173	176	1.7%	53
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	3	45	42	-6.7%	7
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	3	926	825	-10.9%	158
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	3	143	141	-1.4%	38
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	3	33	38	15.2%	13
49-2097	Electronic Home Entertainment Equipment Installers and Repairers	3	165	171	3.6%	87
49-2098	Security and Fire Alarm Systems Installers	3	380	478	25.8%	192
49-3011	Aircraft Mechanics and Service Technicians	3	160	145	-9.4%	53
49-3021	Automotive Body and Related Repairers	2	1,578	1,874	18.8%	710
49-3022	Automotive Glass Installers and Repairers	2	212	245	15.6%	102
49-3023	Automotive Service Technicians and Mechanics	3	7,720	8,525	10.4%	3,050
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	3	3,309	4,241	28.2%	1,772
49-3041	Farm Equipment Mechanics and Service Technicians	3	253	218	-13.8%	63
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	3	892	991	11.1%	406
49-3043	Rail Car Repairers	2	83	87	4.8%	40
49-3051	Motorboat Mechanics and Service Technicians	3	56	58	3.6%	14
49-3052	Motorcycle Mechanics	3	258	327	26.7%	161
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	2	346	412	19.1%	155
49-3091	Bicycle Repairers	2	87	74	-14.9%	26
49-3092	Recreational Vehicle Service Technicians	2	89	84	-5.6%	31

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
49-3093	Tire Repairers and Changers	2	616	580	-5.8%	210
49-9011	Mechanical Door Repairers	2	103	109	5.8%	45
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	3	164	187	14.0%	83
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	3	2,899	3,360	15.9%	1,347
49-9031	Home Appliance Repairers	3	338	308	-8.9%	118
49-9041	Industrial Machinery Mechanics	3	3,890	4,505	15.8%	1,885
49-9043	Maintenance Workers, Machinery	3	1,174	1,302	10.9%	338
49-9044	Millwrights	3	297	383	29.0%	160
49-9045	Refractory Materials Repairers, Except Brickmasons	2	23	26	13.0%	12
49-9051	Electrical Power-Line Installers and Repairers	3	745	896	20.3%	472
49-9052	Telecommunications Line Installers and Repairers	2	1,249	1,428	14.3%	677
49-9062	Medical Equipment Repairers	3	568	766	34.9%	397
49-9063	Musical Instrument Repairers and Tuners	3	98	89	-9.2%	31
49-9064	Watch Repairers	3	17	16	-5.9%	4
49-9069	Precision Instrument and Equipment Repairers, All Other	3	71	63	-11.3%	14
49-9071	Maintenance and Repair Workers, General	3	13,190	14,047	6.5%	3,763
49-9091	Coin, Vending, and Amusement Machine Servicers and Repairers	2	330	324	-1.8%	84
49-9092	Commercial Divers	3	86	78	-9.3%	28
49-9094	Locksmiths and Safe Repairers	2	51	50	-2.0%	15
49-9095	Manufactured Building and Mobile Home Installers	2	39	47	20.5%	26
49-9096	Riggers	2	74	96	29.7%	41
49-9098	Helpers--Installation, Maintenance, and Repair Workers	2	1,062	1,137	7.1%	412
49-9099	Installation, Maintenance, and Repair Workers, All Other	2	726	869	19.7%	258
51-1011	First-Line Supervisors of Production and Operating Workers	2	7,177	7,433	3.6%	1,699
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	2	277	334	20.6%	147
51-2021	Coil Winders, Tapers, and Finishers	2	108	88	-18.5%	3
51-2022	Electrical and Electronic Equipment Assemblers	2	2,030	1,828	-10.0%	284
51-2023	Electromechanical Equipment Assemblers	2	549	414	-24.6%	17
51-2031	Engine and Other Machine Assemblers	2	737	639	-13.3%	179
51-2041	Structural Metal Fabricators and Fitters	3	1,475	1,602	8.6%	856
51-2091	Fiberglass Laminators and Fabricators	2	125	147	17.6%	59
51-2092	Team Assemblers	2	10,319	10,307	-0.1%	2,382
51-2099	Assemblers and Fabricators, All Other	2	1,460	2,020	38.4%	828

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51-3011	Bakers	2	2,427	2,413	-0.6%	759
51-3021	Butchers and Meat Cutters	2	1,809	1,713	-5.3%	438
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	1	717	648	-9.6%	140
51-3023	Slaughterers and Meat Packers	1	1,175	1,184	0.8%	447
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	2	220	235	6.8%	92
51-3092	Food Batchmakers	2	2,722	2,821	3.6%	1,247
51-3093	Food Cooking Machine Operators and Tenders	2	822	941	14.5%	388
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	3	1,886	2,429	28.8%	1,200
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	3	209	217	3.8%	73
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	2	1,628	1,688	3.7%	649
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	2	231	224	-3.0%	75
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	2	537	496	-7.6%	134
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	2	2,317	2,341	1.0%	472
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	192	133	-30.7%	15
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	1,256	1,328	5.7%	561
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	557	494	-11.3%	140
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	3	320	329	2.8%	122
51-4041	Machinists	3	4,541	5,073	11.7%	1,869
51-4051	Metal-Refining Furnace Operators and Tenders	2	367	332	-9.5%	75
51-4052	Pourers and Casters, Metal	2	282	283	0.4%	110
51-4061	Model Makers, Metal and Plastic	3	46	41	-10.9%	8
51-4062	Patternmakers, Metal and Plastic	3	104	114	9.6%	52
51-4071	Foundry Mold and Coremakers	2	215	189	-12.1%	40
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	2	1,661	1,518	-8.6%	279
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	2,144	2,298	7.2%	910
51-4111	Tool and Die Makers	3	923	959	3.9%	208
51-4121	Welders, Cutters, Solderers, and Brazers	3	4,107	4,884	18.9%	2,113
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	2	679	689	1.5%	276

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	2	284	256	-9.9%	60
51-4192	Layout Workers, Metal and Plastic	2	58	64	10.3%	21
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	2	438	429	-2.1%	143
51-4194	Tool Grinders, Filers, and Sharpeners	2	103	84	-18.4%	12
51-4199	Metal Workers and Plastic Workers, All Other	2	269	350	30.1%	141
51-5111	Prepress Technicians and Workers	3	670	459	-31.5%	80
51-5112	Printing Press Operators	3	3,017	2,481	-17.8%	451
51-5113	Print Binding and Finishing Workers	2	1,108	945	-14.7%	224
51-6011	Laundry and Dry-Cleaning Workers	1	1,483	1,632	10.0%	679
51-6021	Pressers, Textile, Garment, and Related Materials	1	194	181	-6.7%	40
51-6031	Sewing Machine Operators	1	1,459	1,141	-21.8%	378
51-6041	Shoe and Leather Workers and Repairers	2	98	115	17.3%	100
51-6042	Shoe Machine Operators and Tenders	2	44	52	18.2%	55
51-6051	Sewers, Hand	2	748	647	-13.5%	36
51-6052	Tailors, Dressmakers, and Custom Sewers	3	171	179	4.7%	54
51-6061	Textile Bleaching and Dyeing Machine Operators and Tenders	2	78	68	-12.8%	51
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	2	345	277	-19.7%	140
51-6063	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	2	412	237	-42.5%	122
51-6064	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders	2	204	141	-30.9%	61
51-6091	Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	2	142	95	-33.1%	12
51-6092	Fabric and Apparel Patternmakers	3	28	21	-25.0%	1
51-6093	Upholsterers	2	281	285	1.4%	146
51-6099	Textile, Apparel, and Furnishings Workers, All Other	2	130	133	2.3%	26
51-7011	Cabinetmakers and Bench Carpenters	2	2,089	2,002	-4.2%	784
51-7021	Furniture Finishers	1	483	561	16.1%	356
51-7031	Model Makers, Wood	3	50	54	8.0%	12
51-7032	Patternmakers, Wood	3	19	22	15.8%	6
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	2	1,273	1,694	33.1%	997
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	2	1,877	2,440	30.0%	991
51-7099	Woodworkers, All Other	2	25	23	-8.0%	2
51-8011	Nuclear Power Reactor Operators	3	56	60	7.1%	26
51-8012	Power Distributors and Dispatchers	3	114	125	9.6%	55

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-8013	Power Plant Operators	2	342	303	-11.4%	121
51-8021	Stationary Engineers and Boiler Operators	3	514	585	13.8%	293
51-8031	Water and Wastewater Treatment Plant and System Operators	3	1,425	1,453	2.0%	629
51-8091	Chemical Plant and System Operators	2	206	204	-1.0%	123
51-8092	Gas Plant Operators	3	126	141	11.9%	85
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	2	152	167	9.9%	95
51-8099	Plant and System Operators, All Other	2	90	89	-1.1%	38
51-9011	Chemical Equipment Operators and Tenders	2	564	565	0.2%	306
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	2	389	394	1.3%	184
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	2	460	505	9.8%	233
51-9022	Grinding and Polishing Workers, Hand	1	287	298	3.8%	117
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	2	1,719	1,915	11.4%	865
51-9031	Cutters and Trimmers, Hand	2	80	69	-13.8%	12
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	2	869	748	-13.9%	120
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	2	877	870	-0.8%	340
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	2	170	162	-4.7%	65
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	2	4,904	5,055	3.1%	1,424
51-9071	Jewelers and Precious Stone and Metal Workers	3	109	84	-22.9%	6
51-9081	Dental Laboratory Technicians	2	222	236	6.3%	134
51-9082	Medical Appliance Technicians	3	198	180	-9.1%	82
51-9083	Ophthalmic Laboratory Technicians	2	207	198	-4.3%	83
51-9111	Packaging and Filling Machine Operators and Tenders	2	4,807	4,330	-9.9%	993
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	2	1,114	1,297	16.4%	476
51-9122	Painters, Transportation Equipment	2	319	325	1.9%	98
51-9123	Painting, Coating, and Decorating Workers	2	167	156	-6.6%	36
51-9141	Semiconductor Processors	2	129	116	-10.1%	46
51-9151	Photographic Process Workers and Processing Machine Operators	2	213	151	-29.1%	24
51-9191	Adhesive Bonding Machine Operators and Tenders	2	173	189	9.2%	71
51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	2	231	259	12.1%	94

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-9193	Cooling and Freezing Equipment Operators and Tenders	2	247	231	-6.5%	73
51-9194	Etchers and Engravers	2	83	83	0.0%	28
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	2	571	599	4.9%	288
51-9196	Paper Goods Machine Setters, Operators, and Tenders	2	2,781	2,997	7.8%	863
51-9197	Tire Builders	2	135	156	15.6%	76
51-9198	Helpers--Production Workers	2	7,036	7,368	4.7%	2,128
51-9199	Production Workers, All Other	2	926	1,051	13.5%	359
53-1011	Aircraft Cargo Handling Supervisors	2	49	49	0.0%	14
53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	2	1,792	2,044	14.1%	816
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	2	2,101	2,470	17.6%	996
53-2012	Commercial Pilots	3	77	96	24.7%	48
53-2021	Air Traffic Controllers	3	120	112	-6.7%	52
53-2022	Airfield Operations Specialists	3	14	12	-14.3%	6
53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	2	257	371	44.4%	168
53-3021	Bus Drivers, Transit and Intercity	2	329	339	3.0%	101
53-3022	Bus Drivers, School or Special Client	2	6,318	7,222	14.3%	2,501
53-3031	Driver/Sales Workers	2	4,329	4,649	7.4%	1,147
53-3032	Heavy and Tractor-Trailer Truck Drivers	2	22,815	27,531	20.7%	9,519
53-3033	Light Truck or Delivery Services Drivers	2	8,414	8,145	-3.2%	1,328
53-3041	Taxi Drivers and Chauffeurs	1	1,382	1,575	14.0%	472
53-3099	Motor Vehicle Operators, All Other	2	232	283	22.0%	111
53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers	2	27	27	0.0%	8
53-5011	Sailors and Marine Oilers	2	29	38	31.0%	27
53-5021	Captains, Mates, and Pilots of Water Vessels	3	47	54	14.9%	37
53-6011	Bridge and Lock Tenders	1	33	20	-39.4%	3
53-6021	Parking Lot Attendants	2	839	1,106	31.8%	756
53-6031	Automotive and Watercraft Service Attendants	1	539	591	9.6%	224
53-6041	Traffic Technicians	3	17	19	11.8%	9
53-6051	Transportation Inspectors	3	70	61	-12.9%	17
53-6061	Transportation Attendants, Except Flight Attendants	2	255	239	-6.3%	49
53-6099	Transportation Workers, All Other	2	75	85	13.3%	42
53-7011	Conveyor Operators and Tenders	2	425	406	-4.5%	138
53-7021	Crane and Tower Operators	3	381	465	22.0%	235

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
53-7032	Excavating and Loading Machine and Dragline Operators	2	345	413	19.7%	122
53-7033	Loading Machine Operators, Underground Mining	2	16	14	-12.5%	1
53-7051	Industrial Truck and Tractor Operators	2	8,861	10,534	18.9%	4,580
53-7061	Cleaners of Vehicles and Equipment	2	2,636	2,969	12.6%	1,189
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	2	31,179	38,805	24.5%	18,861
53-7063	Machine Feeders and Offbearers	2	1,639	1,612	-1.6%	395
53-7064	Packers and Packagers, Hand	2	10,365	11,631	12.2%	4,533
53-7071	Gas Compressor and Gas Pumping Station Operators	2	108	127	17.6%	84
53-7072	Pump Operators, Except Wellhead Pumps	2	178	181	1.7%	105
53-7073	Wellhead Pumpers	2	77	82	6.5%	63
53-7081	Refuse and Recyclable Material Collectors	2	1,193	1,341	12.4%	533
53-7111	Mine Shuttle Car Operators	2	26	28	7.7%	14
53-7121	Tank Car, Truck, and Ship Loaders	2	116	114	-1.7%	43
53-7199	Material Moving Workers, All Other	2	80	115	43.8%	60

Source: Bureau of Labor Statistics, Occupational Employment Statistics (OES), O*NET OnLine, Pennsylvania Department of Labor & Industry, Oxford Economics Projections

ABOUT THE STATE SYSTEM'S GAP ANALYSIS PROJECT

The Workforce Characteristics Report was produced through a multi-organization collaboration that consisted of Pennsylvania's State System of Higher Education Office of the Chancellor, Oxford Economics USA Inc., and Georgetown University's Center on Education and the Workforce. Oxford Economics completed the analysis and research work for this report, under the guidance of The State System's Office of the Chancellor, the team sought feedback and insight from senior administration and representatives from each of the 14 State System Universities. The team also drew on insight and feedback from subject matter experts involved in labor market intelligence and education program alignment.

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