



Skilled Jobs in Pierce County: Gaps & Opportunities

Full Report, August 2017

Prepared for WorkForce Central by San Diego Workforce Partnership



Partnering in pursuit of **GREATER ECONOMIC VITALITY FOR ALL.**

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EXECUTIVE SUMMARY

This report was commissioned by WorkForce Central to identify promising sectors for skilled jobs (also called “middle-skill jobs”) in Pierce County, and offer solutions to closing the skilled workforce gap. To this end, this report investigates data from Economic Modeling Specialists, International (Emsi), Burning Glass Technologies, Washington State Employment Security Department and other sources.¹ The following findings and recommendations are meant to inform strategies to support skilled employment initiatives.

Key Findings

- Once a worker attains specialized training beyond a high school diploma, their likelihood of becoming employed increases. 2016 data revealed that 5 percent of people age 25-64 with a high school diploma were unemployed, while 4 percent of those age 25-64 with some college or an associate degree were unemployed.
- In 2016 there was an overall surplus of skilled workers, largely driven by specific occupations. Web Developers experienced the highest surplus, with 664 program graduates and only 39 openings. However, many occupations still experienced a worker shortage. The occupation with the highest deficit was Office Clerks, General with 18 graduates and 1,003 openings.
- Employers often find that applicants lack both soft and specialized skills needed for skilled jobs.
- 23 percent of skilled workers will be eligible to retire over the next ten years. Industries will be affected differently by this challenge, with certain occupations experiencing retirement at higher rates than others.
- While men and women obtain skilled employment at similar rates, men typically hold more skilled occupations that require long-term training and apprenticeships. In 2016, the average entry-level earnings for women were \$14.71, while men earned \$15.20 an hour on average.
- Government is the largest employer of skilled workers in 2016 (23,705 employed). This is followed by Health Care (22,789), Construction (12,029) and Advanced Manufacturing (10,868). Other industries of note include Retail Trade, employing 8,016 middle-skill workers and Transportation (7,701 jobs).

Recommendations

Partner with Employers to Upskill High School Graduates & GED Holders

Partnering with employers to supply training to this population will ensure that programs target positions with real demand. Incumbent worker training programs can advance entry-level workers to skilled positions, creating space for new workers. Subsidized employment programs can incentivize employers to provide on-the-job training for new employees that lack the training to enter immediately into skilled positions.

Target Training Programs for Skilled Occupations with High Retirement Projections and Workforce Shortages

Pierce County must be prepared to add and replace skilled workers to keep the skilled jobs gap from widening further. However, the region must take care to promote occupations that are not already experiencing a labor surplus. Industries and occupations highlighted in this report can provide guidance for such initiatives, but it is also important to gather input from key industry employers.

¹ Detailed methodology can be found in Appendix A.

Address the Essential Soft Skills Gap

Incorporating general work-readiness topics into all training programs will help to address the essential (soft) skills gap. Encouraging young workers to seek part-time employment in the Retail or Hospitality sectors can help to develop essential skills for later in their career, decreasing the need for such training in the future.

Centralize Information for Skilled Jobs Opportunities and Qualified Workers

Technical colleges and workforce organizations should either leverage existing online resources or invest in technology to centralize and promote information about skilled jobs. This will require outreach to employers to promote the use of online postings for skilled positions that might not typically recruit through that medium. A consistent centralized database can give employers, job-seekers, training institutions, public organizations and public recruiters the ability to match employee skills with employer needs.

Expand Options Outside of a Four-Year Degree

Short-term training programs, technical education and apprenticeships are all viable options for recent high school graduates who aren't interested in a four-year degree. Efforts should be made to provide more of these opportunities, and to expand public awareness of such programs and their promising career pathways.

Provide Supportive Services for Women

In order to get women into skilled jobs that require more extensive job training and earn higher wages, the region must address barriers that prevent women from completing job training programs. Services that help women with financial needs, childcare, transportation and finding and paying for housing have been proven effective for women to progress in skilled occupations.

INTRODUCTION

Skilled jobs, *known throughout the rest of this report as “middle-skill” jobs*, are occupations that require education beyond high school, but less than a four-year degree.² The term “middle-skill” can be misleading because these jobs frequently require a high level of skill and specialized training. This specialized training is often obtained through a combination of education and on-the-job training, higher education or long-term on-the-job training.

Middle-skill jobs make up the largest portion of the labor market in the United States, yet have the largest skills gap compared to high-skill jobs and low-skill jobs.³ In the United States in 2015, middle-skill jobs made up 53 percent of jobs, but only 43 percent of the labor force met middle-skill requirements.⁴

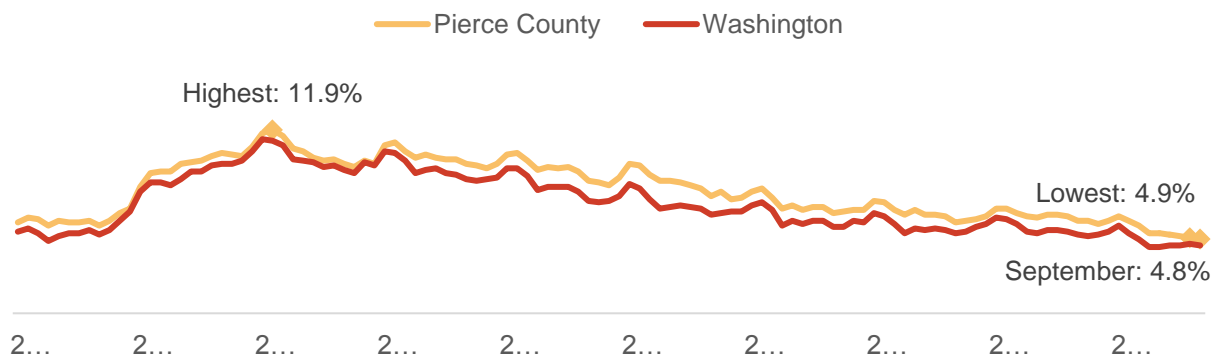
In Washington, meeting labor force demands for middle-skill jobs has been a persisting issue. In 2007, 51 percent of jobs were middle-skill, yet middle-skill workers only accounted for 45 percent of the labor force.⁵ By 2015, 51 percent of jobs were middle-skill and only 44 percent of the labor force was trained to meet middle-skill demand.⁶

The purpose of this report is to identify promising sectors for middle-skill jobs in Pierce County, and offer solutions to closing the middle-skill workforce gap.

EMPLOYMENT TRENDS IN PIERCE COUNTY

The unemployment rate in Pierce County has declined steadily since the height of the Great Recession, when unemployment reached 11.9 percent in February 2010. In fact, at 4.8 percent in September 2017, the unemployment rate is slightly lower than the lowest rate recorded for the region in the last ten years—4.9 percent in August 2017 (Figure 1).⁷

Figure 1: Pierce County Unemployment Rate, June 2007–June 2017, Not Seasonally Adjusted



Correlated with a falling unemployment rate, payroll jobs in Pierce County (as reported by employers to the Bureau of Labor Statistics) have expanded from 342,095 jobs in 2012 to 359,299 jobs in 2016. By

² “Forgotten Middle-Skill Jobs: State by State Snapshots,” National Skills Coalition, February 06, 2017. Retrieved from nationalskillscoalition.org/state-policy/fact-sheets.

³ “Forgotten Middle-Skill Jobs,” National Skills Coalition.

⁴ “United States’ Forgotten Middle,” National Skills Coalition, February 06, 2017. Retrieved from nationalskillscoalition.org/resources/publications/2017-middle-skills-fact-sheets/file/United-States-MiddleSkills.pdf.

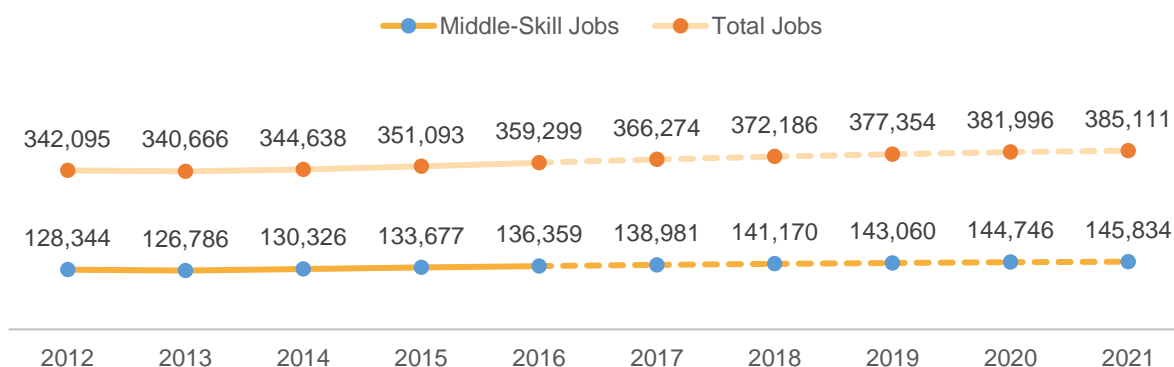
⁵ “Washington’s Forgotten Middle-Skill Jobs: 2009,” National Skills Coalition, 2008. Retrieved from nationalskillscoalition.org/resources/publications/file/skills2compete_forgottenjobsupdatedbrief_wa_2009-10.pdf.

⁶ “Washington’s Forgotten Middle,” National Skills Coalition, February 06, 2017. Retrieved from nationalskillscoalition.org/resources/publications/2017-middle-skills-fact-sheets/file/Washington-MiddleSkills.pdf.

⁷ Washington State Employment Security Department, June 2017.

2021, an additional 25,812 jobs will be created in the workforce; 9,475 of these new jobs are projected to be middle-skill positions (Figure 2).⁸

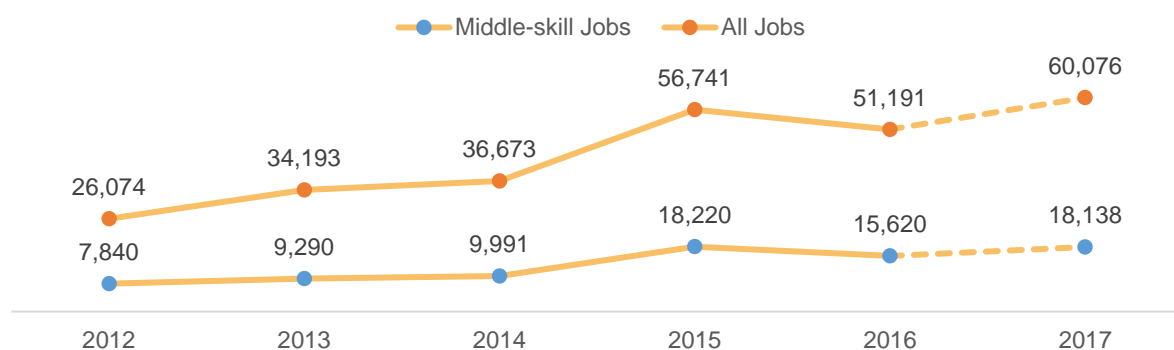
Figure 2: Pierce County Annual Jobs, 2012–2021



In addition to examining jobs that have already been filled, online job postings show how eager employers are to fill vacancies. Online posting more than doubled from 2012 to 2015, and even though they fell slightly in 2016, they are on track to surpass 2015 numbers by the end of 2017 (Figure 3).⁹

In 2016, Middle-skill openings accounted for 30 percent of online postings in Pierce County. While this is more than twice the number of postings in 2012, this number still likely underestimates the actual hiring demand in the county. Sectors such as Construction may not rely on online postings to fill vacancies.

Figure 3: Pierce County Annual Online Job Postings, 2012–2017



While these positive trends show improvements in the local economy, this still leaves approximately 21,000 unemployed as of June 2017.¹⁰ Strategic efforts that promote and train for promising middle-skill occupations can put these people on the road to stable, fulfilling careers that do not require investment in a four-year degree.

⁸ Economic Modeling Specialists, Int'l (Emsi). Quarterly Census of Employment and Wages (QCEW) and Non-QCEW datasets, accessed June 2017.

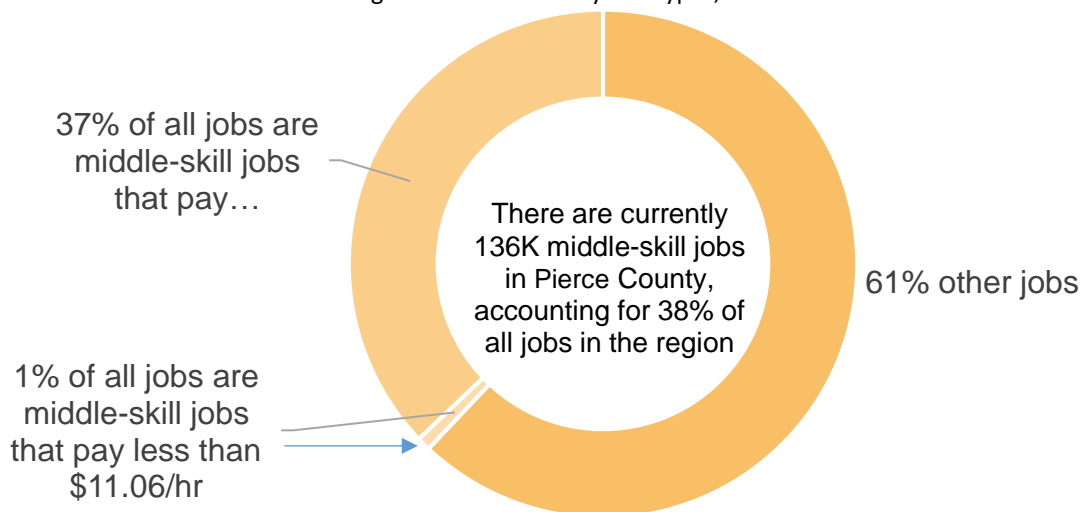
⁹ Labor Insight, BurningGlass Technologies, July 2017. 2017 projections calculated by doubling Jan 2017–June 2017 job postings.

¹⁰ Washington State Employment Security Department, June 2017.

OVERVIEW OF PIERCE COUNTY'S MIDDLE-SKILL ECONOMY

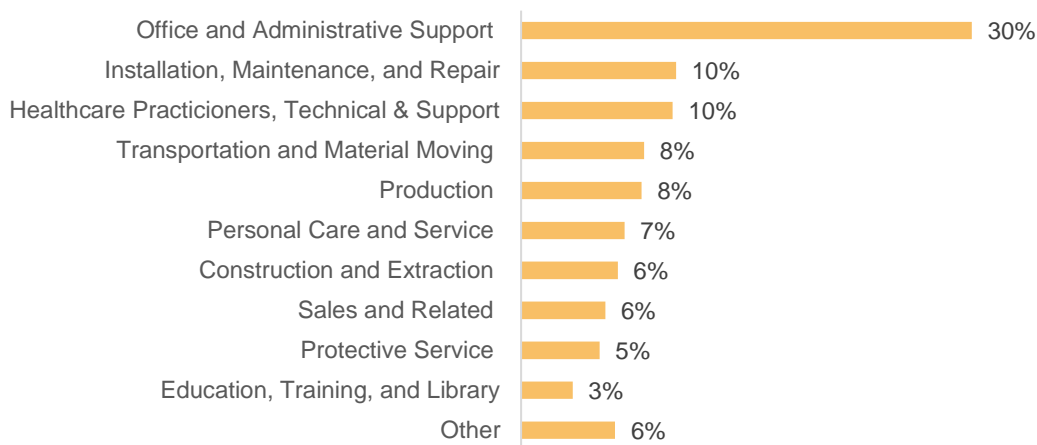
There are currently 136,359 middle-skill jobs in Pierce County, accounting for 38 percent of all jobs in the region.¹¹ Most these jobs offer a median wage that is above Pierce County's self-sufficiency wage of \$11.06 per hour¹² (Figure 4).¹³

Figure 4: Pierce County Job Types, 2016



These jobs are represented by a wide range of occupations, lending themselves to many different skill sets. 30 percent of middle-skill occupations in Pierce County are in Office and Administrative Support, which are stepping stones to higher-level positions in a variety of industries. This is followed by: Installation, Maintenance and Repair; Healthcare Practitioners, Technical & Support; Transportation and Material Moving and Production (Figure 5).¹⁴

Figure 5: Makeup of Pierce County Middle-Skill Jobs by Occupational Cluster 2016



¹¹ A full list of middle-skill occupations in Pierce County can be found in Appendix B.

¹² This is the amount required for self-sufficiency of a single adult, according to the Self-Sufficiency Standard published by the University of Washington Center for Women's Welfare. Retrieved from selfsufficiencystandard.org/node/4.

¹³ Emsi, July 2017.

¹⁴ Emsi, June 2017.

CHALLENGES IN FILLING MIDDLE-SKILL JOBS

Middle-skill occupations are promising career entry points for much of the Pierce County working-age population, yet labor market information and employer testimonials point towards labor shortages and a skills gap.

Supply/Demand Mismatch of Middle-Skill Workers

In 2016, 12,982 people completed regional training programs to prepare for middle-skill occupations. However, there were only 6,417 middle-skill job openings reported.¹⁵ While this makes it seem like there is an overwhelming abundance of middle-skill workers, there is sometimes a mismatch between the occupations with high need and the occupations where individuals pursue training.

In-demand middle-skill occupations such as Web Developers, Computer Network Support Specialists and Computer User Support Specialists had high regional completions compared to openings in 2016. Web Developers, for example, had 664 regional completions and only 39 openings (Table 1).¹⁶ In 2016 there were 4,820 graduates who completed a training program in a middle-skill occupation with a surplus.

Meanwhile, in 2016, there were 13,310 middle-skilled jobs experiencing a labor shortage. Occupations such as Office Clerks and Heavy and Tractor-Trailer Truck Drivers had more annual openings than regional completions. It should be noted that in some cases there may seem to be a deficit because a certification or degree is not required for entry into a specific occupation. However, they are a good starting place for deeper investigation. Employers may need support from a training program where none currently exists.

Table 1: Occupations with Highest Labor Surplus/Shortage, 2016*

Occupations	Annual Openings	Regional Completions	Shortage/ Surplus
Office Clerks, General	1,003	18	(985)
Heavy and Tractor-Trailer Truck Drivers	653	55	(598)
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	601	9	(592)
Customer Service Representatives	887	15	(872)
Teacher Assistants	439	13	(426)
Web Developers	39	703	664
Computer Network Support Specialists	21	450	429
Computer User Support Specialists	111	450	339
Phlebotomists	33	296	263
Tax Preparers	28	231	203

*See Appendix C for list of all occupations that experienced a shortage in 2016. See Appendix D for those that experienced a surplus.

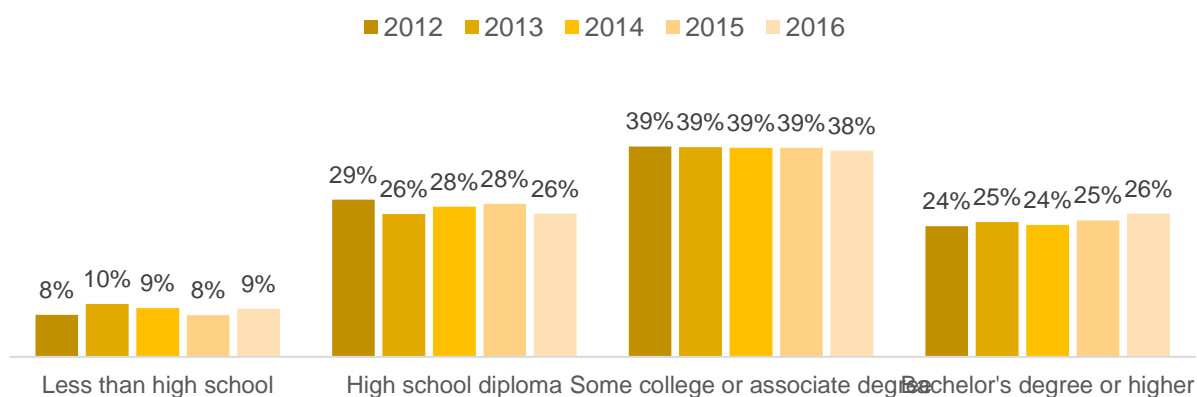
¹⁵ Emsi, July 2017. Completions calculated from National Center for Education Statistics (NCES) and the Integrated Postsecondary Education Data System (IPEDS).

¹⁶ Emsi, July 2017.

Limited Educational Attainment

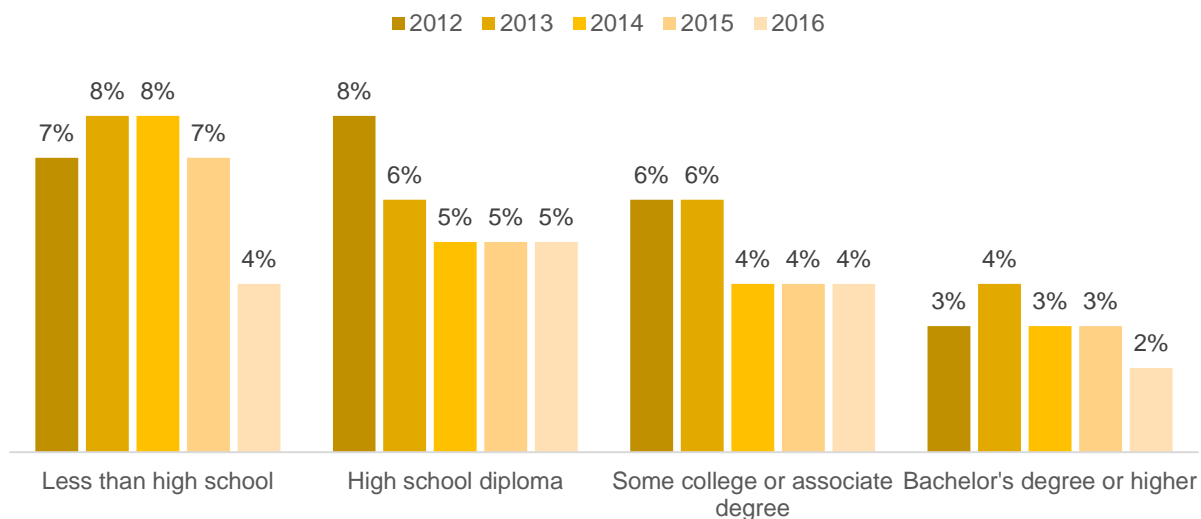
In 2016, 38 percent of the population age 25-64 had attained some college or an associate degree, while an additional 26 percent possessed a high school diploma (Figure 6).¹⁷ Additionally, 9 percent of people in this age range still do not have a high school diploma or equivalent. These proportions have remained virtually unchanged over the past five years, and will likely stay consistent without targeted strategies to increase high school graduation and specialized training after high school.

Figure 6: Percentage of Pierce County Education Level by Population, Age 25-64



Once a worker attains specialized training beyond a high school diploma, their likelihood of becoming employed increases. In some cases, workers who attain specialized training beyond a high school diploma can still be unemployed. Unemployment rates by educational attainment in 2016 revealed that five percent of people age 25-64 with a high school diploma were unemployed, while four percent of those age 25-64 with some college or an associate degree were unemployed.¹⁸

Figure 7: Percent Unemployed in Pierce County by Educational Attainment, Age 25-64



¹⁷ U.S. Census Bureau American Fact Finder, July 2017.

¹⁸ U.S. Census Bureau American Fact Finder, July 2017. This source does not provide unemployment rates by education level for 16-24-year-olds.

Unemployment among holders of high school diplomas could point towards a lack of graduates going into training programs for middle-skill jobs. Additionally, unemployment among those who have some college or an associate degree could mean too many people are training for middle-skill jobs with workforce surpluses, or that they simply have limited access to knowledge about middle-skill job opportunities.

Essential Skill Deficits

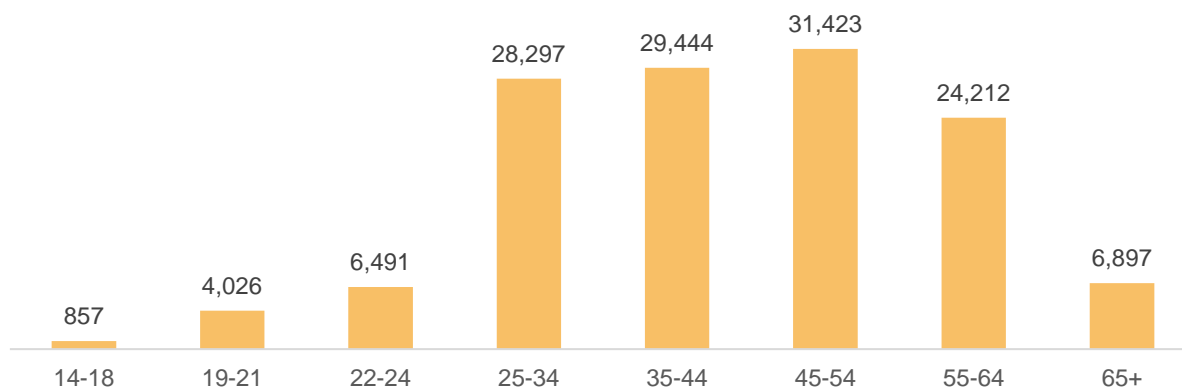
It is well documented that employers face challenges when it comes to employing candidates with the right skills. Research, including that conducted in Pierce County, finds that many job applicants lack essential soft skills for workplace success, such as communication, understanding of workplace etiquette and time-management. Additionally, employers acknowledge that as the labor market tightens it becomes increasingly difficult to find highly qualified candidates in abundant applicant pools.¹⁹

Similarly, a national study commissioned by Accenture, BurningGlass and Harvard Business School found that even with surplus of local talent, industries still experience challenges in finding qualified candidates for middle-skill jobs. 44 percent of executives indicated that it was difficult to fill jobs because candidates lacked soft skills like communication and critical thinking.²⁰

Retiring Workforce

In Washington, the number of people aged 65 and older is projected to increase by 62 percent over the next 15 years, from 965,506 to 1,563,901.²¹ In Pierce County, 6,897 middle-skill workers are currently 65 or over, and 24,212 more will be eligible to retire over the next 10 years (Figure 8).²² In all, this accounts for 23 percent of the region's middle-skill workers.

Figure 8: Middle-Skill Workers in Pierce County by Age, 2016



Currently, people aged 14-24 account for only 11,392 middle-skill workers. Encouraging this age range to consider middle-skill occupations as they enter the workforce will ensure a strong pipeline for the future.

Lack of Available Information

A study on middle-skill jobs found that the quality of information available to employers, educators and job seekers in the U.S. is poor compared to other developed countries. This results in limited guidance for job seekers on which courses to study, how to compare between entry-level jobs for their long-term career paths and wages and which skills local businesses were seeking.²³ For employers this means a lack of access to qualified applicants.

¹⁹ Diana Harring, Mechaela Jellicoe & Alexandra Streamer, "Skills Gap Analysis & Sector Strategies," WorkForce Central, August 2016. Retrieved from www.workforce-central.org/home/showdocument?id=3127.

²⁰ "Bridge The Gap: Rebuilding America's Middle Skills," Accenture, Burning Glass & Harvard Business School, November 2016.

²¹ "Washington Senior Guide," Senior Care, February 2017. Retrieved from <https://www.seniorcare.com/directory/wa/>.

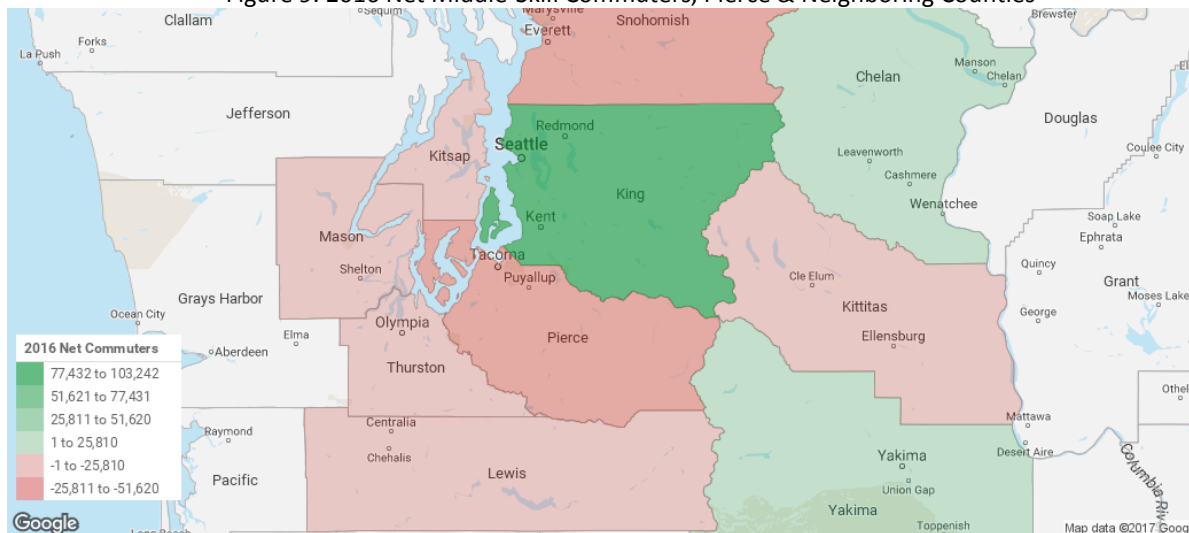
²² Emsi, April 2017.

²³ "Bridge The Gap," Accenture, Burning Glass, Harvard Business School.

Competition from Other Counties

Employers compete with King County for qualified middle-skill workers, where wages tend to be higher and well-known companies attract candidates.²⁴ In 2016, 26,152 more middle-skill workers commuted out of Pierce County than in. Meanwhile, King county had 103,242 more commuting in than out (Figure 9).²⁵

Figure 9: 2016 Net Middle-Skill Commuters, Pierce & Neighboring Counties



Lower housing prices in Pierce County attract many Seattle workers to live there, and that number is expected to grow.²⁶

Women as An Underutilized Resource

In 2016, women made up 51 percent of Pierce County's middle-skill labor force (69,092 jobs) while men accounted for 49 percent (66,659 jobs). In terms of educational requirements for middle-skill jobs, which range from high school diploma to an associate degree, men and women are employed at roughly the same proportion.

However, men are disproportionately employed in middle-skill occupations that require apprenticeship or long-term training (Figure 10).²⁷ Some of these jobs with extensive training include Maintenance and Repair Workers, Carpenters and Electricians. Women, on the other hand, are employed in middle-skill occupations that require short-term training to no training.

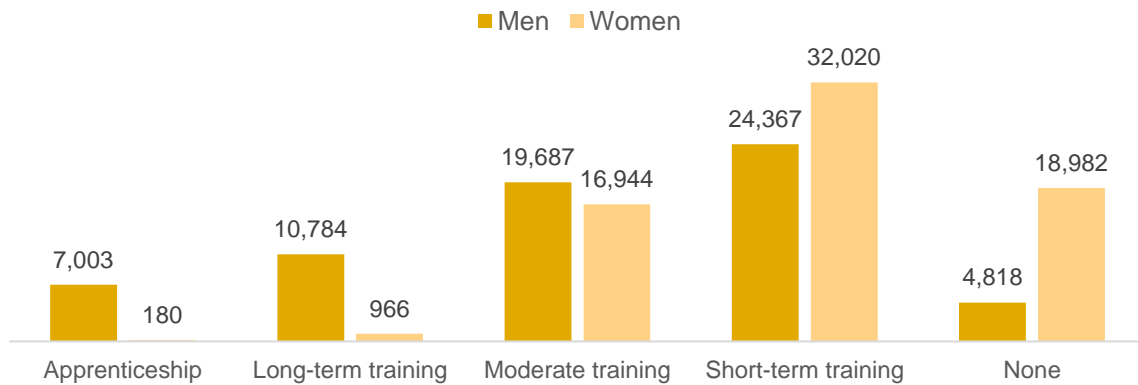
²⁴ Haring, Jellicoe & Streamer, "Skills Gap Analysis & Sector Strategies."

²⁵ Emsi, June 2017.

²⁶ "Pierce County Set to See More Jobs in 2017, Forecast Says," The News Tribune, January 11, 2017. Retrieved from www.thenewstribune.com/news/business/economy/article125922989.html.

²⁷ Emsi, April 2017.

Figure 10: Pierce County Middle-Skill Jobs by Required Training and Gender, 2016



Women also tend to enter middle-skill jobs that are traditionally considered female occupations, such as Office Clerks, Secretaries, Childcare Workers and Nursing Assistants. In 2016, even though women made up 51 percent of those employed in middle-skill jobs, their average entry-level earnings were \$14.71, while men earned \$15.20 an hour on average. Studies have shown that a high number of middle-skill occupations, particularly those that are better paid, are predominantly male and nontraditional for women.²⁸ A study from the Institute for Women's Policy Research focused on challenges individuals face in completing training, finding that women face financial difficulties and inadequate childcare. When women were provided with financial and childcare assistance, they completed job training programs at far higher numbers.²⁹

INDUSTRY OPPORTUNITIES IN SKILLED JOBS

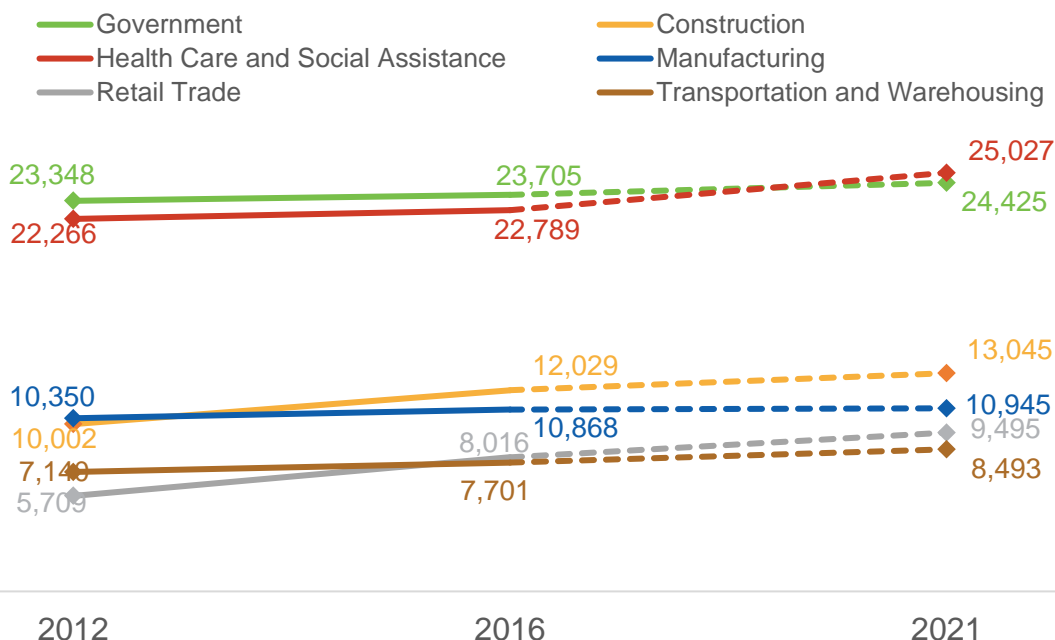
Employers across industries experience the challenges of filling middle-skill jobs. However, some industries increasingly need workers with specialized technical skills. While termed "middle-skill" because of the educational requirements, these are actually highly-skilled positions that may command higher salaries because of the more intensive training requirements. Figure 11 shows key industries in Pierce County that are projecting growth in middle-skill jobs.³⁰ The following section highlights in-demand middle-skill jobs in these sectors. Career pathways for each sector can be found in Appendix E, while more detailed profiles of twelve of these positions can be found in Appendix F and a list of local training initiatives is in Appendix G.

²⁸ M. Bendick Jr., B. Gault, H. Hartmann & A. Hegewisch, "Pathways to Equity: Narrowing the Wage Gap by Improving Women's Access to Good Middle-Skill Jobs," Institute for Women's Policy Research, March 2016. Retrieved from <https://womenandgoodjobs.org/women-middle-skill-jobs/>.

²⁹ B. Gault, A. Hegewisch, C. Hess & E. Williams-Baron, "Supportive Services in Workforce Development Programs: Administrator Perspectives on Unmet Needs," Institute for Women's Policy Research, December 2016. Retrieved from <https://iwpr.org/publications/supportive-services-in-workforce-development-programs-administrator-perspectives-on-availability-and-unmet-needs/>.

³⁰ Emsi, June 2017.

Figure 11: Pierce County Middle-Skill Job Growth by Industry, 2012-2021



Government

Government, made of the public agencies that provide services for citizens, is Pierce County's largest employer of middle-skill workers. In 2016 Government employed a total of 23,705 middle-skill workers, an increase of 368 workers from 2012. By 2021, this sector is expected to employ an additional 710 middle-skill workers.³¹

Skilled occupations in this sector range from administrative and teaching roles to highly trained public safety employees that command wages that are approximately twice as high (Table 2).³² Teacher Assistants had the highest employment numbers in 2016, with 2,697 workers, but all of these key positions reach into or near the thousands.

Table 2: Top Five Middle-Skill Occupations in Government (by number employed)

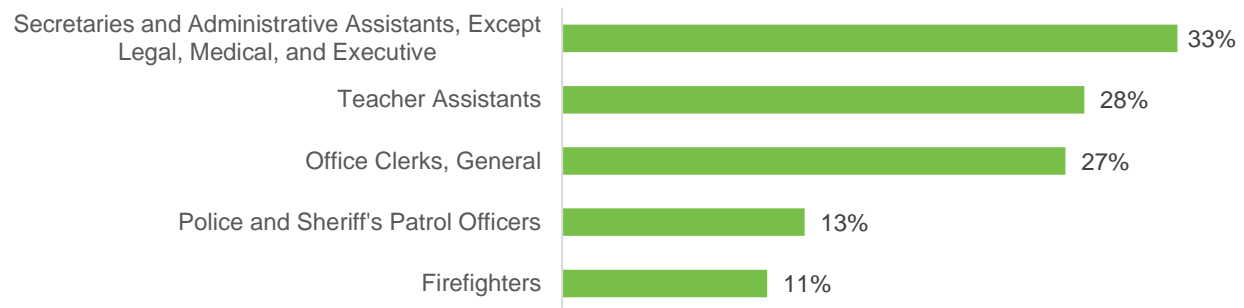
Occupations	Employed 2016	Employed 2021	Change 2016-2021	Median Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Teacher Assistants	2,697	2,858	161	\$15.92	Some college, no degree	None
Office Clerks	1,614	1,668	54	\$16.14	High school diploma	Short-term
Secretaries and Administrative Assistants	1,289	1,342	53	\$18.88	High school diploma	Short-term
Firefighters	1,004	1,047	43	\$37.50	Postsecondary non-degree award	Long-term
Police and Sheriff's Patrol Officers	940	1,003	63	\$36.43	High school diploma	Moderate-term

³¹ Emsi, January 2017.

³² Emsi, January 2017.

While relatively few new positions are projected, retirement will be key in determining demand for this middle-skill workforce. 33 percent of Administrative Assistants will be eligible to retire in the next ten years, creating 890 openings for new workers (Figure 12). Though the percentage of eligible retirements for Police Officers and Firefighters is much lower, they will still create over 100 positions each.

Figure 12: Percent of Workers 55+ in Key Government Positions, 2016



Health Care

The Health Care sector, comprised of both medical care givers and support occupations, employs 48,471 people in Pierce County. 22,789 of those jobs (47 percent), are middle-skill, and by 2021 this number is projected to increase to 25,027.³³ As demand for health services increases, it will be essential to prepare a highly-skilled workforce to provide the best care possible.

Nursing Assistants make up the largest portion of middle-skill employees in Health Care, employing 2,385 people. Licensed Practical and Licensed Vocational Nurses, the next career step, employ 1,340. Together, these two occupations comprise 16 percent of all middle-skill Health Care jobs and are crucial for meeting patients' daily needs (Table 3).³⁴

Another 19 percent of middle-skill Health Care occupations are represented by clerical support staff positions, including information clerks, medical assistants and medical secretaries. These types of jobs require fluency in the intricate language of medical coding and specialized skills in medical software such as MEDITECH and medical procedure coding software.³⁵

Table 3: Top Five Middle-Skill Occupations in Health Care (by number employed)

Occupations	Employed 2016	Employed 2021	Change 2016-2021	Median Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Nursing Assistants	2,385	2,697	312	\$13.66	Post secondary non-degree award	None

³³ Emsi. June 2017.

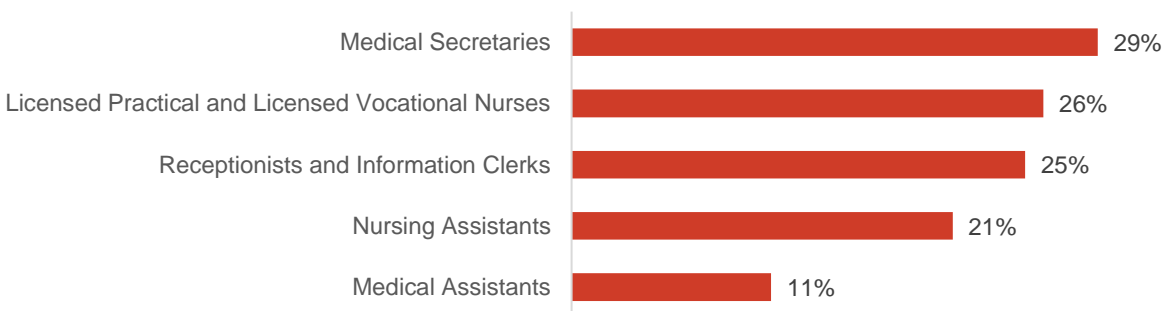
³⁴ Emsi. June 2017.

³⁵ O*NET Online. April 2017.

Licensed Practical and Licensed Vocational Nurses	1,340	1,484	144	\$23.63	Post secondary non-degree award	None
Receptionists and Information Clerks	1,338	1,507	169	\$14.05	High school diploma	Short-term
Medical Assistants	1,254	1,436	182	\$17.30	Postsecondary non-degree award	None
Medical Secretaries	1,218	1,380	162	\$18.99	High school diploma	Moderate-term

In addition to the 969 new jobs projected in these occupations over the next five years, a retiring workforce will create additional urgency in hiring these key positions. 29 percent of Medical Secretaries are eligible to retire in the near future, followed by Licensed Practical and Licensed Vocational Nurses (26 percent), Receptionists and Information Clerks (25 percent) and Nursing Assistants (21 percent) (Figure 13).³⁶

Figure 13: Percent of Workers 55+ in Key Health Care Positions, 2016



Construction

Out of 24,187 Construction workers in 2016, 12,029 were in middle-skill occupations. By 2021, Construction will employ an additional 1,015 net middle-skill workers.³⁷ This industry relies on highly-specialized tradesmen and women, and frequently utilizes apprenticeship programs to deliver training. Apprenticeships often follow an earn-while-you-learn model, where classroom training is free for participants, and is combined with on-the-job experience for which they earn wages. The average Carpenter apprentice, for example, starts at \$16.15/hour, and makes about \$22.83/hour after finishing their apprenticeship.³⁸

Carpenters, Electricians and Plumbers, Pipefitters, and Steamfitters employ the highest number of workers in this industry, and all typically require an apprenticeship for career entry (Table 4).³⁹ Among the three of them, 316 new jobs will be added in the next five years. Median annual wages among the five

³⁶ Emsi, July 2017.

³⁷ Emsi, January 2017.

³⁸ Emsi, April 2017.

³⁹ Emsi, January 2017.

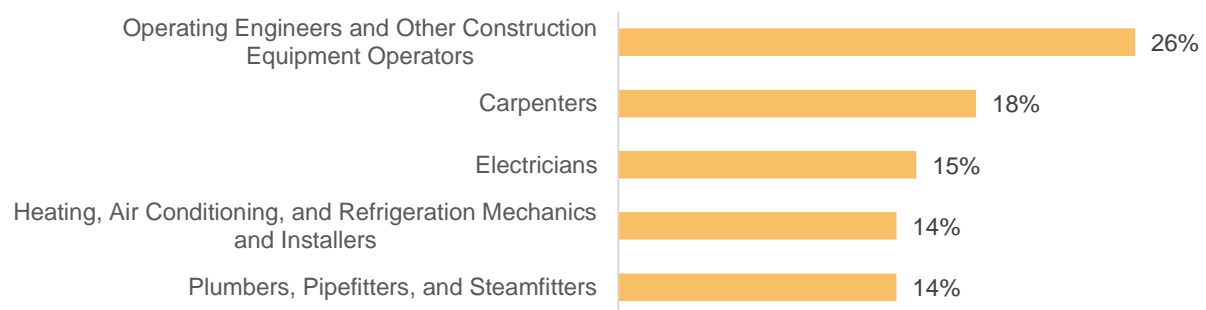
listed occupations range from \$44,116 for carpenters to \$67,246 for Plumbers, Pipefitters and Steamfitters.

Table 5: Top Five Middle-Skill Occupations in Construction (by number employed)

Occupations	Employed 2016	Employed 2021	Change 2016-2021	Median Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Carpenters	2,993	3,107	114	\$21.21	High school diploma or equivalent	Apprenticeship
Electricians	1,589	1,685	96	\$27.72	High school diploma or equivalent	Apprenticeship
Plumbers, Pipefitters and Steamfitters	881	987	106	\$32.33	High school diploma or equivalent	Apprenticeship
Heating, A/C and Refrigeration Mechanics and Installers	660	753	93	\$29.19	Post secondary non-degree award	Long-term
Operating Engineers and Other Construction Equipment Operators	609	686	77	\$29.87	High school diploma or equivalent	Moderate-term

Retirement challenges are present in this industry, though are slightly less urgent than other industries. This challenge is most present for Operating Engineers and Other Construction Equipment Operators, facing a 26 percent workforce depletion due to retirement over the next ten years (Figure 14).⁴⁰

Figure 14: Percent of Workers 55+ in Key Construction Positions 2016



⁴⁰ Emsi, June 2017.

A key challenge for the Construction industry in shoring up the middle-skill pipeline is the underutilization of women in the workforce. Just three percent of middle-skill construction positions are filled by women. Increasing outreach to women will help to expand the pool of qualified candidates for these roles.

3% of middle-skill construction positions are filled by women.

Apprenticeship Programs in Pierce County

Bates Technical College offers state-approved apprenticeship programs in construction fields. Additionally, apprentices can earn a degree in Apprenticeship Studies, which are a great option for those that want to pursue management positions.

Tacoma Public Utilities provides apprenticeship training for Line Electricians, Wire Electricians and Meter & Relay Technicians. Each program requires a minimum of three and a half years to complete classroom training and on-the-job training. Apprentice Line Electricians, for example, get paid around \$32.48–\$38.46/hr. See Appendix G for more information on apprenticeship programs in Pierce County.

Advanced Manufacturing

Advanced Manufacturing uses innovative technologies to improve existing products or create new ones. Typically, advanced manufacturing activities depend on automation, computation, software, sensing and networking.⁴¹ In Pierce County, Aerospace manufacturing is a growing contributor to this sector. Facilities within the county produce a number of aircraft parts for Boeing Company, with facilities in nearby counties.⁴²

In 2016, Advanced Manufacturing employed a total of 10,868 middle-skill workers. Team Assemblers had the highest employment, with 638 workers (Table 5)⁴³. Computer-Controlled Machine Tool Operators offered the highest median wage of these key positions, at \$61,921 annually.

Table 4: Top Five Middle-Skill Occupations in Advanced Manufacturing (by number employed)⁴⁴

Occupations	Employed 2016	Employed 2021	Change 2016- 2021	Median Hourly Earnings	Typical Entry Level Education	Typical On-The- Job Training
Team Assemblers	638	652	14	\$15.98	High school diploma	Moderate-term
Machinists	532	598	66	\$26.85	High school diploma	Long-term

⁴¹ Glossary of Advanced Manufacturing Terms, manufacturing.gov. Retrieved from <https://www.manufacturing.gov/news-2/news/glossary-of-advanced-manufacturing-terms/>.

⁴² Vleming, Jim, "Pierce County Profile."

⁴³ Emsi, January 2017.

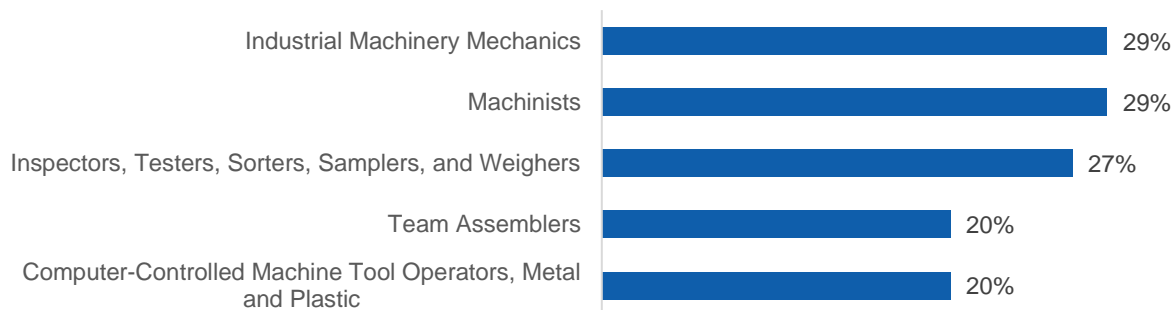
⁴⁴ These five occupations were selected from the top ten. Heavy and Tractor-Trailer Truck Drivers and Cabinetmakers and Bench Carpenters, fourth and fifth by number employed, are projected to have declining demand for jobs in this industry over the next five years. Sales Representatives are seventh, but are only projected to add one job.

Inspectors, Testers, Sorters, Samplers and Weighers	436	448	12	\$25.11	High school diploma	Moderate-term
Computer-Controlled Machine Tool Operators, Metal and Plastic	376	431	55	\$29.77	High school diploma	Moderate-term
Industrial Machinery Mechanics	322	355	33	\$27.38	High school diploma	Long-term

While projections for new positions in this industry are slower than others—by 2021 only 180 positions will be added in these key occupations, and the industry overall will only have created a net of 77 middle-skill positions—the threat to the workforce from retirements is proportionally larger.⁴⁵

Each of these key positions anticipates a 20 percent or greater decline in workforce due to retirement in the next ten years (Figure 15).⁴⁶ While the absolute figure (approximately 568 workers) is not necessarily the largest of all industries, losing a higher proportion of the skilled workforce poses a greater challenge to retaining institutional memory and having people on hand to train newer workers.

Figure 15: Percent of Workers 55+ in Key Advanced Manufacturing Positions, 2016



Retail Trade

Occupations in Retail Trade surround the buying and selling of merchandise, and the support occupations that help to keep inventories in order and customers happy. While on the lower end of employment numbers for key middle-skill industries (8,016 jobs), Retail Trade is the fastest growing, projecting 18 percent growth in the next five years (Figure 11). Low-skill positions in the Retail Trade sector are frequent starting points for workers, but there are also entry points in middle-skill positions that offer higher than minimum wages.

⁴⁵ Emsi, January 2017.

⁴⁶ Emsi, July 2017.

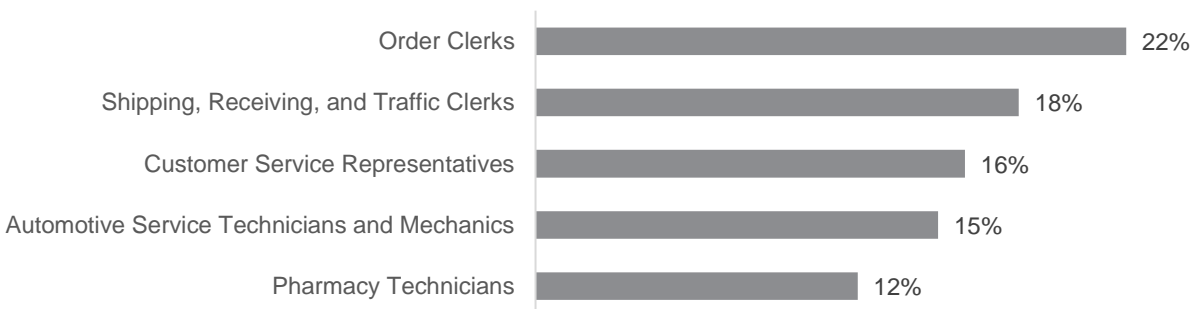
Customer Service Representatives have the highest middle-skill employment in Retail Trade, requiring only a high school diploma for entry and paying a median wage of \$15.96, well above the self-sufficiency wage of \$11.06 (Table 7).

Table 7: Top Five Middle-Skill Occupations in Retail Trade (by number employed)

Occupations	Employed 2016	Employed 2021	Change 2016-2021	Median Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Customer Service Reps.	1,038	1,390	352	\$15.96	High school diploma	Short-term
Automotive Service Technicians and Mechanics	910	978	68	\$19.95	Post secondary non-degree award	Short-term
Shipping, Receiving and Traffic Clerks	551	720	169	\$16.29	High school diploma	Short-term
Order Clerks	452	605	153	\$17.68	High school diploma	Short-term
Pharmacy Technicians	507	596	89	\$19.73	High school diploma	Moderate-term

In addition to the 352 new positions projected for Customer Service Representatives, 16 percent of the current workforce will be eligible for retirement in the next ten years (Figure 16).⁴⁷ Retirement is a concern for the other top employed middle-skill jobs as well, especially for Order Clerks, where 22 percent workforce attrition is expected due to retirement.

Figure 16: Percent of Workers 55+ in Key Construction Positions 2016



⁴⁷ Emsi, June 2017.

Retail Pathway Spotlight: Banking

BankWork\$ is a banking career program funded by WorkForce Central. The 8-week program provides job training, job placement and ongoing coaching for career advancement in the banking industry. Once individuals graduate for the program they will be ready for positions as Tellers, Customer Service Representatives and Personal Bankers.

Occupations in Banking exemplify a promising career pathway in the Retail Trade sector. Those who are interested in beginning a career in banking will start as a Teller, as they progress they have the opportunity to move up to a Financial Manager or Financial Examiner. Additionally, a career in banking offers a variety of opportunities in middle-skill jobs.

See Appendix G for more information on the BankWork\$ program.

Transportation

The Transportation sector in Pierce County employed 7,700 middle-skill workers in 2016, an eight percent increase from 2012. Supported by infrastructure investments in the Port of Tacoma, this growth is expected to continue, expanding by another seven percent in the next five years (797 jobs).⁴⁸

While the Transportation sector involves businesses that move people and goods by land, sea or air, the majority of middle-skill employment involves ground transportation. Heavy and Tractor-Trailer Truck Drivers had the highest middle-skill employment and median wages in 2016, with 3,215 employed at a median of \$44,428 per year (Table 6).⁴⁹ This position requires specialized skills software such as ALK Technologies PC*Miler, which supports efficient routing, precise mileage, drive time calculations, and accurate rates for lane analysis and driver pay.⁵⁰ Other key occupations include clerks and dispatchers, who are responsible for tracking and verifying cargo and coordinating the movement of vehicles.

Table 6: Top Five Middle-Skill Occupations in Transportation (by number employed)

Occupations	Employed 2016	Employed 2021	Change 2016-2021	Median Hourly Earnings	Typical Entry Level Education	Typical On-The- Job Training
Heavy and Tractor- Trailer Truck Drivers	3,215	3,434	219	\$21.36	Post secondary non-degree award	Short-term
Light Truck or Delivery Services Drivers	748	894	146	\$17.70	High school diploma	Short-term
Bus Drivers	315	329	14	\$18.18	High school diploma	Short-term

⁴⁸ Vleming, Jim, "Pierce County Profile."

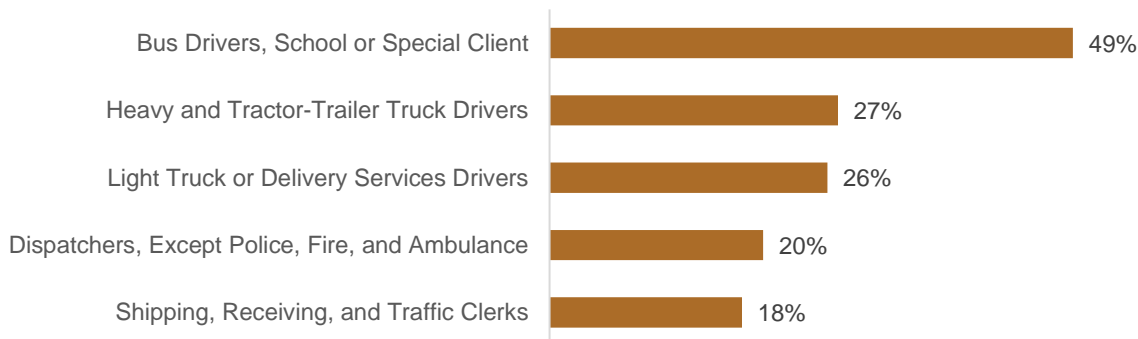
⁴⁹ Emsi, January 2017.

⁵⁰ O*NET Online, April 2017.

Shipping, Receiving and Traffic Clerks	265	304	39	\$16.29	High school diploma	Short-term
Dispatchers	262	284	22	\$20.55	High school diploma	Moderate- term

The Transportation sector is also experiencing challenges due to an aging workforce, with Bus Drivers taking the biggest hit in the next ten years (Figure 17).⁵¹ 49 percent of Bus Drivers are expected to retire, which is almost twice as high as any other key position in the sector. Retirements in this occupation alone will result in approximately 1,575 open positions in the coming years.

Figure 17: Percent of Workers 55+ in Key Transportation Positions, 2016



Training Spotlight: Goodwill Industries

Goodwill Industries provides a skills training program in Warehousing, Transportation and Logistics fields (Warehouse & Logistic Training Program). A 10-week program taught at Tacoma Community College uses interactive video technology to teach students basic computer skills, customer service and work-readiness. In addition to classroom training, students can get forklift certification and work experience at an employer's location that can last anywhere from 3-6 weeks.

The program also helps with placement assistance and does not charge individuals with the cost of training. For information on how to get started, refer to Appendix G.

CONCLUSIONS & RECOMMENDATIONS

Opportunities for middle-skill workers in Pierce County are abundant and varied. As an expanding economy, projected retirements and competition from neighboring regions are all placing additional demand on this workforce segment, public agencies, training institutions and employers must work together to create strategic initiatives that foster a steady and well-trained supply of middle-skill workers. The following research-based recommendations outline potential focus areas for such initiatives.

Partner with Employers to Upskill High School Graduates & GED Holders

Data shows that 26 percent of those age 25-64 have earned a high school diploma, yet 5 percent remain unemployed. Partnering with employers to supply training to this population will ensure that programs target positions with real demand. Incumbent worker training programs can advance entry-level workers

⁵¹ Emsi, July 2017.

to middle-skill positions, creating space for new workers. Subsidized employment programs can incentivize employers to provide on-the-job training for new employees that lack the training to enter immediately into middle-skill positions.

Target Training Programs for Middle-Skill Occupations with High Retirement Projections and Workforce Shortages

Pierce County must be prepared to add and replace middle-skill workers to keep the middle-skill gap from widening further. However, the region must take care to promote occupations that are not already experiencing a labor surplus. Industries and occupations highlighted in this report can provide guidance for such initiatives, but it is also important to gather input from key industry employers.

Address the Soft Skills Gap

Not only do job seekers lack the specialized skills required for middle-skill jobs, they also lack the soft skills necessary to obtain and retain middle-skill employment. Incorporating general work-readiness topics into all training programs will help to address the soft skills gap. Encouraging young workers to seek part-time employment in the Retail or Hospitality sectors can help to develop soft skills for later in their career, decreasing the need for such training in the future.

Centralize Information for Middle-Skill Opportunities and Qualified Workers

Often times students and job seekers are unaware of middle-skill opportunities, while employers lack access to skilled and qualified candidates. To address this, technical colleges and workforce organizations should either leverage existing online resources or invest in technology to centralize and promote information about middle-skill jobs. This will require outreach to employers to promote the use of online postings for middle-skill positions that might not typically recruit through that medium. Middle-skill labor market resources would empower students and job seekers with more information about career pathways. A consistent centralized database can give employers, job-seekers, training institutions, public organizations and public recruiters the ability to match employee skills with employer needs.⁵²

Expand Options Outside of a Four-Year Degree

Short-term training programs, technical education and apprenticeships are all viable options for recent high school graduates who are not interested in a four-year degree. Efforts should be made to provide more of these opportunities, and to expand public awareness of such programs and their promising career pathways.⁵³

Provide Supportive Services for Women

Women already work in middle-skill occupations that require short-term or no on-the-job training. In order to get women into middle-skill jobs that require more extensive job training and earn higher wages, the region must address barriers that prevent women from completing job training programs. Services that help women with financial needs, childcare, transportation and finding and paying for housing have been proven effective for women to progress in middle-skill occupations.⁵⁴

⁵² "Bridge The Gap: Rebuilding America's Middle Skills," Accenture, Burning Glass & Harvard Business School.

⁵³ Rachel Stephens, "Mind the Gap: The State of Skills in the U.S.," Third Way, July 10, 2017. Retrieved from thirdway.org/report/mind-the-gap-the-state-of-skills-in-the-us.

⁵⁴ B. Gault, A. Hegewisch, C. Hess & E. Williams-Baron, "Supportive Services in Workforce Development Programs."

APPENDIX A: SKILLED JOBS METHODOLOGY

For this report, skilled or middle-skill jobs were identified using data from Economic Modeling Specialists, Intl. (Emsi). Jobs were classified using entry-level education and on-the-job training requirements. All classes of workers, employees and self-employed, were included for analysis. The table below breaks down the classification used to identify middle-skill occupations for analysis. Additionally, any middle-skill occupation that had fewer than 10 annual openings or insufficient data were not included in the analysis.

Middle-Skill Parameters

Entry level education	On-the-Job Training
Associate degree	Any
Postsecondary no degree award	Any
Some college, no degree	Any
High school diploma or equivalent	Short-Long term training, apprenticeship

Middle-skill occupations referenced in the report are highlighted because of their high earning potential (average hourly earnings). If a middle skill occupation did not have average hourly earnings above Pierce County's self-sufficiency wage of \$11.06 per hour, it was not included in the report (but was included in analysis).

Although there are many industries that have middle-skill occupations, industries that provide in-demand middle-skill jobs and are projected to grow are highlighted in this report. These sectors are the major sources of middle-skill employment in Pierce County. The following NAICS designations were used to identify middle-skill occupations in each industry:

2-digit NAICS Code	Industry
23	Construction
31-33	Manufacturing
44-45	Retail Trade
48-49	Transportation & Warehousing
62	Health Care & Social Assistance
90	Government

APPENDIX B: COMPLETE LIST OF SKILLED JOBS IN PIERCE COUNTY⁵⁵

Occupation	Annual Openings	Avg. Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Customer Service Representatives	321	\$16.81	High school diploma	Short-term
Office Clerks, General	299	\$16.34	High school diploma	Short-term
Heavy and Tractor-Trailer Truck Drivers	207	\$22.25	Postsecondary non-degree award	Short-term
Carpenters	189	\$23.43	High school diploma	Apprenticeship
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	171	\$30.85	High school diploma	Moderate-term
Social and Human Service Assistants	154	\$17.74	High school diploma	Short-term
Childcare Workers	153	\$10.14	High school diploma	Short-term
Security Guards	151	\$15.52	High school diploma	Short-term
Maintenance and Repair Workers, General	140	\$21.28	High school diploma	Long-term
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	138	\$19.13	High school diploma	Short-term
Teacher Assistants	131	\$15.73	Some college, no degree	None
Light Truck or Delivery Services Drivers	129	\$19.64	High school diploma	Short-term
Receptionists and Information Clerks	124	\$14.83	High school diploma	Short-term
Bookkeeping, Accounting, and Auditing Clerks	121	\$19.35	Some college, no degree	Moderate-term
Shipping, Receiving, and Traffic Clerks	117	\$17.31	High school diploma	Short-term
Hairdressers, Hairstylists, and Cosmetologists	116	\$15.44	Postsecondary non-degree award	None
Nursing Assistants	116	\$14.07	Postsecondary non-degree award	None
Automotive Service Technicians and Mechanics	109	\$20.74	Postsecondary non-degree award	Short-term
Order Clerks	105	\$18.90	High school diploma	Short-term

⁵⁵ Emsi, July 2017.

Occupation	Annual Openings	Avg. Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Driver/Sales Workers	104	\$14.24	High school diploma	Short-term
Insurance Sales Agents	88	\$23.51	High school diploma	Moderate-term
Sales Representatives, Services, All Other	86	\$24.31	High school diploma	Moderate-term
Electricians	75	\$28.16	High school diploma	Apprenticeship
Licensed Practical and Licensed Vocational Nurses	73	\$23.95	Postsecondary non-degree award	None
Insurance Claims and Policy Processing Clerks	70	\$18.93	High school diploma	Moderate-term
Billing and Posting Clerks	67	\$18.05	High school diploma	Moderate-term
Plumbers, Pipefitters, and Steamfitters	62	\$32.71	High school diploma	Apprenticeship
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	58	\$31.61	Postsecondary non-degree award	Long-term
Dental Assistants	57	\$18.19	Postsecondary non-degree award	None
Team Assemblers	53	\$17.14	High school diploma	Moderate-term
Bus Drivers, School or Special Client	52	\$17.50	High school diploma	Short-term
Medical Assistants	51	\$17.52	Postsecondary non-degree award	None
Operating Engineers and Other Construction Equipment Operators	51	\$30.40	High school diploma	Moderate-term
Tellers	48	\$13.98	High school diploma	Short-term
Preschool Teachers, Except Special Education	47	\$12.99	Associate's degree	None
Nonfarm Animal Caretakers	45	\$12.72	High school diploma	Short-term
Machinists	44	\$26.46	High school diploma	Long-term
Police and Sheriff's Patrol Officers	43	\$35.76	High school diploma	Moderate-term
Recreation Workers	41	\$13.33	High school diploma	Short-term
Office and Administrative Support Workers, All Other	40	\$17.24	High school diploma	Short-term

Occupation	Annual Openings	Avg. Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Firefighters	39	\$38.12	Postsecondary non-degree award	Long-term
Medical Secretaries	39	\$19.47	High school diploma	Moderate-term
Packaging and Filling Machine Operators and Tenders	39	\$15.67	High school diploma	Moderate-term
Inspectors, Testers, Sorters, Samplers, and Weighers	38	\$26.36	High school diploma	Moderate-term
Industrial Machinery Mechanics	38	\$28.53	High school diploma	Long-term
Fitness Trainers and Aerobics Instructors	37	\$24.22	High school diploma	Short-term
Pharmacy Technicians	36	\$19.41	High school diploma	Moderate-term
Bus and Truck Mechanics and Diesel Engine Specialists	36	\$23.73	High school diploma	Long-term
Production, Planning, and Expediting Clerks	35	\$23.92	High school diploma	Moderate-term
Helpers--Installation, Maintenance, and Repair Workers	34	\$17.25	High school diploma	Short-term
Postal Service Mail Carriers	32	\$25.18	High school diploma	Short-term
Computer User Support Specialists	31	\$24.59	Some college, no degree	None
Hotel, Motel, and Resort Desk Clerks	28	\$13.05	High school diploma	Short-term
Computer-Controlled Machine Tool Operators, Metal and Plastic	27	\$29.91	High school diploma	Moderate-term
Dispatchers, Except Police, Fire, and Ambulance	27	\$21.65	High school diploma	Moderate-term
Cabinetmakers and Bench Carpenters	26	\$17.62	High school diploma	Moderate-term
Welders, Cutters, Solderers, and Brazers	26	\$22.23	High school diploma	Moderate-term
Telecommunications Equipment Installers and Repairers, Except Line Installers	26	\$27.90	Postsecondary non-degree award	Moderate-term
Tax Preparers	24	\$18.67	High school diploma	Moderate-term
Sawing Machine Setters, Operators, and Tenders, Wood	24	\$17.29	High school diploma	Short-term
Paralegals and Legal Assistants	24	\$25.28	Associate's degree	None
Veterinary Technologists and Technicians	23	\$17.27	Associate's degree	None

Occupation	Annual Openings	Avg. Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Claims Adjusters, Examiners, and Investigators	23	\$31.33	High school diploma	Long-term
Correctional Officers and Jailers	23	\$27.03	High school diploma	Moderate-term
Dental Hygienists	22	\$41.93	Associate's degree	None
Information and Record Clerks, All Other	22	\$20.64	High school diploma	Short-term
Automotive Body and Related Repairers	22	\$21.77	High school diploma	Long-term
Medical Records and Health Information Technicians	22	\$20.44	Postsecondary non-degree award	None
Gaming Dealers	21	\$11.60	High school diploma	Short-term
Mobile Heavy Equipment Mechanics, Except Engines	21	\$28.65	High school diploma	Long-term
Assemblers and Fabricators, All Other	21	\$14.96	High school diploma	Moderate-term
Electrical Power-Line Installers and Repairers	21	\$29.61	High school diploma	Long-term
Veterinary Assistants and Laboratory Animal Caretakers	20	\$12.74	High school diploma	Short-term
Installation, Maintenance, and Repair Workers, All Other	20	\$22.53	High school diploma	Moderate-term
Web Developers	19	\$31.08	Associate's degree	None
Bill and Account Collectors	19	\$19.34	High school diploma	Moderate-term
Interviewers, Except Eligibility and Loan	18	\$20.90	High school diploma	Short-term
Security and Fire Alarm Systems Installers	18	\$26.86	High school diploma	Moderate-term
Telecommunications Line Installers and Repairers	17	\$24.62	High school diploma	Long-term
Tire Repairers and Changers	17	\$14.31	High school diploma	Short-term
Real Estate Sales Agents	17	\$18.26	High school diploma	Moderate-term
First-Line Supervisors of Fire Fighting and Prevention Workers	17	\$49.72	Postsecondary non-degree award	Moderate-term
Data Entry Keyers	17	\$15.71	High school diploma	Moderate-term
Library Technicians	16	\$21.01	Postsecondary non-degree award	None

Occupation	Annual Openings	Avg. Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Payroll and Timekeeping Clerks	16	\$21.29	High school diploma	Moderate-term
Layout Workers, Metal and Plastic	16	\$33.71	High school diploma	Moderate-term
Molders, Shapers, and Casters, Except Metal and Plastic	16	\$19.91	High school diploma	Long-term
Title Examiners, Abstractors, and Searchers	16	\$21.64	High school diploma	Short-term
Protective Service Workers, All Other	15	\$18.37	High school diploma	Short-term
Photographers	15	\$12.56	High school diploma	Long-term
Radiologic Technologists	15	\$33.62	Associate's degree	None
Metal Workers and Plastic Workers, All Other	14	\$15.43	High school diploma	Moderate-term
Couriers and Messengers	14	\$16.01	High school diploma	Short-term
Medical Transcriptionists	14	\$20.11	Postsecondary non-degree award	None
Cargo and Freight Agents	14	\$24.09	High school diploma	Short-term
Manicurists and Pedicurists	14	\$10.96	Postsecondary non-degree award	None
Insurance Appraisers, Auto Damage	13	\$28.94	Postsecondary non-degree award	Moderate-term
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	13	\$13.82	High school diploma	Short-term
Respiratory Therapists	13	\$31.16	Associate's degree	None
Sheet Metal Workers	13	\$31.26	High school diploma	Apprenticeship
Printing Press Operators	13	\$16.49	High school diploma	Moderate-term
Umpires, Referees, and Other Sports Officials	13	\$14.20	High school diploma	Moderate-term
Paper Goods Machine Setters, Operators, and Tenders	12	\$22.51	High school diploma	Moderate-term
Crane and Tower Operators	12	\$35.18	High school diploma	Moderate-term
File Clerks	12	\$15.10	High school diploma	Short-term
Physical Therapist Assistants	11	\$31.40	Associate's degree	None

Occupation	Annual Openings	Avg. Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Woodworking Machine Setters, Operators, and Tenders, Except Sawing	11	\$17.15	High school diploma	Short-term
Loan Interviewers and Clerks	11	\$18.22	High school diploma	Short-term
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	11	\$19.56	High school diploma	Moderate-term
Structural Iron and Steel Workers	11	\$37.57	High school diploma	Apprenticeship
Opticians, Dispensing	11	\$20.86	High school diploma	Long-term
Emergency Medical Technicians and Paramedics	11	\$37.39	Postsecondary non-degree award	None
Floral Designers	11	\$13.76	High school diploma	Moderate-term
Reinforcing Iron and Rebar Workers	10	\$26.21	High school diploma	Apprenticeship
First-Line Supervisors of Police and Detectives	10	\$46.01	High school diploma	Moderate-term
Glaziers	10	\$29.56	High school diploma	Apprenticeship
Library Assistants, Clerical	10	\$15.45	High school diploma	Short-term
Water and Wastewater Treatment Plant and System Operators	10	\$31.02	High school diploma	Long-term
Recreational Vehicle Service Technicians	10	\$18.28	High school diploma	Long-term
Massage Therapists	10	\$19.03	Postsecondary non-degree award	None
Paving, Surfacing, and Tamping Equipment Operators	10	\$29.67	High school diploma	Moderate-term
Detectives and Criminal Investigators	10	\$35.54	High school diploma	Moderate-term
Construction and Building Inspectors	10	\$34.09	High school diploma	Moderate-term
Human Resources Assistants, Except Payroll and Timekeeping	10	\$20.14	Associate's degree	None
Logging Equipment Operators	9	\$18.89	High school diploma	Moderate-term
Production Workers, All Other	9	\$17.87	High school diploma	Moderate-term
Brickmasons and Blockmasons	9	\$27.52	High school diploma	Apprenticeship

Occupation	Annual Openings	Avg. Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Procurement Clerks	9	\$21.25	High school diploma	Moderate-term
Chemical Plant and System Operators	8	\$31.42	High school diploma	Long-term
Medical and Clinical Laboratory Technicians	8	\$18.99	Associate's degree	None
Merchandise Displayers and Window Trimmers	8	\$17.44	High school diploma	Moderate-term
Railroad Conductors and Yardmasters	8	\$26.09	High school diploma	Moderate-term
Environmental Science and Protection Technicians, Including Health	8	\$22.57	Associate's degree	None
Civil Engineering Technicians	8	\$31.04	Associate's degree	None
Advertising Sales Agents	8	\$21.57	High school diploma	Moderate-term
Millwrights	8	\$27.28	High school diploma	Apprenticeship
Food Batchmakers	8	\$14.51	High school diploma	Moderate-term
Cutting and Slicing Machine Setters, Operators, and Tenders	8	\$17.55	High school diploma	Short-term
Medical Equipment Preparers	8	\$18.52	High school diploma	Moderate-term
Locomotive Engineers	8	\$35.19	High school diploma	Moderate-term
Aircraft Mechanics and Service Technicians	8	\$29.91	Postsecondary non-degree award	None
Diagnostic Medical Sonographers	8	\$40.65	Associate's degree	None
Demonstrators and Product Promoters	8	\$12.09	High school diploma	Short-term
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	7	\$18.21	High school diploma	Moderate-term
Structural Metal Fabricators and Fitters	7	\$20.08	High school diploma	Moderate-term
Phlebotomists	7	\$16.51	Postsecondary non-degree award	None
Computer Network Support Specialists	7	\$29.78	Associate's degree	None
Financial Clerks, All Other	7	\$18.60	High school diploma	Short-term
Postal Service Mail Sorters, Processors, and Processing Machine Operators	7	\$23.67	High school diploma	Short-term

Occupation	Annual Openings	Avg. Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Tree Trimmers and Pruners	7	\$14.94	High school diploma	Short-term
Painters, Transportation Equipment	7	\$23.00	High school diploma	Moderate-term
Automotive Glass Installers and Repairers	7	\$18.26	High school diploma	Moderate-term
Maintenance Workers, Machinery	7	\$28.76	High school diploma	Moderate-term
Occupational Therapy Assistants	7	\$32.62	Associate's degree	None
Captains, Mates, and Pilots of Water Vessels	7	\$36.57	Postsecondary non-degree award	None
Personal Care and Service Workers, All Other	7	\$12.58	High school diploma	Short-term
Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	6	\$15.99	High school diploma	Moderate-term
Surgical Technologists	6	\$25.94	Postsecondary non-degree award	None
Healthcare Practitioners and Technical Workers, All Other	6	\$27.09	Postsecondary non-degree award	None
Residential Advisors	6	\$13.59	High school diploma	Short-term
Computer, Automated Teller, and Office Machine Repairers	6	\$15.62	Some college, no degree	Short-term
Coin, Vending, and Amusement Machine Servicers and Repairers	6	\$19.97	High school diploma	Short-term
Motorboat Mechanics and Service Technicians	6	\$21.07	High school diploma	Long-term
Ophthalmic Medical Technicians	6	\$19.92	Postsecondary non-degree award	None
Eligibility Interviewers, Government Programs	6	\$21.61	High school diploma	Moderate-term
Pest Control Workers	6	\$20.55	High school diploma	Moderate-term
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	6	\$26.32	High school diploma	Moderate-term
Travel Agents	6	\$15.57	High school diploma	Moderate-term
Hazardous Materials Removal Workers	6	\$20.50	High school diploma	Moderate-term
Cardiovascular Technologists and Technicians	6	\$31.61	Associate's degree	None

Occupation	Annual Openings	Avg. Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	6	\$19.06	High school diploma	Short-term
Entertainment Attendants and Related Workers, All Other	6	\$12.80	High school diploma	Short-term
Electric Motor, Power Tool, and Related Repairers	5	\$30.62	Postsecondary non-degree award	Long-term
Foundry Mold and Coremakers	5	\$13.21	High school diploma	Moderate-term
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	5	\$17.05	High school diploma	Moderate-term
Court, Municipal, and License Clerks	5	\$25.90	High school diploma	Moderate-term
Home Appliance Repairers	5	\$19.81	High school diploma	Moderate-term
Police, Fire, and Ambulance Dispatchers	5	\$29.29	High school diploma	Moderate-term
Architectural and Civil Drafters	5	\$25.72	Associate's degree	None
Community Health Workers	5	\$29.19	High school diploma	Short-term
Postal Service Clerks	5	\$24.23	High school diploma	Short-term
Mixing and Blending Machine Setters, Operators, and Tenders	5	\$17.41	High school diploma	Moderate-term
Legal Secretaries	5	\$24.14	High school diploma	Moderate-term
Rail Car Repairers	5	\$23.87	High school diploma	Long-term
Highway Maintenance Workers	5	\$24.48	High school diploma	Moderate-term
Musical Instrument Repairers and Tuners	4	\$19.99	High school diploma	Apprenticeship
Electrical and Electronics Repairers, Commercial and Industrial Equipment	4	\$33.20	Postsecondary non-degree award	Long-term
Forest and Conservation Workers	4	\$12.11	High school diploma	Moderate-term
Animal Trainers	4	\$12.83	High school diploma	Moderate-term
Outdoor Power Equipment and Other Small Engine Mechanics	4	\$17.36	High school diploma	Moderate-term
Mechanical Drafters	4	\$26.77	Associate's degree	None

Occupation	Annual Openings	Avg. Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Locksmiths and Safe Repairers	4	\$17.66	High school diploma	Long-term
Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	4	\$16.36	High school diploma	Moderate-term
Railroad Brake, Signal, and Switch Operators	4	\$26.01	High school diploma	Moderate-term
First-Line Supervisors of Correctional Officers	4	\$36.33	High school diploma	Moderate-term
Life, Physical, and Social Science Technicians, All Other	4	\$25.54	Associate's degree	None
Magnetic Resonance Imaging Technologists	4	\$35.58	Associate's degree	None
Gaming Change Persons and Booth Cashiers	4	\$11.95	High school diploma	Short-term
Audio and Video Equipment Technicians	4	\$22.35	Postsecondary non-degree award	Short-term
Court Reporters	4	\$28.69	Postsecondary non-degree award	Short-term
Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	4	\$28.28	High school diploma	Long-term
Stationary Engineers and Boiler Operators	4	\$29.62	High school diploma	Long-term
Ophthalmic Laboratory Technicians	4	\$15.38	High school diploma	Moderate-term
New Accounts Clerks	4	\$17.08	High school diploma	Moderate-term
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	4	\$18.03	High school diploma	Moderate-term
Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	4	\$20.64	High school diploma	Moderate-term
Electrical and Electronics Engineering Technicians	4	\$33.60	Associate's degree	None
Motorcycle Mechanics	4	\$17.95	Postsecondary non-degree award	Short-term
Office Machine Operators, Except Computer	4	\$18.63	High school diploma	Short-term
Switchboard Operators, Including Answering Service	4	\$15.27	High school diploma	Short-term
Petroleum Pump System Operators, Refinery Operators, and Gaugers	4	\$20.70	High school diploma	Long-term

Occupation	Annual Openings	Avg. Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Medical Equipment Repairers	4	\$23.30	Associate's degree	Moderate-term
Orderlies	4	\$14.87	High school diploma	Short-term
Barbers	4	\$11.97	Postsecondary non-degree award	None
Pesticide Handlers, Sprayers, and Applicators, Vegetation	3	\$15.14	High school diploma	Moderate-term
Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	3	\$19.56	High school diploma	Moderate-term
Private Detectives and Investigators	3	\$23.18	High school diploma	Moderate-term
Earth Drillers, Except Oil and Gas	3	\$31.23	High school diploma	Moderate-term
Pharmacy Aides	3	\$15.11	High school diploma	Short-term
Mail Clerks and Mail Machine Operators, Except Postal Service	3	\$18.49	High school diploma	Short-term
Actors	3	\$15.12	Some college, no degree	Long-term
Plant and System Operators, All Other	3	\$27.45	High school diploma	Long-term
Tool and Die Makers	3	\$34.69	High school diploma	Long-term
Tour Guides and Escorts	3	\$17.41	High school diploma	Moderate-term
Psychiatric Technicians	3	\$19.61	Postsecondary non-degree award	Short-term
Legal Support Workers, All Other	3	\$29.57	High school diploma	Short-term
Jewelers and Precious Stone and Metal Workers	3	\$18.79	High school diploma	Long-term
Electrical and Electronic Equipment Assemblers	3	\$22.17	High school diploma	Moderate-term
Construction and Related Workers, All Other	3	\$22.19	High school diploma	Moderate-term
Chemical Equipment Operators and Tenders	3	\$22.86	High school diploma	Moderate-term
Physical Therapist Aides	3	\$18.87	High school diploma	Short-term
Textile, Apparel, and Furnishings Workers, All Other	3	\$23.00	High school diploma	Short-term
Dental Laboratory Technicians	3	\$22.17	High school diploma	Moderate-term

Occupation	Annual Openings	Avg. Hourly Earnings	Typical Entry Level Education	Typical On-The-Job Training
Excavating and Loading Machine and Dragline Operators	3	\$24.63	High school diploma	Moderate-term
Helpers--Electricians	3	\$17.99	High school diploma	Short-term

APPENDIX C: MIDDLE-SKILL OCCUPATIONS WITH LABOR SHORTAGE, 2016⁵⁶

Occupation	Annual Openings	Regional Completions	Deficit
Office Clerks, General	1,003	18	985
Customer Service Representatives	887	15	872
Heavy and Tractor-Trailer Truck Drivers	653	55	598
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	601	9	592
Security Guards	556	13	543
Carpenters	551	14	537
Teacher Assistants	439	13	426
Childcare Workers	395	15	380
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	359	10	349
Maintenance and Repair Workers, General	321	4	317
Receptionists and Information Clerks	390	101	289
Nursing Assistants	438	156	282
Bookkeeping, Accounting, and Auditing Clerks	510	231	279
Light Truck or Delivery Services Drivers	317	55	262
Shipping, Receiving, and Traffic Clerks	262	18	244
Hairdressers, Hairstylists, and Cosmetologists	347	125	222
Fitness Trainers and Aerobics Instructors	231	9	222
Automotive Service Technicians and Mechanics	271	66	205
Electricians	216	14	202
Order Clerks	213	18	195
Billing and Posting Clerks	421	231	190
Plumbers, Pipefitters, and Steamfitters	172	0	172
Bus Drivers, School or Special Client	211	55	156
Sales Representatives, Services, All Other	287	137	150
Tellers	149	0	149
Real Estate Sales Agents	145	0	145
Nonfarm Animal Caretakers	139	0	139
Inspectors, Testers, Sorters, Samplers, and Weighers	136	0	136
Team Assemblers	133	0	133
Production, Planning, and Expediting Clerks	133	8	125
Recreation Workers	131	8	123
Insurance Sales Agents	120	0	120

⁵⁶ Emsi, July 2017.

Occupation	Annual Openings	Regional Completions	Deficit
Protective Service Workers, All Other	132	20	112
Gaming Dealers	110	0	110
Bill and Account Collectors	99	0	99
Firefighters	108	14	94
Insurance Claims and Policy Processing Clerks	100	18	82
Assemblers and Fabricators, All Other	79	0	79
Industrial Machinery Mechanics	78	0	78
Operating Engineers and Other Construction Equipment Operators	125	50	75
Dental Assistants	174	102	72
Office and Administrative Support Workers, All Other	88	18	70
Telecommunications Equipment Installers and Repairers, Except Line Installers	72	3	69
Packaging and Filling Machine Operators and Tenders	67	0	67
Dispatchers, Except Police, Fire, and Ambulance	62	0	62
Postal Service Mail Carriers	79	18	61
Helpers--Installation, Maintenance, and Repair Workers	61	0	61
Cabinetmakers and Bench Carpenters	62	2	60
Information and Record Clerks, All Other	76	18	58
Veterinary Assistants and Laboratory Animal Caretakers	81	23	58
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	77	21	56
Printing Press Operators	55	0	55
Claims Adjusters, Examiners, and Investigators	53	0	53
Mobile Heavy Equipment Mechanics, Except Engines	53	0	53
Telecommunications Line Installers and Repairers	56	3	53
Pharmacy Technicians	119	71	48
Water and Wastewater Treatment Plant and System Operators	48	0	48
Cutting and Slicing Machine Setters, Operators, and Tenders	46	0	46
Computer, Automated Teller, and Office Machine Repairers	45	0	45
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	44	0	44
Hotel, Motel, and Resort Desk Clerks	54	10	44
Medical Transcriptionists	43	0	43
Construction and Building Inspectors	43	0	43
Respiratory Therapists	41	0	41
Welders, Cutters, Solderers, and Brazers	89	49	40

Occupation	Annual Openings	Regional Completions	Deficit
Computer-Controlled Machine Tool Operators, Metal and Plastic	49	10	39
Electrical Power-Line Installers and Repairers	38	0	38
Loan Interviewers and Clerks	37	0	37
Legal Secretaries	37	0	37
Library Technicians	37	0	37
Umpires, Referees, and Other Sports Officials	37	0	37
Entertainment Attendants and Related Workers, All Other	37	0	37
Paper Goods Machine Setters, Operators, and Tenders	36	0	36
Library Assistants, Clerical	36	0	36
Eligibility Interviewers, Government Programs	33	0	33
Driver/Sales Workers	150	119	31
Machinists	56	25	31
Installation, Maintenance, and Repair Workers, All Other	39	8	31
Human Resources Assistants, Except Payroll and Timekeeping	48	18	30
Photographers	37	7	30
Sawing Machine Setters, Operators, and Tenders, Wood	32	2	30
Logging Equipment Operators	30	0	30
Food Batchmakers	29	0	29
First-Line Supervisors of Fire Fighting and Prevention Workers	32	4	28
Sheet Metal Workers	43	15	28
Brickmasons and Blockmasons	28	0	28
Radiologic Technologists	47	20	27
Engine and Other Machine Assemblers	27	0	27
Ophthalmic Medical Technicians	25	0	25
Physical Therapist Assistants	25	0	25
Personal Care and Service Workers, All Other	25	0	25
Glaziers	25	0	25
Coin, Vending, and Amusement Machine Servicers and Repairers	25	0	25
Production Workers, All Other	23	0	23
Residential Advisors	22	0	22
Social and Human Service Assistants	152	131	21
Interviewers, Except Eligibility and Loan	36	15	21
Woodworking Machine Setters, Operators, and Tenders, Except Sawing	23	2	21

Occupation	Annual Openings	Regional Completions	Deficit
Medical Equipment Repairers	39	19	20
Aircraft Mechanics and Service Technicians	19	0	19
Merchandise Displayers and Window Trimmers	19	0	19
Motorboat Mechanics and Service Technicians	28	10	18
Advertising Sales Agents	18	0	18
Police, Fire, and Ambulance Dispatchers	17	0	17
Couriers and Messengers	17	0	17
Maintenance Workers, Machinery	17	0	17
Financial Clerks, All Other	17	0	17
Switchboard Operators, Including Answering Service	31	15	16
Molders, Shapers, and Casters, Except Metal and Plastic	16	0	16
Police and Sheriff's Patrol Officers	90	75	15
Pest Control Workers	15	0	15
Opticians, Dispensing	14	0	14
Mixing and Blending Machine Setters, Operators, and Tenders	14	0	14
Reinforcing Iron and Rebar Workers	24	10	14
Tour Guides and Escorts	14	0	14
File Clerks	31	18	13
Transportation Inspectors	13	0	13
Physical Therapist Aides	13	0	13
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	13	0	13
Floral Designers	12	0	12
Musical Instrument Repairers and Tuners	12	0	12
Occupational Health and Safety Technicians	12	0	12
Healthcare Practitioners and Technical Workers, All Other	11	0	11
Architectural and Civil Drafters	15	4	11
Gaming and Sports Book Writers and Runners	11	0	11
Court, Municipal, and License Clerks	28	18	10
Procurement Clerks	28	18	10
Locomotive Engineers	10	0	10
Mechanical Drafters	10	0	10
Dental Hygienists	31	22	9
Structural Iron and Steel Workers	19	10	9
Petroleum Pump System Operators, Refinery Operators, and Gaugers	15	6	9

Occupation	Annual Openings	Regional Completions	Deficit
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	25	18	7
Postal Service Mail Sorters, Processors, and Processing Machine Operators	25	18	7
Paralegals and Legal Assistants	57	51	6

APPENDIX D: MIDDLE-SKILL OCCUPATIONS WITH LABOR SURPLUS, 2016⁵⁷

Occupation	Annual Openings	Regional Completions	Surplus
Web Developers	39	703	664
Computer Network Support Specialists	21	450	429
Computer User Support Specialists	111	450	339
Phlebotomists	33	296	263
Tax Preparers	28	231	203
Payroll and Timekeeping Clerks	31	231	200
Preschool Teachers, Except Special Education	113	312	199
Skincare Specialists	17	181	164
Medical Equipment Preparers	42	201	159
Emergency Medical Technicians and Paramedics	16	164	148
Medical Assistants	205	348	143
Orderlies	21	156	135
Bus and Truck Mechanics and Diesel Engine Specialists	71	199	128
Surveying and Mapping Technicians	11	132	121
Aerospace Engineering and Operations Technicians	0	117	117
Civil Engineering Technicians	18	125	107
First-Line Supervisors of Police and Detectives	24	118	94
Gaming Change Persons and Booth Cashiers	26	119	93
Medical Records and Health Information Technicians	51	140	89
Demonstrators and Product Promoters	38	119	81
Bailiffs	0	75	75
Data Entry Keyers	42	115	73
Highway Maintenance Workers	11	66	55
Manicurists and Pedicurists	69	121	52
Environmental Science and Protection Technicians, Including Health	24	76	52
Pharmacy Aides	20	71	51
Mine Cutting and Channeling Machine Operators	0	50	50
Mining Machine Operators, All Other	0	50	50
Extraction Workers, All Other	0	50	50
Detectives and Criminal Investigators	27	75	48
Railroad Conductors and Yardmasters	11	55	44
Pile-Driver Operators	13	50	37
Paving, Surfacing, and Tamping Equipment Operators	14	50	36

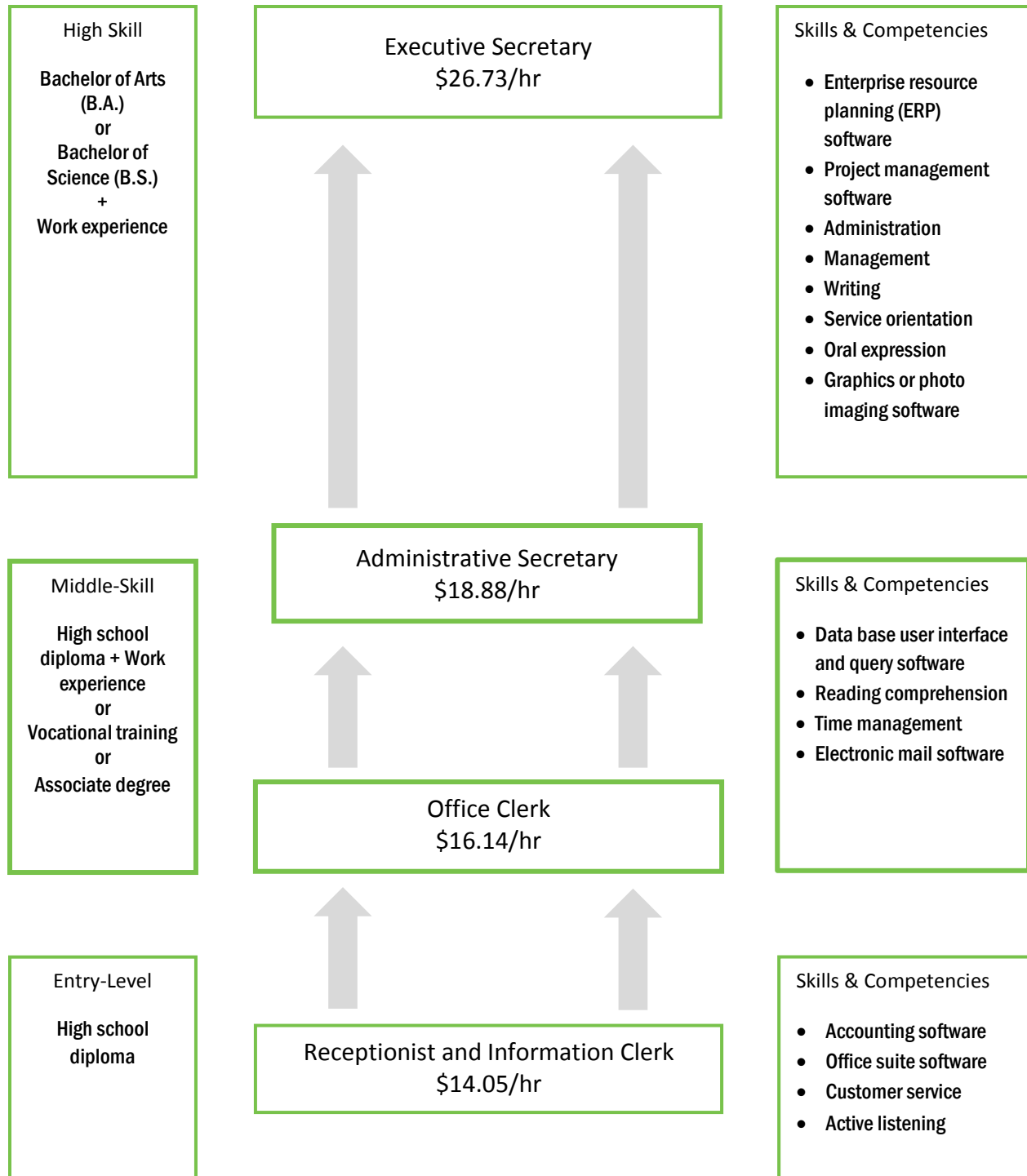
⁵⁷ Emsi, July 2017.

Occupation	Annual Openings	Regional Completions	Surplus
Automotive Glass Installers and Repairers	17	52	35
Title Examiners, Abstractors, and Searchers	19	51	32
Crane and Tower Operators	24	50	26
Tire Repairers and Changers	57	78	21
Painters, Transportation Equipment	31	52	21
Medical and Clinical Laboratory Technicians	20	40	20
Patternmakers, Metal and Plastic	0	15	15
Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	11	25	14
Forest Fire Inspectors and Prevention Specialists	0	14	14
Psychiatric Technicians	30	43	13
Automotive Body and Related Repairers	41	52	11
Surgical Technologists	35	45	10
Veterinary Technologists and Technicians	15	23	8
Barbers	16	23	7
Word Processors and Typists	11	18	7
Cargo and Freight Agents	15	18	3
Security and Fire Alarm Systems Installers	11	14	3
Radio Operators	0	3	3
Postal Service Clerks	16	18	2
Model Makers, Wood	0	2	2
Patternmakers, Wood	0	2	2
Medical Secretaries	127	128	1
Community Health Workers	47	48	1
Web Developers	39	703	664
Computer Network Support Specialists	21	450	429
Computer User Support Specialists	111	450	339
Phlebotomists	33	296	263
Tax Preparers	28	231	203
Payroll and Timekeeping Clerks	31	231	200
Preschool Teachers, Except Special Education	113	312	199
Skincare Specialists	17	181	164
Medical Equipment Preparers	42	201	159
Emergency Medical Technicians and Paramedics	16	164	148
Medical Assistants	205	348	143
Orderlies	21	156	135

Occupation	Annual Openings	Regional Completions	Surplus
Bus and Truck Mechanics and Diesel Engine Specialists	71	199	128
Surveying and Mapping Technicians	11	132	121
Aerospace Engineering and Operations Technicians	0	117	117
Civil Engineering Technicians	18	125	107
First-Line Supervisors of Police and Detectives	24	118	94
Gaming Change Persons and Booth Cashiers	26	119	93
Medical Records and Health Information Technicians	51	140	89
Demonstrators and Product Promoters	38	119	81
Bailiffs	0	75	75
Data Entry Keyers	42	115	73
Highway Maintenance Workers	11	66	55
Manicurists and Pedicurists	69	121	52
Environmental Science and Protection Technicians, Including Health	24	76	52
Pharmacy Aides	20	71	51
Mine Cutting and Channeling Machine Operators	0	50	50
Mining Machine Operators, All Other	0	50	50
Extraction Workers, All Other	0	50	50
Detectives and Criminal Investigators	27	75	48
Railroad Conductors and Yardmasters	11	55	44
Pile-Driver Operators	13	50	37
Paving, Surfacing, and Tamping Equipment Operators	14	50	36
Automotive Glass Installers and Repairers	17	52	35
Title Examiners, Abstractors, and Searchers	19	51	32
Crane and Tower Operators	24	50	26
Tire Repairers and Changers	57	78	21
Painters, Transportation Equipment	31	52	21
Medical and Clinical Laboratory Technicians	20	40	20
Patternmakers, Metal and Plastic	0	15	15
Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	11	25	14
Forest Fire Inspectors and Prevention Specialists	0	14	14
Psychiatric Technicians	30	43	13
Automotive Body and Related Repairers	41	52	11
Surgical Technologists	35	45	10
Veterinary Technologists and Technicians	15	23	8

APPENDIX E: CAREER PATHWAYS⁵⁸⁵⁹

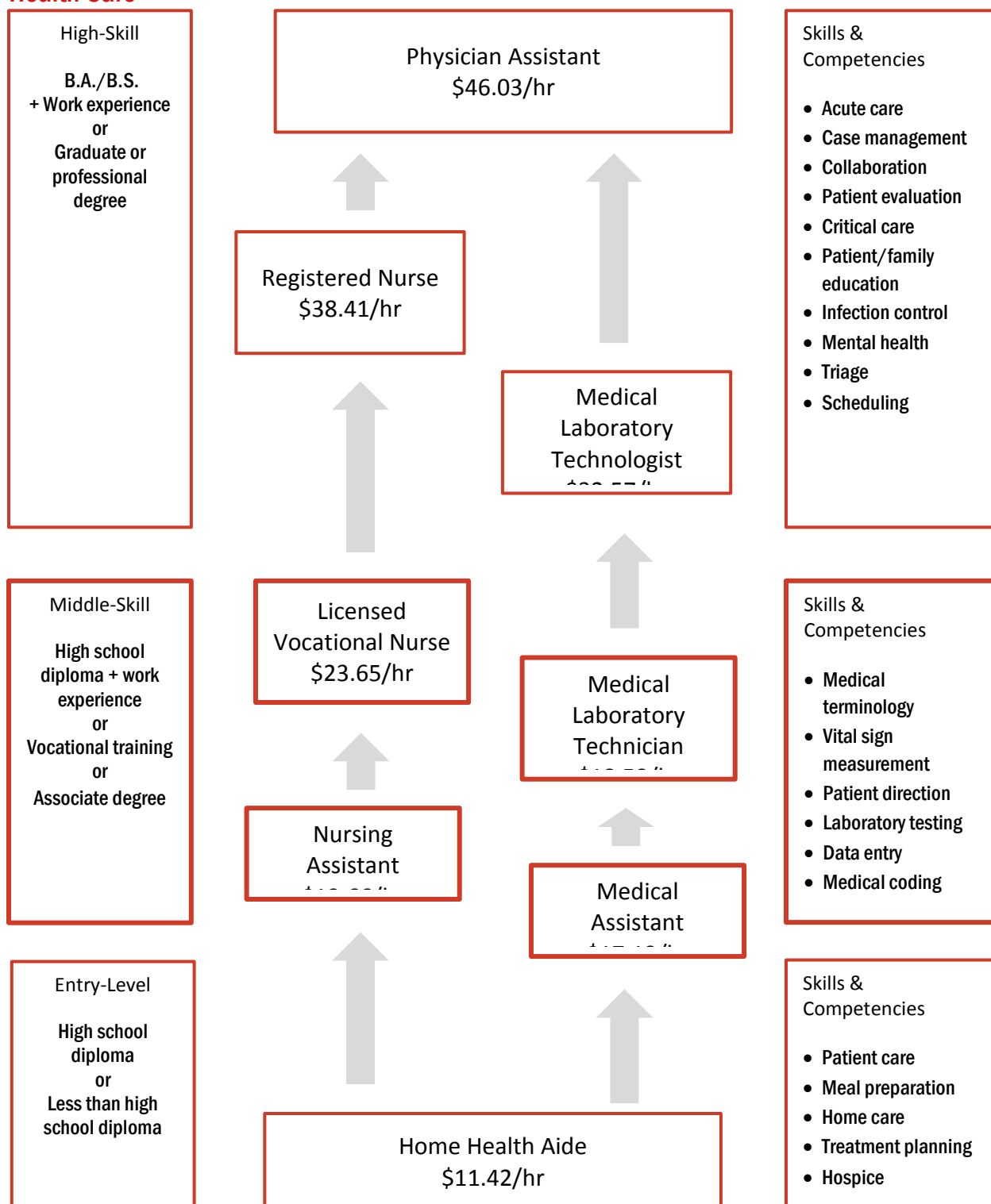
Government



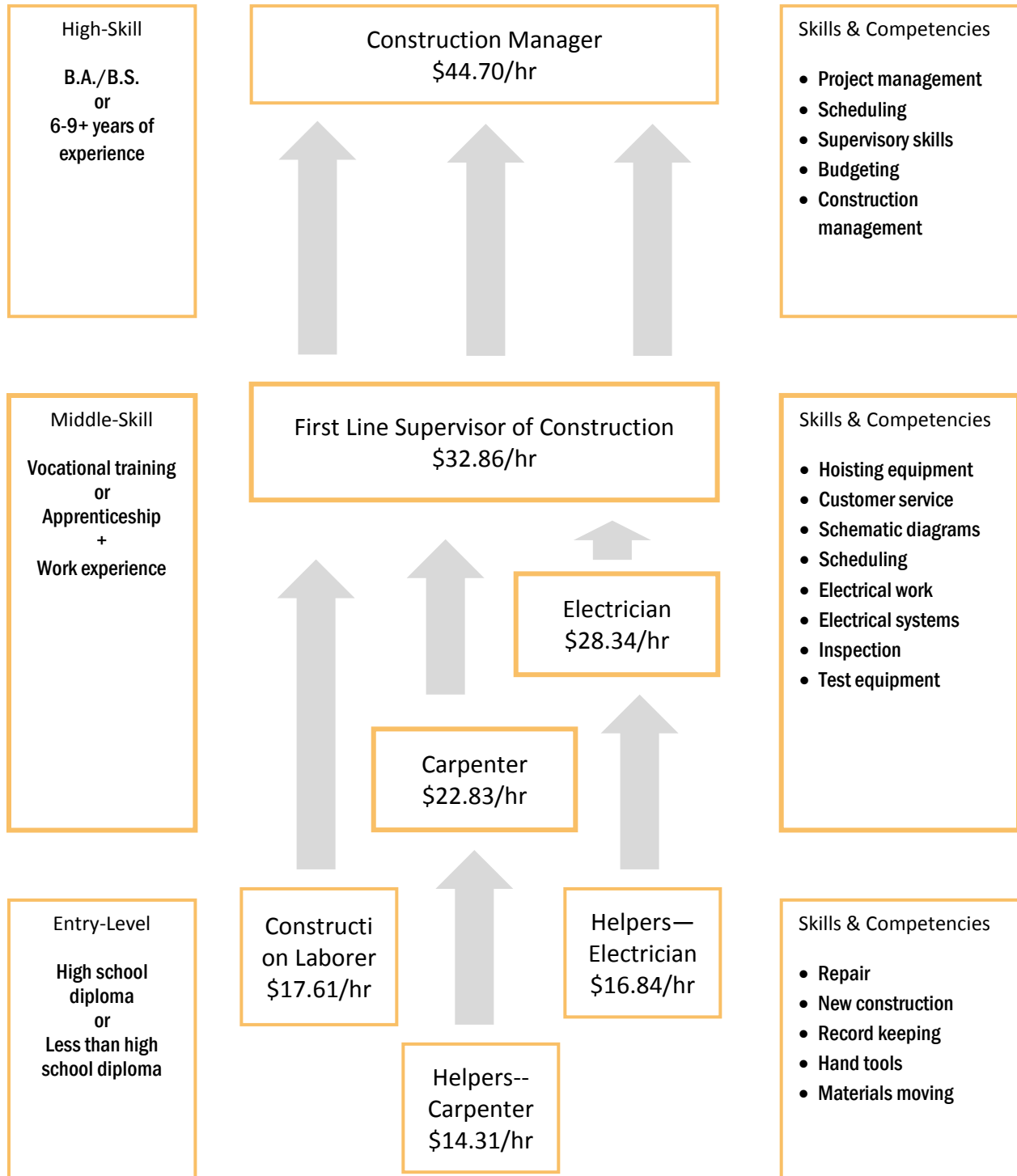
⁵⁸ Wages listed are median hourly wages for 2016 in Pierce County.

⁵⁹ Emsi and O*Net Online, July 2017.

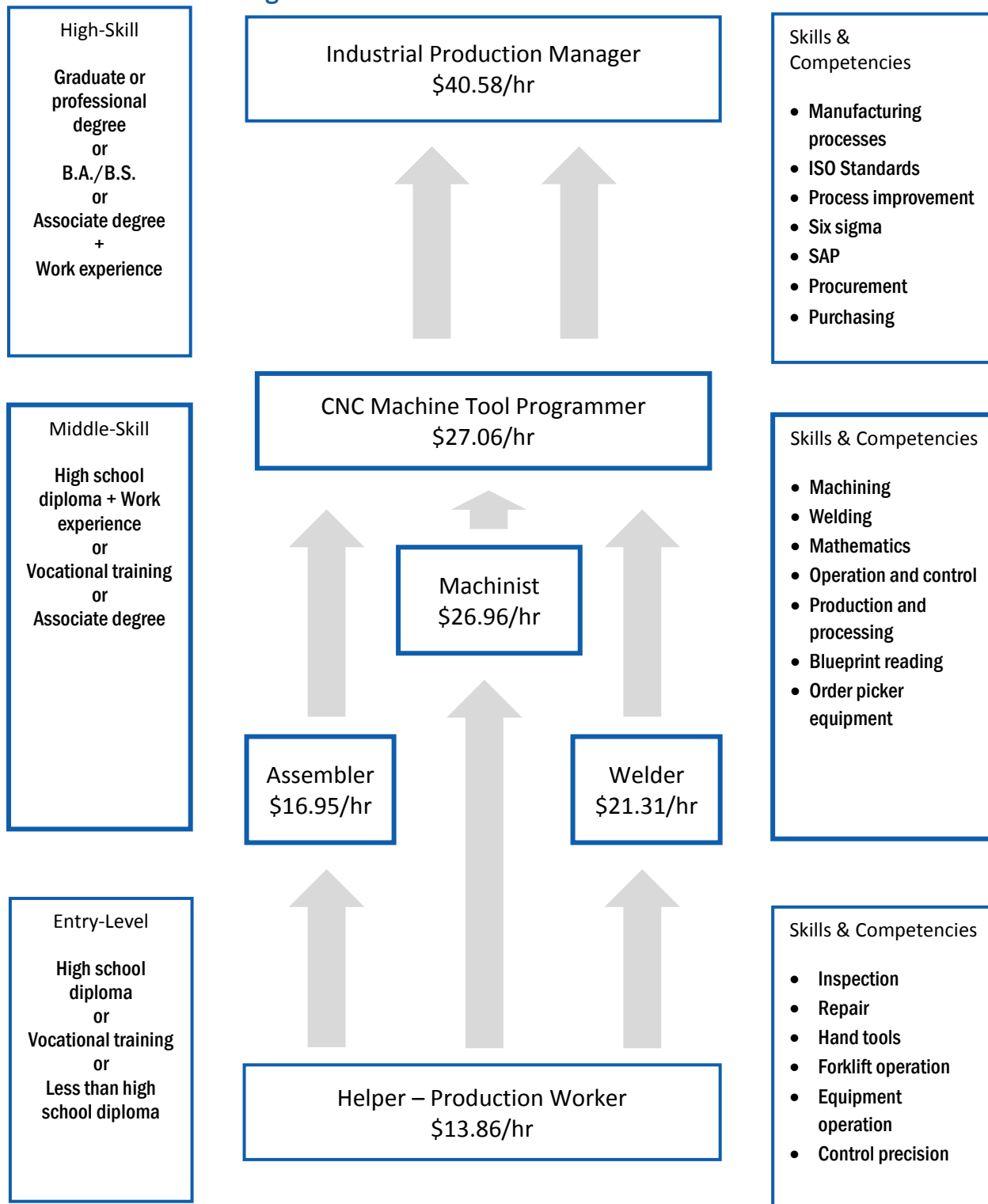
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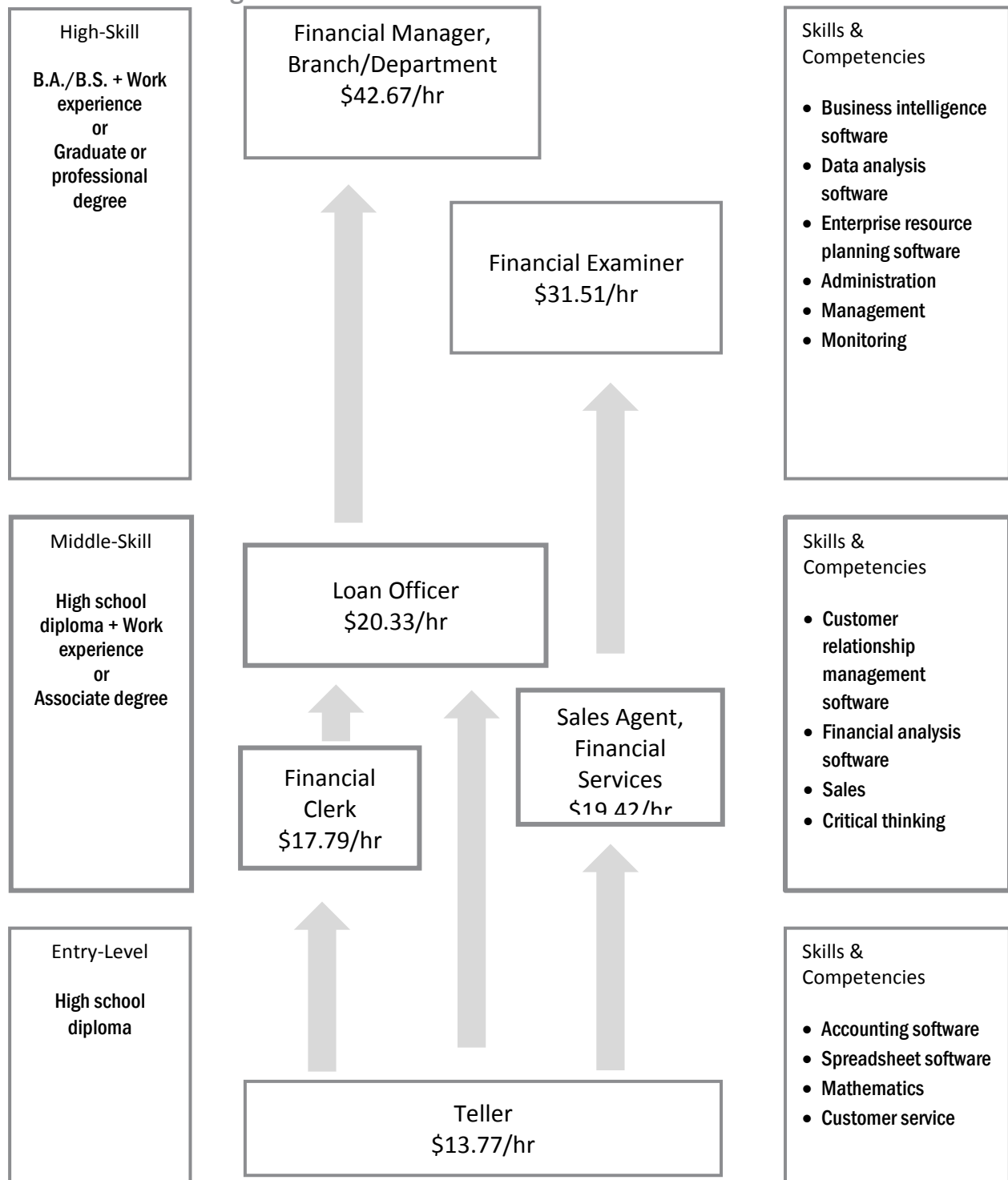
Construction



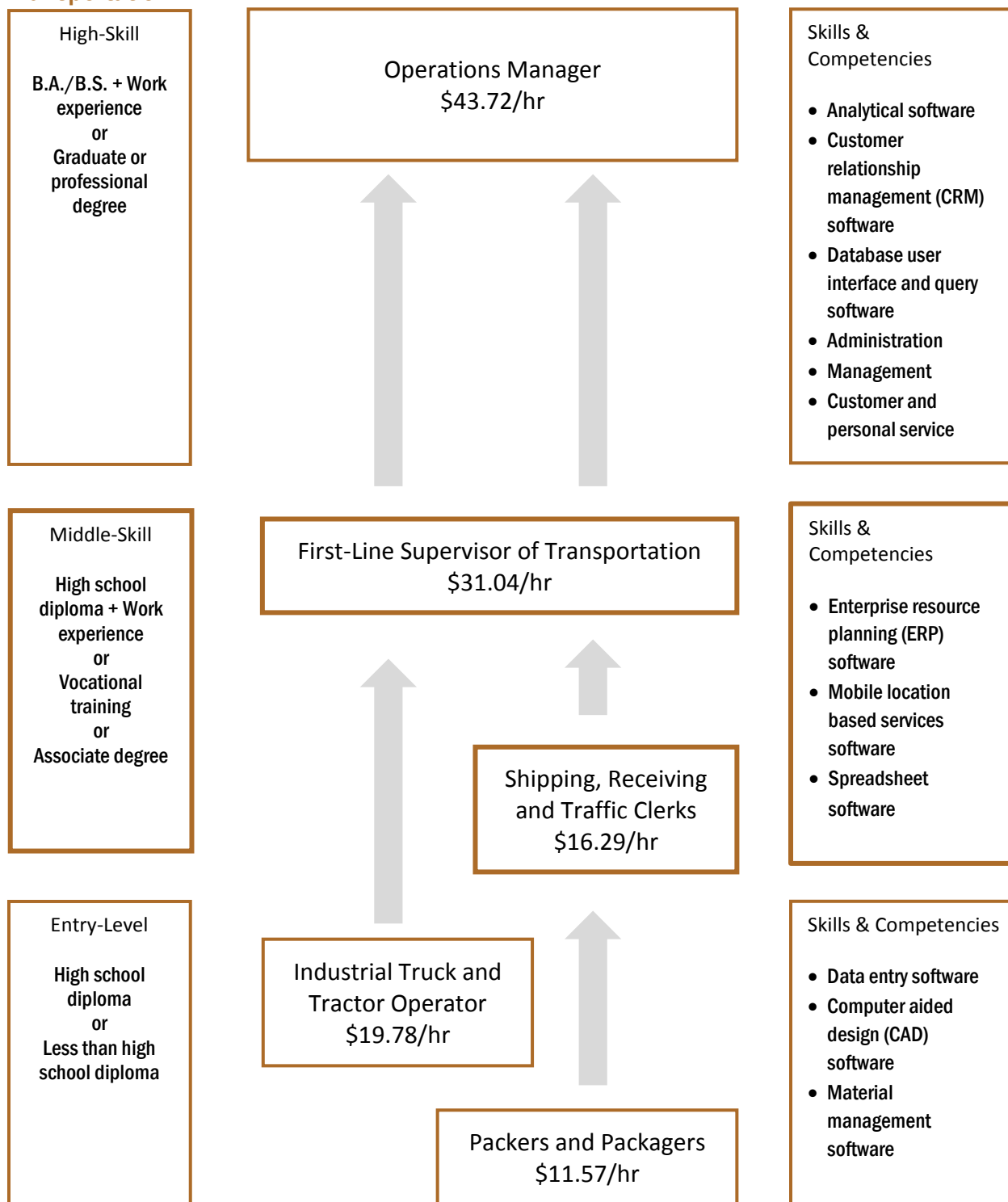
Advanced Manufacturing



Retail Trade: Banking



Transportation









APPENDIX F: OCCUPATIONAL PROFILES⁶⁰

Firefighter

Standard Occupational Code: 33-2011

Other Job Title(s): Wildland Fire Fighter, Ranger, Hot Shot, Squad Boss, Fire Engineer

Description: Control and extinguish fires or respond to emergency situations where life, property or the environment is at risk. Duties may include fire prevention, emergency medical service, hazardous material response, research and rescue and disaster assistance.

Fast Facts		Pierce County
Current Employment (2016)		1,025
Projected Employment (2021)		1,070
Growth Rate (2016-2021)		4%
Average Annual Openings (2016)		35
Hourly Pay Range		<div> <div>\$24.43</div> <div>Entry-level</div> </div> <div> <div>\$37.50</div> <div>Median</div> </div> <div> <div>\$55.02</div> <div>Experienced</div> </div>
Typical Educational Attainment		Postsecondary non-degree award

Top Skills and Competencies

Knowledge	Skills	Abilities
Public safety and security	Active listening	Problem sensitivity
Customer and personal service	Coordination	Reaction time
Education and training	Critical thinking	Arm-hand steadiness
Mechanical	Operation monitoring	Manual dexterity
	Monitoring	Multi-limb coordination

Occupational Tasks

- Rescue victims from burning buildings and accident sites.
- Search burning buildings to locate fire victims.
- Administer first aid and cardiopulmonary resuscitation to injured persons.
- Dress with equipment such as fire-resistant clothing and breathing apparatus.







Teacher Assistant

Standard Occupational Code: 25-9041

Other Job Title(s): Teacher's Aide, Special Education Aide, Paraeducator, Classroom Aide

⁶⁰ Emsi and O*Net Online, July 2017.

Description: Perform duties that are instructional in nature or deliver direct services to students or parents. Serve in a position for which a teacher has ultimate responsibility for the design and implementation of educational programs and services.

Fast Facts		Pierce County		
Current Employment (2016)		3,484		
Projected Employment (2021)		3,674		
Growth Rate (2016-2021)		6%		
Average Annual Openings (2016)		134		
Hourly Pay Range		\$11.88 Entry-level	\$15.91 Median	\$19.02 Experienced
Typical Educational Attainment		Some college		

Top Skills and Competencies

Knowledge	Skills	Abilities
Education and training	Active listening	Oral comprehension
English language	Speaking	Oral expression
Psychology	Social perceptiveness	Speech clarity
Customer and personal service	Critical thinking	Speech recognition
	Instruction	Problem sensitivity

Occupational Tasks







- Provide extra assistance to students with special needs, such as non-English-speaking students or those with physical and mental disabilities.
- Supervise students in classrooms, halls, cafeterias, school yards gymnasiums or on field trips
- Tutor and assist children individually or in small groups to help them master assignments and to reinforce learning concepts presented by teachers.
- Enforce administration policies and rules governing students.

Receptionists and Information Clerks

Standard Occupational Code: 43-4171

Other Job Title(s): Registration Clerk, Front Desk Receptionist, Office Assistant, Medical Receptionist, Unit Assistant, Member Service Representative, Information Assistant

Description: Answer inquiries and provide information to the general public, customers, visitors and other interested parties regarding activities conducted at establishment and location departments, offices and employees within the organization.

Fast Facts		Pierce County			
Current Employment (2016)		2,526			
Projected Employment (2021)		2,751			
Growth Rate (2016-2021)		9%			
Average Annual Openings (2016)		117			
Hourly Pay Range		\$10.38 Entry-level	\$13.98 Median	\$20.51 Experienced	
Typical Educational Attainment		High school diploma			

Top Skills and Competencies

Knowledge	Skills	Abilities
Clerical	Active listening	Oral comprehension
Customer and personal service	Speaking	Oral expression
Computers and electronics	Service orientation	Speech recognition
English language	Critical thinking	Speech clarity
	Reading comprehension	Written comprehension

Occupational Tasks







- Operate telephone switchboard to answer, screen or forward calls, providing information, taking messages or scheduling appointments.
- Greet persons entering establishment, determine nature and purpose of visit and direct or escort them to specific destinations.
- Schedule appointments and maintain and update appointment calendars.
- Hear and resolve complaints from customers or the public.
- File and maintain records.

Nursing Assistants

Standard Occupational Code: 31-1014

Other Job Title(s): Patient Care Technician (PCT), Nursing Aide, Patient Care Assistant (PCA), Licensed Nursing Assistant (LNA), Geriatric Nursing Assistant (GNA)

Description: Provide basic patient care under direction of nursing staff. Perform duties such as feed, bathe, dress, groom, move patients or change linens. May transfer or transport patients. Includes nursing care attendants, nursing aides and nursing attendants.

Fast Facts		Pierce County
Current Employment (2016)		2,685
Projected Employment (2021)		3,004
Growth Rate (2016-2021)		12%
Average Annual Openings (2016)		119
Hourly Pay Range		<div>\$10.42</div> <div>Entry-level</div> <div>\$13.66</div> <div>Median</div> <div>\$18.45</div> <div>Experienced</div>
Typical Educational Attainment		High school diploma

Top Skills and Competencies

Knowledge	Skills	Abilities
Customer and personal service	Service orientation	Oral comprehension
Psychology	Active listening	Problem sensitivity
Public safety and security	Social perceptiveness	Near vision
Medicine and dentistry	Coordination	Oral expression
	Monitoring	Monitoring

Occupational Tasks







- Answer patient call signals, signal lights, bells or intercom systems to determine patient's needs.
- Turn or reposition bedridden patients.
- Provide physical support to assist patients to perform daily activities, such as getting out of bed, bathing, dressing, using the toilet, standing walking or exercising.
- Review patient's dietary restrictions, food allergies and preferences to ensure patient receives appropriate diet.

Carpenter

Standard Occupational Code: 47-2031

Other Job Title(s): Framers, Foreman, Construction Superintendent, Form Carpenter, Production Worker, Union Carpenter, Journeyman Carpenter

Description: Construct, erect or repair structures and fixtures made of wood, such as concrete forms; building frameworks, including partitions joists, studding, rafter, wood stairways, window and door frames and hardwood floors. May also install cabinets, siding, drywall and batt or roll insulation.

Fast Facts	Pierce County		
Current Employment (2016)		3,292	
Projected Employment (2021)		3,419	
Growth Rate (2016-2021)		4%	
Average Annual Openings (2016)		133	
Hourly Pay Range		\$16.15 Entry-level	\$22.83 Median
Typical Educational Attainment		High school diploma	\$42.58 Experienced

Top Skills and Competencies

Knowledge	Skills	Abilities
Building and construction	Active listening	Manual dexterity
Mathematics	Monitoring	Problem sensitivity
Mechanical	Speaking	Trunk strength
Design	Active learning	Visualization
Public safety and security	Complex problem solving	Information ordering

Occupational Tasks







- Follow established safety rules and regulations and maintain a safe and clean environment.
- Study specifications in blueprints, sketches, or building plans to prepare project layout and determine dimension and materials required.
- Measure and mark cutting lines on materials, using a ruler, pencil, chalk and marking gauge.
- Shape or cut materials to specified measurements, using hand tools, machines or power saws.

Electrician

Standard Occupational Code: 47-2111

Other Job Title(s): Maintenance Electrician, Industrial Electrician, Qualified Craft Worker – Electrician (QCW, Electrician), Journeyman Wireman, Wireman, Journeyman Electrician

Description: Install, maintain and repair electrical wiring, equipment and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems or electrical control systems.

Fast Facts		Pierce County
Current Employment (2016)		1,846
Projected Employment (2021)		1,957
Growth Rate (2016-2021)		6%
Average Annual Openings (2016)		61
Hourly Pay Range		<div>\$15.10</div> <div>Entry-level</div> <div>\$28.34</div> <div>Median</div> <div>\$44.28</div> <div>Experienced</div>
Typical Educational Attainment		<div>High school diploma</div> <div>Apprenticeship</div>

Top Skills and Competencies

Knowledge	Skills	Abilities
Building and construction	Troubleshooting	Problem sensitivity
Mathematics	Repairing	Deductive reasoning
Mechanical	Active listening	Inductive reasoning
Design	Critical thinking	Near vision
English language	Judgement/decision making	Oral comprehension

Occupational Tasks







- Plan layout and installation of electrical wiring, equipment or fixtures based on job specifications and local codes.
- Connect wires to circuit breakers, transformers or other components.
- Test electrical systems or continuity of circuits in electrical wiring, equipment or fixtures, using testing devices such as ohmmeters, voltmeters or oscilloscopes to ensure compatibility and safety of system.
- Inspect electrical systems, equipment or components to identify hazards, defects or the need for adjustment or repair and to ensure compliance with codes.

Team Assembler

Standard Occupational Code: 51-2092

Other Job Title(s): Welder, Respooler, Quality Control Associate, Production Line Worker, Tiedown Operator, Repairer, Sub-Assembly Team Worker

Description: Work as part of a team having responsibility for assembling an entire product or component of a product. Team assemblers can perform all tasks conducted by the team in the assembly process and rotate through all or most of them rather than being assigned to a specific task on a permanent basis.

Fast Facts		Pierce County		
Current Employment (2016)		1,071		
Projected Employment (2021)		1,161		
Growth Rate (2016-2021)		8%		
Average Annual Openings (2016)		55		
Hourly Pay Range		\$11.12 Entry-level	\$15.99 Median	\$24.24 Experienced
Typical Educational Attainment		High school diploma		

Top Skills and Competencies

Knowledge	Skills	Abilities
Production and processing	Coordination Monitoring Quality control analysis Active listening Critical thinking	Manual dexterity Finger dexterity Problem sensitivity Near vision Oral comprehension

Occupational Tasks







- Perform quality checks on products and parts.
- Package finished products and prepare them for shipment.
- Rotate through all the tasks required in a particular production process.
- Shovel, seep or otherwise clean work areas.

Computer-Controlled Machine Tool Operators, Metal and Plastic

Standard Occupational Code: 51-4011

Other Job Title(s): Brake Press Operator, Computer numerical Control Lathe Operator, Computer Numerical Control Machine, Operator, Machinist

Description: Operate computer-controlled machines or roots to perform one or more machine function on metal or plastic work pieces.

Fast Facts		Pierce County		
Current Employment (2016)		422		
Projected Employment (2021)		479		
Growth Rate (2016-2021)		13.5%		
Average Annual Openings (2016)		19		
Hourly Pay Range		\$16.65 Entry-level	\$30.82 Median	\$42.60 Experienced
Typical Educational Attainment		High school diploma		

Top Skills and Competencies

Knowledge	Skills	Abilities
Mechanical	Operation monitoring	Reaction time
Mathematics	Quality control analysis	Arm-hand steadiness
Design	Monitoring	Problem sensitivity
Computer and electronics	Critical thinking	Hearing sensitivity
Engineering and technology	Operation and control	Near vision

Occupational Tasks







- Measure dimensions of finished workpieces to ensure conformance to specifications, using precision measuring instruments, templates, and fixtures.
- Mount, install, align, and secure tools, attachments, fixtures, and workpieces on machines, using hand tools and precision measuring instruments.
- Stop machines to remove finished workpieces or to change tooling, setup, or workpiece placement, according to required machining sequences.
- Transfer commands from servers to computer numerical control (CNC) modules, using computer network links.

Customer Service Representative

Standard Occupational Code: 43-4051

Other Job Title(s): Customer Service Agent, Member Services Representative, Social Worker, Patient Advocate, Sales Facilitator, Customer Care Representative

Description: Interact with customer to provide information in response to inquiries about products and services and to handle and resolve complaints.

Fast Facts		Pierce County
Current Employment (2016)		4,818
Projected Employment (2021)		5,533
Growth Rate (2016-2021)		15%
Average Annual Openings (2016)		264
Hourly Pay Range		<div>\$10.29</div> <div>Entry-level</div> <div>\$15.91</div> <div>Median</div> <div>\$25.49</div> <div>Experienced</div>
Typical Educational Attainment		High school diploma

Top Skills and Competencies

Knowledge	Skills	Abilities
Customer and personal service	Active listening	Oral comprehension
English language	Speaking	Oral expression
Clerical	Service orientation	Speech clarity
Computer and electronics	Reading comprehension	Speech recognition
	Critical thinking	Near vision

Occupational Tasks







- Confer with customers by telephone or in person to provide information about products or services, take or enter orders, cancel accounts, or obtain details of complaints.
- Check to ensure that appropriate changes were made to resolve customers' problems.
- Keep records of customer interactions or transactions, recording details of inquiries, complaints, or comments, as well as actions taken.
- Resolve customers' service or billing complaints by performing activities such as exchanging merchandise, refunding money, or adjusting bills.

Pharmacy Technician

Standard Occupational Code: 29-2052

Other Job Title(s): Technician, Compounding Technician, Accredited Pharmacy Technician, Technician-Inventory Specialist, Billing and Quality Technician

Description: Prepare medications under the direction of a pharmacist. May measure, mix, count out, label, and record amounts and dosages of medications according to prescription orders.

Fast Facts		Pierce County
Current Employment (2016)		758
Projected Employment (2021)		870
Growth Rate (2016-2021)		15%
Average Annual Openings (2016)		25
Hourly Pay Range		<div>\$14.95</div> <div>Entry-level</div> <div>\$19.67</div> <div>Median</div> <div>\$23.86</div> <div>Experienced</div>
Typical Educational Attainment		High school diploma

Top Skills and Competencies

Knowledge	Skills	Abilities
Customer and personal service	Active listening	Oral comprehension
English language	Reading comprehension	Oral expression
Medicine	Speaking	Written comprehension
Clerical	Critical thinking	Speech recognition
	Monitoring	Near vision

Occupational Tasks







- Receive written prescription or refill requests and verify that information is complete and accurate.
- Prepack bulk medicines, fill bottles with prescribed medications, and type and affix labels.
- Answer telephones, responding to questions or requests.
- Maintain proper storage and security conditions for drugs.

Dispatcher (except Police, Fire and Ambulance)

Standard Occupational Code: 43-5032

Other Job Title(s): Truck Dispatcher, Aircraft Dispatcher, Rail Operations Controller, Motor Coach Supervisor, Train Dispatcher, Dispatch Manager

Description: Schedule and dispatch workers, work crews, equipment or service vehicles for conveyance of materials, freight or passengers or for normal installation, service or emergency repairs rendered outside the place of business. Duties may include using radio, telephone or computer to transmit assignments and compiling statistics and reports on work progress.

Fast Facts		Pierce County
Current Employment (2016)		540
Projected Employment (2021)		585
Growth Rate (2016-2021)		8%
Average Annual Openings (2016)		26
Hourly Pay Range		<div>\$13.72</div> <div>Entry-level</div> <div>\$20.61</div> <div>Median</div> <div>\$30.14</div> <div>Experienced</div>
Typical Educational Attainment		High school diploma

Top Skills and Competencies

Knowledge	Skills	Abilities
Transportation	Operation and control	Control precision
Public safety and security	Operation monitoring	Far vision
Customer and personal service	Time management	Multi-limb coordination
Mechanical	Critical thinking	Near vision
	monitoring	Reaction time

Occupational Tasks







- Monitor personnel or equipment locations and utilization to coordinate service and schedules.
- Oversee all communications with specifically assigned authorities.
- Relay work orders, messages or information to or from work crews, supervisor or field inspectors, using telephones or two-way radios.
- Confer with customers or supervising personnel to address questions, problems or requests for service equipment.

Heavy and Tractor-Trailer Truck Drivers

Standard Occupational Code: 53-3032

Other Job Title(s): Semi-Truck Driver, Mixer Driver, Line Haul Driver, Roll Off Driver, Long Truck Driver, Truck Driver, Semi Driver

Description: Drive a tractor-trailer combination or a truck with a capacity of at least 26,000 pounds Gross Vehicle Weight (GVW). May be required to unload truck.

Fast Facts		Pierce County		
Current Employment (2016)		5,127		
Projected Employment (2021)		5,472		
Growth Rate (2016-2021)		7%		
Average Annual Openings (2016)		207		
Hourly Pay Range		\$16.10 Entry-level	\$21.71 Median	\$30.01 Experienced
Typical Educational Attainment		Postsecondary non-degree award		Commercial Driver's License

Top Skills and Competencies

Knowledge	Skills	Abilities
Transportation	Operation and control	Control precision
Public safety and security	Operation monitoring	Far vision
Customer and personal service	Time management	Multi-limb coordination
Mechanical	Critical thinking monitoring	Near vision Reaction time

Occupational Tasks

- Check vehicles to ensure that mechanical, safety and emergency equipment is in good working order.
- Follow appropriate safety procedures for transporting dangerous goods.
- Inspect loads to ensure that cargo is secure.
- Maintain logs of working hours or of vehicle service or repair status, following applicable state and federal regulations.

APPENDIX G: LIST OF LOCAL MIDDLE-SKILL TRAINING INITIATIVES

Program	Program Description
<u>Local Employment and Apprenticeship Training Program</u> Location: Tacoma Services: Employment Assistance, Apprenticeships Industries: General	<p>The Local Employment and Apprenticeship Training Program (LEAP) provides City of Tacoma resident opportunities to access apprenticeship programs through its partnerships with local work force development providers.</p>
<u>Making a Difference in Community</u> Location: Tacoma Services: Employment Assistance Industries: General	<p>Making a Difference in Community (MDC) provides employment services such as one-on-one career coaching, resume review workshops, interviewing and monthly hiring events.</p>
<u>BankWork\$ A Bank Career Training Program</u> Location: Pierce County Services: Training Program Industries: Retail Trade	<p>Provides job training, job placement assistance and ongoing career coaching for career advancement in the banking industry in an 8-week program.</p>
<u>Goodwill Training Programs</u> Location: Tacoma Services: Training Programs Industries: Healthcare, ICT, Retail, Transportation, General	<p>From Retail Skills training to Transportation and Health Care training, Goodwill offers a variety of training programs to Tacoma residents. Goodwill provides these training programs to meet service needs of the city.</p>
<u>Resources for Education and Career Help Center</u> Location: Tacoma-Pierce County Services: Employment Assistance Industries: Retail, General	<p>Resources for Education and Career Help Center (REACH) offers employment services to young people ages 16-24 who are looking to advance their education and career.</p>
<u>Trillium</u> Location: Pierce County Services: Employment Assistance Industries: General	<p>Trillium helps businesses recruit, train and retrain employees with disabilities. Employment services are offered to individuals with disabilities to make sure that a quality match with a business is made.</p>
<u>Goodwill Senior Community Service Employment Program</u> Location: Tacoma	<p>Senior Community Service Employment Program (SCSEP) helps seniors find work. This on-the-job training and employment program was designed to help those ages 55</p>

Services: Employment Assistance, Training Industries: General	<p>and older update their job skills, build work experience and continue to have economic security and well-being.</p>
<u>Career Path Services</u> Location: Pierce County Services: Employment Assistance, Training Industries: General	<p>Career Path Services helps a wide variety of job seekers find employment through many services.</p>
<u>Centro Latino</u> Location: Tacoma Services: Employment Assistance Industries: General	<p>Centro Latino works to provide services that help clients be self-sufficient. Services support clients in building skills, maximizing potential and increasing their ability to fully contribute to society.</p>
<u>Jobs + Business Center</u> Location: Tacoma Services: Employment Assistance, Training Industries: General	<p>A resource provided by Pierce County Library System's which helps connect job seekers and entrepreneurs to information, training and local agencies.</p>
<u>Down Syndrome Community</u> Location: Pierce County Services: Employment Assistance Industries: General	<p>A registered 501(c)(3) organization whose mission is to provide impactful programs and resources for individuals with Down syndrome and their families with evolving perceptions in the broader community.</p>
<u>Bates Technical College</u> Location: Tacoma Services: Apprenticeships Industries: Aerospace, Construction, General	<p>Offering 9 Washington state-approved apprenticeship training programs, ranging from the aerospace industry to construction fields. In addition to earning a certificate, apprentices can earn a degree in Apprenticeship Studies – which can be a great option for those that are interested in pursuing a supervisory, inspector or other position.</p>
<u>Tacoma Public Utilities</u> Location: Tacoma Services: Apprenticeships Industries: Construction	<p>Tacoma Public Utilities (TPU) provides services that are vital to quality of life. TPU also provides apprenticeships and internships in the construction field.</p>
<u>Pierce County Skills Center – Construction Trades Program</u> Location: Pierce County Services: Pre-Apprenticeship Industries: Construction, Transportation, General	<p>Pierce County Skills Center provides career options for students that lead to real jobs that mesh with workplace demands. The Construction Trades program is a pre-apprenticeship program designed to teach entry-level construction skills and knowledge for grade levels 11-12. The Automotive Technology program is a pre-apprenticeship program designed to train students (grade</p>

	levels 11-12) for a variety of jobs within the automotive industry.
<u>International Union of Operating Engineers</u> Location: Tacoma Services: Apprenticeships Industries: Construction	Operating Engineers, Local 612 is committed to providing the best training skills and improvements to meet the ever-changing demands of the construction industry. Training and apprenticeship programs are offered in the construction trade.