

The Institute

Turning Information into Insight

A collaboration among Geisinger Commonwealth School of Medicine, Johnson College, Keystone College, King's College, Lackawanna College, Luzerne County Community College, Marywood University, Misericordia University, Penn State Scranton, Penn State Wilkes-Barre, The Wright Center for Graduate Medical Education, University of Scranton & Wilkes University

This report, prepared by The Institute for Public Policy and Economic Development, identifies impending gaps in low-skill, medium-skill, and high-skill occupations throughout the region.

Skills Shortages:

Exploring the Skills Most
Pertinent to the Area's
Emerging Workers

This research was originally published in the
May 2019 Joint Task Force Report on
Economic Competitiveness

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The Institute is a non-profit research organization dedicated to empowering business and community leaders with research based strategies for informed decision making. We conduct independent, non-biased research to identify the opportunities, issues and challenges unique to the region and find innovative solutions to help solve the problems facing our communities. The Institute also offers a wide array of research, consulting and support services to help organizations boost productivity, increase profitability and be successful in their missions.

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- transportation
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- Needs Assessments
- Policy Analysis
- Program Evaluation Support
- Project Analyses and Monitoring
- Research Validation and Peer Review
- Tourism Strategic Plans
- Workforce Studies

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Preface

In June 2019, the Education & Workforce Development (Ed/WFD) and Jobs, Economy, & Economic Development (JEED) Task Forces met to discuss the release of the Economic Competitiveness report presented at Indicators 2019 and to identify a research agenda for the 2019-2020 year.

It was determined at that time that this upcoming year's research should again be a joint effort because of the nature of the two task forces is extricably linked especially since there was a workforce shortage at the time that was predicted to last at least two decades.

Based on discussion, it was decided that there were several education and workforce related sections in the economic competitiveness report that should be elevated to their own research brief and that several areas were not addressed.

Therefore, the following sections of the report have been developed into stand-alone research briefs:

- Skills Shortages
- Labor Demand
- Industrial Automation
- Comparative Analysis of Job Opportunities and Higher Education Completions

The following new briefs were developed in the fall 2019 – winter 2020 time frame:

- Rethinking the Senior Worker
- Adapting to the Millennial Worker & Beyond
- Soft Skills & the Workforce
- Rethinking the Trades – Regional Opportunities

With the recent economic challenges of the current pandemic, some of this research reflects economic circumstances that have been upended, at least in the short-term. However, it should be noted that the data serves as a pre COVID-19 baseline in order for us to evaluate changes.

Further, as we move through recovery and reach February 2020 economic activity, the labor shortage may be center stage again. Therefore, the information outlined in these briefs is pertinent and gives employers an opportunity to plan for the future in a more informed and thoughtful way.

Research Methodology

In drafting this report, The Institute for Public Policy and Economic Development reported from a wide variety of federal and state sources. The primary database used for this report was Chmura JobsEQ, a proprietary online platform that aggregates federal, state, and local employment, wages, and educational data down to the zip code level.

Supplementary data was provided from a range of federal datasets from the United States Census Bureau. Population, housing, and workforce data was extracted from the American Community Survey. Commuter data was compiled from the Longitudinal Employer-Household Dynamics program at the Bureau's Center for Economic Studies. Educational completion data from regional institutions was extracted from the National Center for Educational Statistics. Qualitative occupational descriptions and skill set information was obtained from O*NET Online, the U.S. Department of Labor's online resource containing descriptive information about national occupations, industries, and fields of work.

Finally, for the purposes of this report, the region defined as Northeastern Pennsylvania consists of 11 counties: Bradford, Carbon, Columbia, Lackawanna, Luzerne, Monroe, Pike, Schuylkill, Susquehanna, Wayne, and Wyoming. This region has a combined population of 1.2 million and is home to approximately 560,000 employed workers and a labor force of 589,000 individuals. Data for Northeastern Pennsylvania that is not specifically presented on a county-by-county level may be assumed to be reported on an aggregate level for all 11 counties comprising the area's geographic scope.

FAST FACTS

POPULATION

1,204,560

UNEMPLOYMENT RATE

5.6%

GDP

\$46.1 BILLION

LABOR FORCE PARTICIPATION RATE

59.2%

WORKFORCE SIZE

589,463

NUMBER OF JOBS

556,605

ESTABLISHMENTS

28,388

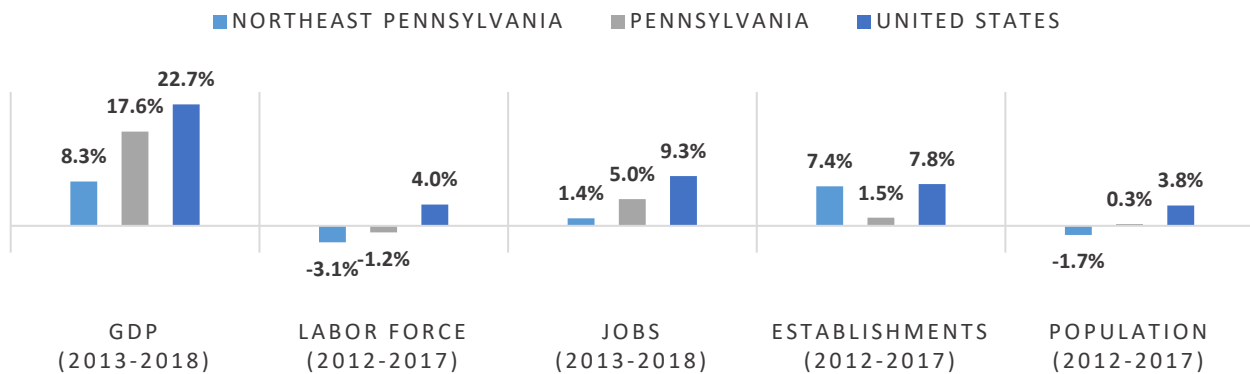
EXPORTS

\$5.3 BILLION

Executive Summary

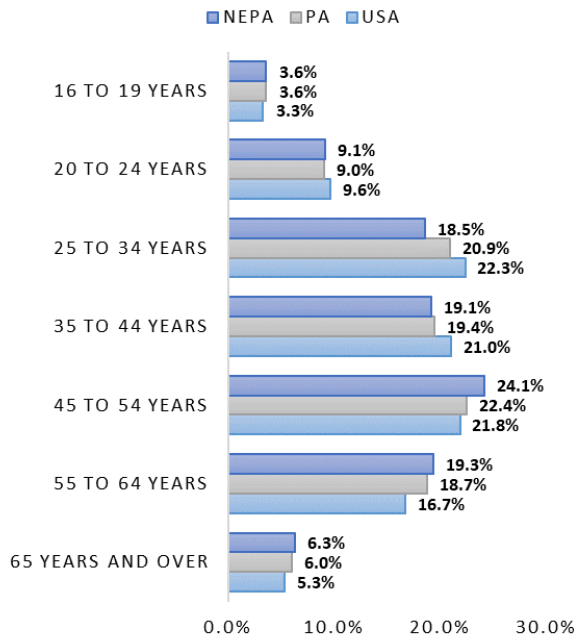
Like many other Rust Belt communities, Northeastern Pennsylvania’s economy sits at an important crossroads, at the intersection of multiple economic, social, and demographic trends whose pace is accelerating rapidly. While Pennsylvania and the rest of the nation has seen a modest uptick in population, Northeastern Pennsylvania’s contracted by two percent. While other regions’ labor forces are growing or shrinking modestly, this region’s labor force shrank by nearly three percent between 2012 and 2017. Consequently, the region also lags behind the rest of the state and the rest of the nation in other important labor market metrics, including GDP and job creation. While the rest of the commonwealth, as well as the United States, will experience many of these troubling demographic trends, Northeastern Pennsylvania is, somewhat regrettably, ahead of the curve.

LABOR MARKET INDICATORS, 2012-PRESENT

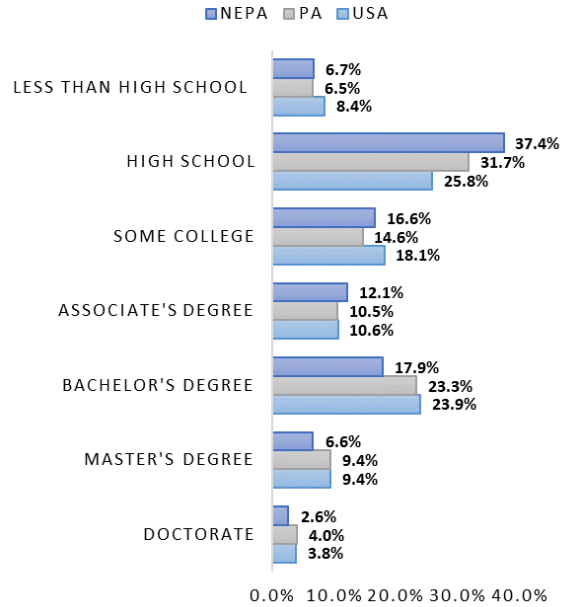


Due to the area’s stagnant population growth, the region’s workforce is, on balance, both older and less educated than the statewide or national equivalents. Specifically, as demonstrated by the graphs below, Northeastern Pennsylvania is home to a disproportionately large percentage of workers at or above the age of 45, while lagging behind the rest of Pennsylvania and the United States among workers between the ages of 25 and 44. Additionally, the region has the largest percentage of workers with a high school degree or less, at approximately 44 percent, compared to 38 percent of all Pennsylvania workers and 34 percent of all American workers. Just 27 percent of regional workers have attained a bachelor’s degree or higher, compared to 37 percent of workers in both Pennsylvania and the rest of the country.

WORKFORCE BY AGE



WORKFORCE BY EDUCATION

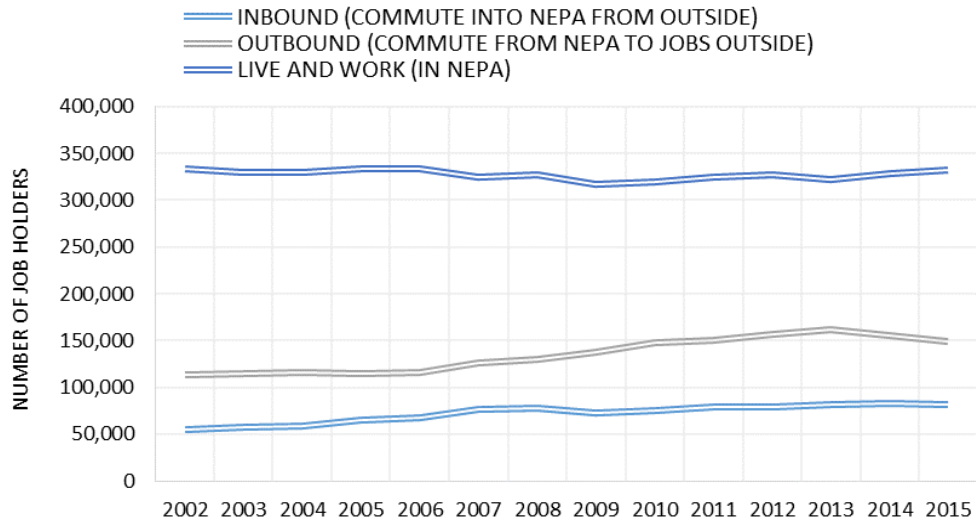


As such, the region remains at a competitive disadvantage in attracting new industries that might require formal educational credentials for entry. Every day, nearly 81,000 workers travel into the region from outside, while nearly 150,000 leave the region to work elsewhere – a net loss of 68,000 workers. Moreover, the region has also experienced a net out-migration of residents, as roughly 6,900 more individuals left the region than entered it between 2012 and 2016.

NET MIGRATION, NEPA (2012-2016)

County	Net Migration	% Intra-Region Migration
Bradford	-1,446	40.8%
Carbon	-558	75.5%
Columbia	-178	70.8%
Lackawanna	361	58.6%
Luzerne	-678	58.3%
Monroe	-1,404	51.9%
Pike	-922	34.9%
Schuylkill	-2,095	66.1%
Susquehanna	-233	53.9%
Wayne	300	60.5%
Wyoming	-14	78.8%
TOTAL	-6,867	58.1%

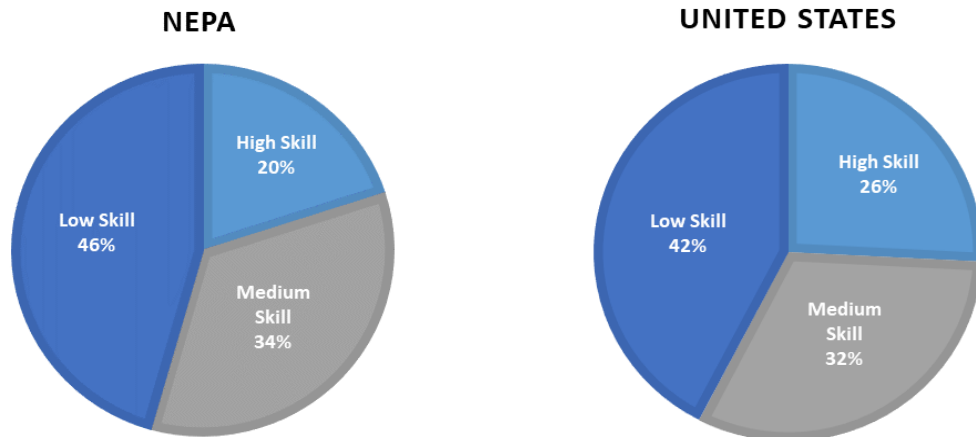
COMMUTING FLOWS, 2002-2015



Source: U.S. Census Bureau, Local Employment Dynamics (2015)

Because of the relatively large number of regional workers with only a high school degree or less, the area’s workforce is oriented around low skill occupations – those which require just a high school degree. A mass exodus of workers, either through retirement or out-migration, is projected to result in a large drop in workforce representation of these low skill occupations, from 57 percent in 2018 to 46 percent by 2026. Conversely, the proportion of high skill occupations, those which require at least a bachelor’s degree, is projected to climb from 13 percent of the regional workforce to 20 percent during the same period of time. Middle skill occupations, which require either long-term training or an associate’s degree, are also slated to fall by four percentage points during this time.

OCCUPATIONAL PROJECTIONS BY SKILL, NEPA AND UNITED STATES



Source: Chmura JobsEQ®

Based on the findings reached in this report, the Institute makes the following recommendations:

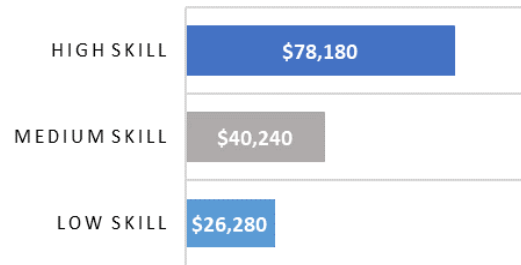
1. Harness the value of Northeastern Pennsylvania's network of higher education institutions in designing a classroom to workplace pipeline through public-private partnership and investment. By utilizing their expansive professional networks, workforce development stakeholders can be effective facilitators between educators and employers in aligning educational priorities with workforce demands.
2. Utilize the grant-making process to incentivize greater stakeholder collaboration in future, while providing support for non-traditional educational avenues. More experienced stakeholders in the field of workforce development can help employers and other relevant actors access public investment for new training opportunities for employees.
3. Equalize the range of services offered among regional workforce development organizations through multi-stakeholder and collective impact initiatives. Only through long-term action from deeply committed cross-sector stakeholders can initiatives that curb the region's multiple demographic and economic challenges be effectively implemented.

Strategies such as these might establish a roadmap for Northeastern Pennsylvania's economic recovery, thereby providing new opportunities for a region struggling to overcome multiple demographic and economic challenges and build a dynamic and accessible labor market for all.

Skills Shortages

The degree to which certain occupations rely on skills, developed through either institutional credentials or on-the-job training, can serve as a useful tool to assess a region’s strengths, educational attainment, and future economic prospects. For this report, Low Skill Occupations refer to those that require at most a high school degree. Medium Skill Occupations are limited to those that require its applicants to have more than a high school education, but less than a four-year degree. Occupations in this second category may require a diverse array of credentials for entry, including moderate to long-term on-the-job training, as well as the completion of a certificate, apprenticeship, or associate’s degree. Finally, High Skill Occupations include all those that require candidates to possess at least a four-year degree. Unsurprisingly, occupations requiring longer training or higher educational credentials tend, on average, to be more lucrative for workers.

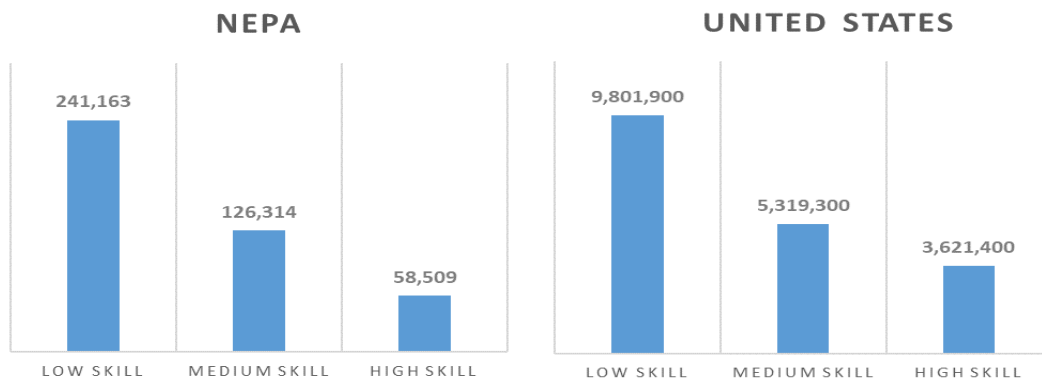
AVERAGE EARNINGS BY OCCUPATIONAL SKILL



Source: Chmura JobsEQ®

On average, the region’s occupational diversity by skill level broadly reflects that of the national level, with some slight yet distinct differences. Both in Northeastern Pennsylvania and across the rest of the country, a majority of workers are in occupations that, by the criteria of this report, would be considered Low Skill. As of 2018, approximately 241,163 workers in Northeastern Pennsylvania (57 percent) are currently in Low Skill Occupations, compared to 52 percent of workers across the United States. On the other end of the spectrum, just 13 percent of regional workers can be found in High Skill Occupations, compared to 19 percent of workers throughout the rest of the country.

EMPLOYMENT BY SKILL LEVEL, NEPA AND UNITED STATES (2018)

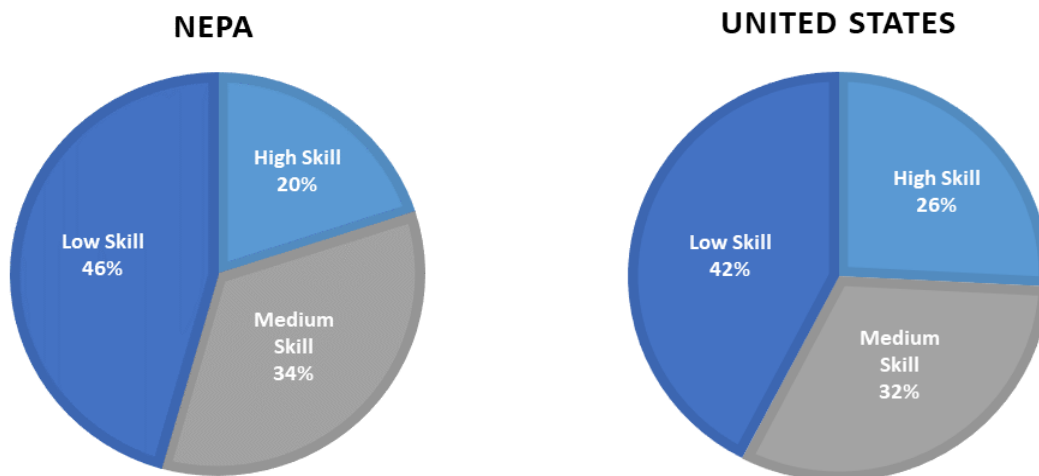


Source: Chmura JobsEQ®

Exiting Workers

Societal trends such as automation and demographic shifts inevitably entail changes in economic demand for many occupations. Thus, while workers in Low Skill Occupations consist of 56 percent of Northeastern Pennsylvania's labor market as of 2018, a shift in demand toward higher-skill occupations means that, by 2026, workers in these occupations will only represent 46 percent of the region's workforce, a drop of 10 percentage points. Workers in High Skill Occupations, however, stand to gain the most over the coming years, rising in workforce representation from 13 to 20 percent in the region. However, despite the narrowing opportunities for workers in Low Skill Occupations in the region, Northeastern Pennsylvania is still projected to lag six percentage points behind the rest of the country in the proportion of workers in high-skill occupations. Additionally, NEPA is expected to fall two percentage points behind the rest of the United States in representation of Middle Skill occupations. Conversely, of course, this means that the region will continue to be home to a disproportionately high percentage of Low Skill workers, by at least four percentage points.

OCCUPATIONAL PROJECTIONS BY SKILL, NEPA AND UNITED STATES 2018-2026



Source: Chmura JobsEQ®

Low Skill Occupations

Of the Low Skill Occupations presented below, those with the greatest number of openings between 2018 and 2026 include Combined Food Preparation and Serving Workers, Laborers and Movers, and Personal Care Aides. Nearly 18 percent of workers in these occupations are between the ages of 55 and 64, and are therefore likely to retire within the next decade. Moreover, another eight percent of workers in these occupations are over the age of 65. Overall, approximately 95 percent of positions created in this skills category during this time will be in replacement of current workers through retirement or normal turnover, while the remaining five percent are new and created to meet growing demands.

For younger workers interested in entering careers with the greatest skills shortages (and therefore the greatest potential labor market security), occupations with the highest proportion of new jobs projected from 2018 to 2026 include: Home Health Aides, Personal Care Aides, Physical Therapist Aides,

Occupational Therapy Aides, and Social and Human Service Assistants. Additionally, positions with the lowest percentage of workers over the age of 55 include Roofers, Helpers to Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Settlers, Electricians, Carpenters, and other Construction Trades.

Conversely, occupations with the highest rate of jobs created through the replacement or retirement of workers include Industrial Truck and Tractor Operators, Institutional and Cafeteria Cooks, Library Assistants, Helpers for Installation, Maintenance, and Repair projects, and Personal Care and Service Workers. Industries with the highest proportion of adults between the ages of 55 and 64, and therefore the likeliest to experience a wave of retirements, include Motor Vehicle Operators (54 percent), Tax Preparers (46 percent), Laborers and Freight Movers, Hand (38 percent); Building Cleaning Workers (36% percent), and Personal Care Aides (34 percent). However, certain regional occupations, perhaps due to less physically demanding aspects or different scheduling arrangements, still see a large number of workers over the age of 65, including Motor Vehicle Operators (26 percent), Tax Preparers (19 percent), Laborers and Freight (17 percent), and Physical Therapy Aides (11 percent).

PROJECTED ANNUAL OPENINGS BY REPLACEMENT DEMAND: LOW SKILL

Low Skill Occupations (High School Degree or Less)

		Current	2018-2026 Forecast			Demographics		Wages	
SOC	Description	2018 Jobs	Projected Demand (2018-2026)	New Jobs Created	Outgoing Jobs Filled	% 55-64 Years	% 65+ Years	Average Annual Wages	NEPA to US Wage Ratio
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	11,816	17,728	2%	98%	12.2%	3.3%	\$19,400	0.914
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	15,339	17,614	3%	97%	21.2%	16.5%	\$30,900	1.041
39-9021	Personal Care Aides	7,346	10,911	15%	85%	23.3%	10.5%	\$23,000	0.954
31-1011	Home Health Aides	3,314	4,284	21%	79%	19.0%	5.3%	\$25,200	1.038
53-7051	Industrial Truck and Tractor Operators	4,713	4,150	0%	100%	19.4%	2.7%	\$35,300	0.998
47-2061	Construction Laborers	4,328	3,671	4%	96%	14.7%	3.1%	\$37,100	0.954
37-3011	Landscaping and Groundskeeping Workers	3,729	3,554	1%	99%	15.3%	5.2%	\$26,900	0.906
43-4171	Receptionists and Information Clerks	2,848	2,961	1%	99%	18.7%	8.3%	\$27,100	0.914
39-9032	Recreation Workers	1,372	1,861	2%	98%	15.4%	7.0%	\$25,800	0.923
35-2012	Cooks, Institution and Cafeteria	1,652	1,849	0%	100%	13.1%	3.7%	\$27,800	1.013
21-1093	Social and Human Service Assistants	1,586	1,747	10%	90%	16.5%	7.5%	\$32,500	0.917
43-3021	Billing and Posting Clerks	1,460	1,238	5%	95%	23.6%	3.3%	\$34,400	0.894

53-7061	Cleaners of Vehicles and Equipment	1,045	1,174	1%	99%	13.8%	3.3%	\$24,100	0.935
39-9041	Residential Advisors	624	886	4%	96%	17.3%	8.2%	\$26,200	0.908
39-2021	Nonfarm Animal Caretakers	615	819	7%	93%	14.1%	4.5%	\$22,200	0.896
15-1151	Computer User Support Specialists	1,392	818	3%	97%	17.3%	3.7%	\$43,500	0.803
53-7081	Refuse and Recyclable Material Collectors	472	479	5%	95%	16.1%	4.3%	\$35,300	0.907
43-4131	Loan Interviewers and Clerks	516	403	3%	97%	21.5%	4.1%	\$30,200	0.744
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	277	372	6%	94%	17.1%	4.7%	\$25,600	0.929
43-4121	Library Assistants, Clerical	306	341	0%	100%	24.2%	9.9%	\$24,500	0.870
27-1026	Merchandise Displayers and Window Trimmers	384	297	4%	96%	15.5%	7.1%	\$23,300	0.753
49-9098	Helpers--Installation, Maintenance, and Repair Workers	290	289	0%	100%	19.8%	4.3%	\$25,500	0.838
47-2181	Roofers	335	263	1%	99%	9.2%	1.6%	\$44,200	1.033
31-2022	Physical Therapist Aides	204	241	13%	87%	22.1%	11.1%	\$26,100	0.935
39-9099	Personal Care and Service Workers, All Other	205	239	0%	100%	16.9%	6.6%	\$21,000	0.756
21-1094	Community Health Workers	206	233	10%	90%	22.1%	8.1%	\$38,200	0.902
53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	162	211	8%	92%	20.7%	6.6%	\$22,300	0.834
43-5031	Police, Fire, and Ambulance Dispatchers	278	202	1%	99%	14.8%	2.5%	\$37,900	0.902
47-4041	Hazardous Materials Removal Workers	189	194	5%	95%	17.8%	3.8%	\$38,800	0.837
53-3099	Motor Vehicle Operators, All Other	132	183	1%	99%	27.9%	25.7%	\$26,900	0.823
47-3013	Helpers--Electricians	160	180	1%	99%	9.8%	0.0%	\$32,400	1.011

47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	141	174	6%	94%	9.7%	9.8%	\$30,200	0.949
37-3013	Tree Trimmers and Pruners	173	165	1%	99%	14.7%	5.3%	\$31,000	0.804
43-5011	Cargo and Freight Agents	237	158	2%	98%	20.8%	6.0%	\$46,700	1.038
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	165	143	3%	97%	17.2%	6.7%	\$31,300	0.869
47-2151	Pipelayers	151	141	8%	92%	19.8%	5.5%	\$57,700	1.335
13-2082	Tax Preparers	160	133	1%	99%	27.2%	18.7%	\$38,400	0.815
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	112	122	7%	93%	17.8%	3.8%	\$37,300	0.919
47-3012	Helpers--Carpenters	103	119	2%	98%	9.8%	0.0%	\$30,300	0.974
39-2011	Animal Trainers	118	106	2%	98%	24.5%	1.8%	\$30,400	1.208
51-9083	Ophthalmic Laboratory Technicians	108	100	3%	97%	17.8%	9.1%	\$32,100	0.943
47-5021	Earth Drillers, Except Oil and Gas	95	89	8%	92%	17.8%	3.8%	\$38,300	0.807
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	71	80	1%	99%	9.8%	0.0%	\$32,800	0.937
47-5081	Helpers--Extraction Workers	77	79	4%	96%	17.8%	3.6%	\$36,300	0.985
53-7072	Pump Operators, Except Wellhead Pumpers	70	70	4%	96%	20.9%	6.5%	\$44,400	0.944
47-3019	Helpers, Construction Trades, All Other	54	63	3%	97%	9.8%	0.0%	\$30,400	0.955
39-5093	Shampooers	65	60	3%	97%	16.1%	1.9%	\$18,300	0.845
53-7121	Tank Car, Truck, and Ship Loaders	51	52	6%	94%	20.4%	6.6%	\$36,000	0.894
51-9082	Medical Appliance Technicians	51	49	6%	94%	17.8%	9.1%	\$41,100	1.016
31-2012	Occupational Therapy Aides	40	46	11%	89%	17.1%	4.8%	\$25,200	0.746
37-2019	Building Cleaning Workers, All Other	35	37	3%	97%	27.9%	8.3%	\$34,700	1.095
TOTAL	LOW-SKILLED OCCUPATIONS	69,372	81,378	5%	95%	17.9%	7.8%	\$26,280	-

Medium Skill Occupations

Of the Medium Skill Occupations presented below, those with the greatest number of openings between 2018 and 2026 include Nursing Assistants, Restaurant Cooks, Medical Secretaries, and Licensed Practical/Vocational Nurses. Nearly 18 percent of workers in these occupations are between the ages of 55 and 64, and are therefore likely to retire within the next decade. Moreover, another 6 percent of workers in these occupations are over the age of 65. Overall, approximately 95 percent of positions created in this skills category during this time will be in replacement of current workers through retirement or normal turnover, while the remaining 5 percent are new and created to meet growing demands.

For younger workers interested in entering careers with the greatest skills shortages (and therefore the greatest potential labor market security), occupations with the highest proportion of new jobs projected from 2018 to 2026 are found in both the healthcare and energy industries, and include Wind Turbine Service Technicians, Solar Photovoltaic Installers, Respiratory Therapists, Diagnostic Medical Sonographers, and Dental Hygienists. Additionally, positions with the lowest percentage of workers over the age of 55 include Emergency Medical Technicians and Paramedics, Web Developers, Bicycle Repairers, Insulation Workers, Mechanical, Structural Iron and Steel Workers.

Conversely, occupations with the highest rate of jobs created through replacement include Sales Representatives, Nursing Assistants, Restaurant Cooks, Construction and Building Inspectors, as well as Brickmasons and Blockmasons. Industries with the highest proportion of adults between the ages of 55 and 64, and therefore the likeliest to experience a wave of retirements, include Musical Instrument Repairers and Tuners (31 percent), Medical Records and Health Information Technicians (29 percent), Construction and Building Inspectors (29 percent), Medical Secretaries (28 percent), and Surveying and Mapping Technicians (26 percent). However, certain regional occupations, perhaps due to less physically demanding aspects, salary potential, or different scheduling arrangements, still see a large number of workers over the age of 65, including Opticians (12 percent), Insurance Sales Agents (12 percent), Self-Enrichment Education Teachers (11 percent), Court Reporters and Construction and Building Inspectors (10 percent), and Surveying and Mapping Technicians (10 percent).

PROJECTED ANNUAL OPENINGS BY REPLACEMENT DEMAND: MEDIUM SKILL

Medium Skill Occupations (More than High School Degree, Less than Bachelor's Degree)

Occupations		Current	2018-2026 Forecast			Demographics		Wages	
SOC	Description	2018 Jobs	Projected Demand (2018-2026)	New Jobs Created	Outgoing Jobs Filled	% 55-64 Years	% 65+ Years	Average Annual Wage	NEPA to US Wage Ratio
31-1014	Nursing Assistants	7,111	6,415	1%	99%	18.8%	5.4%	\$28,800	1.009
35-2014	Cooks, Restaurant	4,066	4,561	1%	99%	13.3%	3.7%	\$25,100	0.949
43-6013	Medical Secretaries	2,105	2,139	12%	88%	27.7%	9.6%	\$33,200	0.926
29-2061	Licensed Practical and Licensed Vocational Nurses	3,469	2,053	4%	96%	19.1%	4.2%	\$43,400	0.949
31-9092	Medical Assistants	1,864	2,014	15%	85%	10.9%	2.7%	\$31,400	0.935

41-3099	Sales Representatives, Services, All Other	2,120	2,007	0%	100%	14.8%	6.9%	\$55,600	0.882
39-5012	Hairdressers, Hairstylists, and Cosmetologists	1,899	1,860	3%	97%	13.7%	8.4%	\$22,600	0.741
47-2073	Operating Engineers and Other Construction Equipment Operators	1,927	1,717	2%	98%	23.0%	5.6%	\$47,000	0.906
47-1011	First-line Supervisors of Construction Trades and Extraction Workers	1,792	1,424	3%	97%	21.4%	3.6%	\$66,300	0.958
25-2011	Preschool Teachers, Except Special Education	1,500	1,178	2%	98%	15.9%	2.8%	\$28,400	0.845
47-2152	Plumbers, Pipefitters, and Steamfitters	1,295	1,146	5%	95%	19.8%	5.4%	\$47,000	0.824
31-9091	Dental Assistants	1,059	1,046	9%	91%	12.7%	2.8%	\$36,900	0.954
29-2052	Pharmacy Technicians	1,528	968	3%	97%	13.0%	2.6%	\$28,400	0.859
53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	1,064	938	6%	94%	18.1%	5.7%	\$57,500	1.071
41-3021	Insurance Sales Agents	1,154	895	2%	98%	19.2%	11.6%	\$56,900	0.849
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	1,052	832	3%	97%	17.2%	4.1%	\$48,400	0.977
39-1021	First-Line Supervisors of Personal Service Workers	942	759	6%	95%	15.1%	6.3%	\$36,200	0.893
29-2041	Emergency Medical Technicians and Paramedics	1,320	751	15%	85%	6.5%	1.3%	\$29,500	0.804
25-3021	Self-Enrichment Education Teachers	811	743	4%	96%	20.7%	10.6%	\$29,400	0.659
23-2011	Paralegals and Legal Assistants	616	528	5%	95%	18.8%	7.8%	\$39,500	0.733
31-9011	Massage Therapists	485	463	11%	89%	23.9%	5.8%	\$46,500	1.034
43-9041	Insurance Claims and Policy Processing Clerks	544	452	3%	97%	23.3%	5.7%	\$38,400	0.935

31-9097	Phlebotomists	447	444	13%	87%	11.2%	3.1%	\$32,800	0.945
31-2021	Physical Therapist Assistants	364	434	14%	86%	11.1%	1.8%	\$51,100	0.887
29-2021	Dental Hygienists	648	368	15%	85%	19.4%	3.3%	\$58,600	0.785
47-2051	Cement Masons and Concrete Finishers	405	358	3%	97%	16.1%	4.0%	\$44,200	0.972
47-4011	Construction and Building Inspectors	403	344	1%	99%	29.2%	10.3%	\$47,300	0.763
49-9051	Electrical Power-Line Installers and Repairers	504	341	7%	93%	19.5%	4.1%	\$72,900	1.061
29-2034	Radiologic Technologists	710	327	10%	91%	19.9%	3.8%	\$59,000	0.978
39-5092	Manicurists and Pedicurists	348	320	3%	98%	16.3%	1.8%	\$24,000	0.961
29-2071	Medical Records and Health Information Technicians	606	319	9%	92%	29.3%	4.0%	\$36,400	0.85
31-9099	Healthcare Support Workers, All Other	288	297	3%	97%	14.4%	4.3%	\$40,700	1.054
29-2012	Medical and Clinical Laboratory Technicians	524	288	10%	90%	18.6%	6.9%	\$48,900	0.945
11-3071	Transportation, Storage, and Distribution Managers	416	260	3%	97%	19.0%	4.6%	\$101,100	1.004
29-2056	Veterinary Technologists and Technicians	357	255	11%	89%	13.3%	2.6%	\$33,800	0.974
47-2021	Brickmasons and Blockmasons	343	232	1%	99%	13.4%	2.1%	\$47,100	0.882
29-2055	Surgical Technologists	333	223	7%	93%	13.0%	2.5%	\$43,100	0.897
15-1134	Web Developers	357	210	4%	96%	8.1%	1.8%	\$48,200	0.650
29-1126	Respiratory Therapists	387	200	23%	77%	18.1%	3.9%	\$57,000	0.922
29-2099	Health Technologists and Technicians, All Other	315	197	18%	82%	16.3%	5.1%	\$38,500	0.825
31-2011	Occupational Therapy Assistants	165	197	12%	88%	17.3%	4.8%	\$47,600	0.8
47-5071	Roustabouts, Oil and Gas	166	191	11%	90%	17.8%	3.5%	\$38,400	0.964
39-5094	Skincare Specialists	189	176	3%	97%	16.2%	1.9%	\$32,400	0.922

47-5013	Service Unit Operators, Oil, Gas, and Mining	158	176	10%	90%	17.9%	3.5%	\$54,100	1.014
47-2071	Paving, Surfacing, and Tamping Equipment Operators	200	169	4%	96%	18.2%	3.8%	\$48,000	1.094
31-9093	Medical Equipment Preparers	157	162	3%	97%	14.6%	4.3%	\$34,600	0.934
49-2098	Security and Fire Alarm Systems Installers	157	146	5%	95%	18.1%	2.7%	\$47,300	1.004
29-2081	Opticians, Dispensing	247	141	2%	98%	24.6%	11.7%	\$33,600	0.86
47-2221	Structural Iron and Steel Workers	154	133	3%	97%	13.6%	0.0%	\$51,900	0.911
29-2032	Diagnostic Medical Sonographers	205	113	21%	79%	20.0%	3.8%	\$66,600	0.91
51-9081	Dental Laboratory Technicians	120	112	5%	96%	17.8%	9.2%	\$49,600	1.181
29-2057	Ophthalmic Medical Technicians	142	102	12%	88%	13.0%	2.6%	\$35,000	0.933
39-5011	Barbers	131	95	1%	99%	13.1%	8.5%	\$23,300	0.764
17-3031	Surveying and Mapping Technicians	111	94	1%	99%	25.9%	10.1%	\$40,600	0.876
47-4031	Fence Erectors	107	93	1%	99%	16.7%	3.9%	\$34,100	0.94
47-5012	Rotary Drill Operators, Oil and Gas	76	86	12%	88%	18.0%	3.4%	\$55,100	0.981
19-4091	Environmental Science and Protection Technicians, Including Health	79	73	1%	99%	15.9%	7.1%	\$51,300	1.04
53-2012	Commercial Pilots	92	71	3%	97%	19.9%	5.3%	\$79,300	0.888
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	85	70	4%	96%	18.3%	2.3%	\$51,500	0.923
29-2031	Cardiovascular Technologists and Technicians	158	67	3%	97%	20.0%	3.8%	\$54,800	0.957
47-2132	Insulation Workers, Mechanical	78	67	3%	97%	12.2%	0.0%	\$62,300	1.229
49-2095	Electrical and Electronics Repairers,	91	64	2%	98%	20.1%	4.3%	\$69,000	0.887

	Powerhouse, Substation, and Relay								
47-4021	Elevator Installers and Repairers	65	62	3%	97%	17.7%	3.5%	\$72,200	0.936
29-9099	Healthcare Practitioners and Technical Workers, All Other	121	55	11%	89%	21.7%	7.1%	\$68,800	1.135
47-2231	Solar Photovoltaic Installers	32	52	35%	65%	17.3%	3.8%	\$39,900	0.928
29-2035	Magnetic Resonance Imaging Technologists	111	51	10%	90%	20.0%	3.8%	\$62,100	0.881
49-3091	Bicycle Repairers	37	45	13%	87%	7.6%	2.7%	\$23,900	0.814
49-9096	Riggers	56	45	2%	98%	19.6%	4.3%	\$44,000	0.875
47-5011	Derrick Operators, Oil and Gas	38	43	12%	88%	17.9%	3.4%	\$44,500	0.937
53-7073	Wellhead Pumpers	38	41	10%	90%	21.5%	6.3%	\$41,000	0.772
47-2171	Reinforcing Iron and Rebar Workers	48	40	3%	98%	17.7%	3.8%	\$59,200	1.091
23-2091	Court Reporters	52	36	6%	94%	29.2%	10.3%	\$34,800	0.579
47-2011	Boilermakers	46	36	3%	97%	17.6%	3.8%	\$72,000	1.143
19-4041	Geological and Petroleum Technicians	37	33	6%	94%	18.2%	8.3%	\$49,000	0.772
29-2033	Nuclear Medicine Technologists	70	30	3%	97%	20.0%	3.8%	\$70,100	0.903
17-3025	Environmental Engineering Technicians	36	25	4%	96%	23.4%	5.7%	\$43,400	0.81
29-1124	Radiation Therapists	62	25	8%	92%	20.1%	5.9%	\$80,600	0.946
49-2021	Radio, Cellular, and Tower Equipment Installers and Repairers	28	24	4%	96%	18.1%	3.6%	\$63,200	1.108
49-9081	Wind Turbine Service Technicians	15	24	38%	62%	19.6%	4.3%	\$53,000	0.935
49-9063	Musical Instrument Repairers and Tuners	19	14	7%	93%	31.2%	6.4%	\$37,800	0.968
47-2072	Pile-Driver Operators	11	10	10%	90%	17.6%	3.8%	\$61,800	0.969
TOTAL	MEDIUM-SKILLED OCCUPATIONS	51,468	43,595	5%	95%	17.5%	6.0%	\$40,240	-

High Skill Occupations

Of the High Skill Occupations presented below, those with the greatest number of openings between 2018 and 2026 include Registered Nurses, Child, Family, and School Social Workers, and Market Research Analysts and Marketing Specialists. Nearly 21 percent of workers in these occupations are between the ages of 55 and 64, and are therefore likely to retire within the next decade. Moreover, another 7 percent of workers in these occupations are over the age of 65. Overall, approximately 90 percent of positions created in this skills category during this time will be in replacement of current workers through retirement or normal turnover, while the remaining 10 percent are new and created to meet growing demands – the highest proportion of new positions created by skills category.

For younger workers interested in entering careers with the greatest skills shortages (and therefore the greatest potential labor market security), occupations with the highest proportion of new jobs projected from 2018 to 2026 are found almost entirely in the healthcare and social assistance industry, and include Nurse Practitioners, Physician Assistants, Mathematicians, Physical Therapists, Dentists, Family and General Practitioners, Internists, and Anesthesiologists. Additionally, positions with the lowest percentage of workers over the age of 55 include Actuaries, Physician Assistants, Public Relations and Fundraising Managers, Software Developers, and Financial Analysts.

Conversely, occupations with the highest rate of jobs created through the replacement or retirement of workers include Teachers and Instructors, Cost Estimators, and Compliance Officers, as well as Coaches and Scouts. Industries with the highest proportion of adults between the ages of 55 and 64, and therefore the likeliest to experience a wave of retirements, include Appraisers and Assessors of Real Estate (31 percent), Arbitrators, Mediators, and Conciliators (30 percent), Dentists (29 percent), Oral and Maxillofacial Surgeons and Orthodontists (29 percent), and Cost Estimators (28 percent). However, certain regional occupations, perhaps due to less physically demanding aspects, salary potential, or different scheduling arrangements, still see a large number of workers over the age of 65, including Arbitrators, Mediators, and Conciliators (25 percent), Clinical, Counseling, and School Psychologists (20 percent), Psychologists (20 percent), Postsecondary Philosophy and Religion Teachers (13 percent), and Postsecondary Law Teachers (13 percent).

PROJECTED ANNUAL OPENINGS BY REPLACEMENT DEMAND: HIGH SKILL

High Skill Occupations (Bachelor's Degree or Higher)

SOC	Title	Current	2018-2026 Forecast			Demographics		Wages	
		2018 Jobs	Projected Demand (2018-2026)	New Jobs Created	Outgoing Jobs Filled	% 55-64 Years	% 65+ Years	Average Annual Wages	NEPA to US Wage Ratio
29-1141	Registered Nurses	9,775	4,699	13%	87%	22.7%	5.3%	\$62,000	0.843
21-1021	Child, Family, and School Social Workers	1,155	1,094	11%	89%	20.4%	6.7%	\$39,000	0.805
13-1161	Market Research Analysts and Marketing Specialists	1,177	1,041	10%	90%	14.7%	3.5%	\$56,500	0.791
21-1014	Mental Health Counselors	997	1,000	13%	87%	18.5%	5.7%	\$44,000	0.941
13-1111	Management Analysts	1,230	848	2%	98%	21.4%	10.5%	\$84,000	0.899

11-9111	Medical and Health Services Managers	1,101	817	14%	86%	24.7%	6.4%	\$82,200	0.736
27-2022	Coaches and Scouts	705	750	1%	99%	13.7%	7.1%	\$31,600	0.743
11-3031	Financial Managers	1,048	690	10%	90%	18.5%	5.2%	\$122,700	0.855
11-9021	Construction Managers	1,132	623	2%	98%	25.3%	7.1%	\$87,500	0.866
21-1023	Mental Health and Substance Abuse Social Workers	633	608	12%	88%	20.3%	6.9%	\$39,800	0.832
21-1022	Healthcare Social Workers	594	559	11%	89%	20.3%	6.9%	\$54,400	0.958
13-1151	Training and Development Specialists	689	539	2%	98%	22.1%	5.9%	\$53,100	0.821
25-3099	Teachers and Instructors, All Other	621	537	0%	100%	20.6%	10.2%	\$50,800	1.07
13-1051	Cost Estimators	674	519	0%	100%	27.8%	8.7%	\$57,400	0.839
21-1011	Substance Abuse and Behavioral Disorder Counselors	495	492	13%	87%	18.5%	5.7%	\$43,900	0.939
13-2072	Loan Officers	752	486	2%	98%	16.6%	5.0%	\$57,500	0.738
11-9151	Social and Community Service Managers	557	456	12%	88%	23.5%	8.7%	\$60,600	0.859
21-1015	Rehabilitation Counselors	521	449	4%	96%	18.8%	5.7%	\$38,800	0.996
13-1041	Compliance Officers	715	446	0%	100%	26.9%	5.7%	\$56,700	0.793
29-1123	Physical Therapists	912	434	28%	72%	15.3%	4.4%	\$86,000	0.976
15-1132	Software Developers, Applications	601	404	20%	80%	13.5%	2.7%	\$83,400	0.782
17-2051	Civil Engineers	614	357	2%	98%	20.4%	5.7%	\$82,700	0.901
11-3021	Computer and Information Systems Managers	579	350	3%	97%	17.5%	3.3%	\$125,500	0.838
21-1099	Community and Social Service Specialists, All Other	307	331	8%	92%	22.3%	8.0%	\$47,100	1.052
11-3011	Administrative Services Managers	483	309	1%	99%	26.4%	5.2%	\$96,900	0.937
13-2051	Financial Analysts	455	306	1%	99%	12.5%	3.9%	\$72,000	0.724
29-1069	Physicians and Surgeons, All Other	1,136	299	19%	81%	21.8%	10.4%	\$246,700	1.167
13-2052	Personal Financial Advisors	464	292	5%	95%	20.0%	8.3%	\$92,700	0.747
15-1133	Software Developers, Systems Software	547	289	4%	96%	13.4%	2.8%	\$88,100	0.788
29-1171	Nurse Practitioners	437	281	34%	66%	24.3%	7.4%	\$95,200	0.886

25-1071	Health Specialties Teachers, Postsecondary	373	277	15%	85%	21.5%	12.0%	\$85,000	0.692
29-2011	Medical and Clinical Laboratory Technologists	531	274	6%	94%	18.7%	6.8%	\$49,100	0.948
29-1122	Occupational Therapists	524	269	20%	80%	12.2%	4.0%	\$82,400	0.974
29-1071	Physician Assistants	378	263	33%	67%	12.1%	3.8%	\$97,300	0.929
19-3031	Clinical, Counseling, and School Psychologists	428	245	9%	91%	22.3%	20.3%	\$76,500	0.941
29-1127	Speech-Language Pathologists	494	234	15%	85%	19.9%	3.6%	\$74,500	0.934
21-1091	Health Educators	204	221	8%	92%	22.0%	8.0%	\$62,300	1.056
21-1013	Marriage and Family Therapists	191	198	15%	85%	18.6%	5.6%	\$52,300	0.971
25-1121	Art, Drama, and Music Teachers, Postsecondary	292	185	4%	96%	21.4%	12.3%	\$71,200	0.904
25-1011	Business Teachers, Postsecondary	271	180	8%	92%	21.4%	12.3%	\$87,300	0.871
15-2031	Operations Research Analysts	274	178	22%	78%	16.9%	5.5%	\$56,300	0.651
13-1131	Fundraisers	206	174	6%	94%	19.0%	6.5%	\$54,700	0.913
19-1042	Medical Scientists, Except Epidemiologists	234	158	3%	97%	10.2%	7.4%	\$105,800	1.101
25-1072	Nursing Instructors and Teachers, Postsecondary	210	145	10%	90%	21.6%	12.2%	\$71,300	0.922
21-1029	Social Workers, All Other	162	138	4%	96%	20.4%	6.8%	\$63,800	1.048
11-9031	Education Administrators, Preschool and Childcare Center/Program	219	134	3%	97%	20.6%	8.5%	\$45,000	0.840
25-1123	English Language and Literature Teachers, Postsecondary	208	126	1%	99%	21.5%	12.2%	\$75,600	0.973
29-1031	Dietitians and Nutritionists	226	126	11%	89%	19.7%	6.7%	\$56,900	0.946
29-1021	Dentists, General	433	125	26%	74%	28.8%	10.1%	\$175,600	0.976
11-2031	Public Relations and Fundraising Managers	177	113	1%	99%	14.1%	1.9%	\$113,400	0.888
15-1141	Database Administrators	214	111	3%	97%	25.8%	2.5%	\$71,800	0.806

25-1081	Education Teachers, Postsecondary	181	111	2%	98%	21.4%	12.3%	\$65,800	0.909
27-3091	Interpreters and Translators	151	111	3%	97%	17.3%	9.2%	\$41,800	0.807
15-1122	Information Security Analysts	159	110	17%	83%	21.6%	1.3%	\$81,400	0.817
29-1062	Family and General Practitioners	369	108	26%	74%	21.7%	10.6%	\$219,400	1.052
29-1131	Veterinarians	258	92	19%	82%	21.8%	7.4%	\$100,100	0.986
25-1066	Psychology Teachers, Postsecondary	130	89	9%	91%	21.4%	12.4%	\$79,800	0.938
25-1042	Biological Science Teachers, Postsecondary	124	84	8%	92%	21.5%	12.1%	\$85,700	0.921
25-1022	Mathematical Science Teachers, Postsecondary	138	83	1%	99%	21.6%	12.1%	\$82,400	0.973
21-1019	Counselors, All Other	87	82	9%	91%	18.8%	5.5%	\$54,400	1.143
13-2021	Appraisers and Assessors of Real Estate	150	79	3%	97%	31.2%	10.7%	\$50,300	0.827
13-2061	Financial Examiners	111	68	3%	97%	19.9%	7.1%	\$80,500	0.877
25-1126	Philosophy and Religion Teachers, Postsecondary	103	65	5%	95%	21.2%	12.6%	\$77,100	0.979
19-3051	Urban and Regional Planners	95	64	3%	97%	18.3%	8.8%	\$53,400	0.718
29-1151	Nurse Anesthetists	132	61	15%	85%	23.1%	5.2%	\$163,400	0.964
29-1199	Health Diagnosing and Treating Practitioners, All Other	139	61	7%	93%	20.7%	5.9%	\$76,800	0.912
15-2041	Statisticians	74	59	20%	80%	16.0%	3.5%	\$63,000	0.708
17-1022	Surveyors	98	58	3%	97%	20.2%	6.5%	\$59,300	0.908
25-2051	Special Education Teachers, Preschool	100	58	3%	97%	20.8%	4.5%	\$52,800	0.904
25-1032	Engineering Teachers, Postsecondary	79	51	6%	94%	21.7%	11.8%	\$103,600	0.943
25-1122	Communications Teachers, Postsecondary	81	51	4%	96%	21.6%	12.2%	\$70,700	0.935
25-1124	Foreign Language and Literature Teachers, Postsecondary	79	51	6%	94%	21.8%	12.0%	\$76,400	1.006
29-1063	Internists, General	161	47	26%	74%	21.6%	10.5%	\$165,100	0.832
29-9091	Athletic Trainers	91	47	21%	79%	21.7%	7.3%	\$42,500	0.874

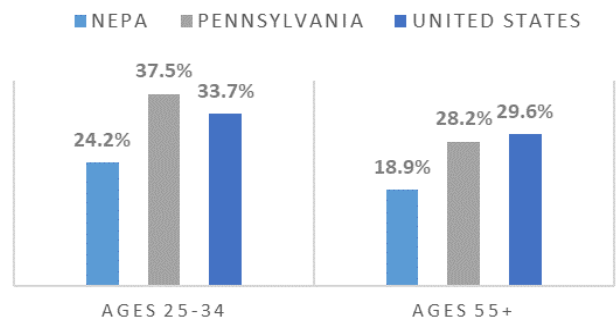
19-2042	Geoscientists, Except Hydrologists and Geographers	59	46	4%	96%	23.2%	10.6%	\$83,700	0.791
29-1041	Optometrists	148	46	20%	80%	20.4%	5.9%	\$103,900	0.872
29-1129	Therapists, All Other	84	45	18%	82%	13.6%	8.6%	\$55,400	0.95
25-1125	History Teachers, Postsecondary	70	44	2%	98%	21.6%	12.3%	\$80,400	0.97
17-2171	Petroleum Engineers	75	42	7%	93%	21.0%	5.9%	\$109,100	0.705
25-1052	Chemistry Teachers, Postsecondary	65	41	2%	98%	21.6%	12.3%	\$81,600	0.901
29-1011	Chiropractors	186	39	5%	95%	23.4%	10.3%	\$60,500	0.726
29-1067	Surgeons	137	39	23%	77%	21.6%	10.5%	\$197,600	0.784
15-2011	Actuaries	53	33	18%	82%	12.2%	2.9%	\$96,800	0.843
19-4092	Forensic Science Technicians	33	33	6%	94%	15.9%	7.0%	\$50,100	0.818
25-1112	Law Teachers, Postsecondary	51	33	6%	94%	21.4%	12.5%	\$91,200	0.702
25-1193	Recreation and Fitness Studies Teachers, Postsecondary	50	31	3%	97%	22.0%	12.3%	\$64,300	0.924
29-1061	Anesthesiologists	99	29	24%	76%	21.5%	10.5%	\$252,900	0.951
29-1065	Pediatricians, General	94	28	29%	71%	21.6%	10.5%	\$157,200	0.838
25-1065	Political Science Teachers, Postsecondary	44	27	4%	96%	21.5%	12.2%	\$84,700	0.859
19-3039	Psychologists, All Other	47	26	8%	92%	22.6%	20.2%	\$87,800	0.94
25-1054	Physics Teachers, Postsecondary	39	25	4%	96%	21.5%	12.2%	\$89,100	0.881
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	38	24	4%	96%	21.6%	12.3%	\$85,200	0.864
29-1128	Exercise Physiologists	53	24	8%	92%	20.6%	6.0%	\$44,100	0.806
29-1066	Psychiatrists	81	22	23%	77%	21.7%	10.5%	\$211,000	0.976
29-1181	Audiologists	48	22	23%	77%	20.2%	5.9%	\$61,700	0.771
25-1063	Economics Teachers, Postsecondary	33	21	5%	95%	21.6%	12.2%	\$105,100	0.915
25-4012	Curators	25	21	5%	95%	20.3%	7.5%	\$50,700	0.862
15-1111	Computer and Information Research Scientists	37	20	5%	95%	15.3%	3.1%	\$87,200	0.729
25-4013	Museum Technicians and Conservators	24	20	5%	95%	20.3%	7.4%	\$40,500	0.901
29-1064	Obstetricians and Gynecologists	68	20	30%	70%	21.5%	10.5%	\$258,200	1.098

25-1113	Social Work Teachers, Postsecondary	27	17	6%	94%	21.7%	12.1%	\$60,600	0.813
17-1021	Cartographers and Photogrammetrists	25	16	13%	87%	19.7%	6.5%	\$55,200	0.819
25-1082	Library Science Teachers, Postsecondary	25	16	6%	94%	21.5%	12.5%	\$68,300	0.927
29-2091	Orthotists and Prosthetists	27	16	19%	81%	16.0%	5.4%	\$61,100	0.861
25-4011	Archivists	15	13	8%	92%	20.0%	7.3%	\$47,300	0.853
29-1081	Podiatrists	31	13	8%	92%	20.4%	5.7%	\$139,000	0.936
29-1161	Nurse Midwives	22	11	18%	82%	22.9%	5.3%	\$92,000	0.888
23-1022	Arbitrators, Mediators, and Conciliators	18	7	14%	86%	30.1%	25.3%	\$48,200	0.66
29-1022	Oral and Maxillofacial Surgeons	20	6	17%	83%	28.7%	9.8%	\$203,500	0.838
29-1023	Orthodontists	20	6	17%	83%	28.7%	9.7%	\$230,100	1.003
29-9092	Genetic Counselors	9	5	20%	80%	21.8%	7.1%	\$64,500	0.826
29-1029	Dentists, All Other Specialists	17	4	25%	75%	28.8%	9.4%	\$120,100	0.601
15-2021	Mathematicians	5	3	33%	67%	13.3%	2.7%	\$78,100	0.746
TOTAL	HIGH-SKILLED OCCUPATIONS	42,447	26,803	10%	90%	20.7%	6.8%	\$78,180	-

Emerging Workers

Younger workers hoping to build a career in Northeastern Pennsylvania bring with them their own set of experiences and educational credentials. For instance, young adults in Northeastern Pennsylvania between the ages of 25 and 34 are more likely to hold a bachelor's degree than workers over the age of 55, but still at a rate surpassed by their peers across the Commonwealth and the United States at large. Despite this educational advantage, large percentages of young workers across the region may be opting out of the workforce. While the regional population of the 25 to 44 age cohort shrunk by nearly 4 percent since 2011, the percentage of 25-44 year olds who are not currently participating in the workforce increased by three percent.

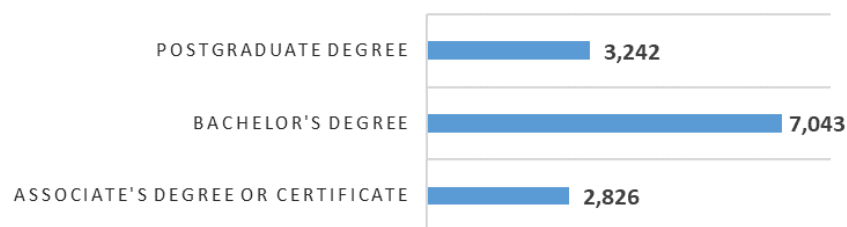
POPULATION WITH A BACHELOR'S DEGREE OR HIGHER BY AGE



Source: American Community Survey (2016)

According to the National Center for Education Statistics, Northeastern Pennsylvania (as defined by the scope of this report) has experienced 13,111 total post-secondary completions. For the purposes of this report, the term 'completions' refers to the award of a formal degree or certificate. Approximately 6,010 of these completions, or 46 percent, were awarded by private, four-year degree programs. Another 4,571 (35 percent) were awarded by public schools – of these public programs, approximately 90 percent were granted from a four-year program, while the remaining 10 percent came from a program offering a degree or certificate in less than four years. An additional 17 percent of awards or degrees were provided by for-profit institutions, while the remaining two percent were supplied by regional career and technical education centers.

DISTRIBUTION OF FOR-CREDIT COMPLETIONS BY AWARD LEVEL, 2016-2017



Source: Chmura JobsEQ®

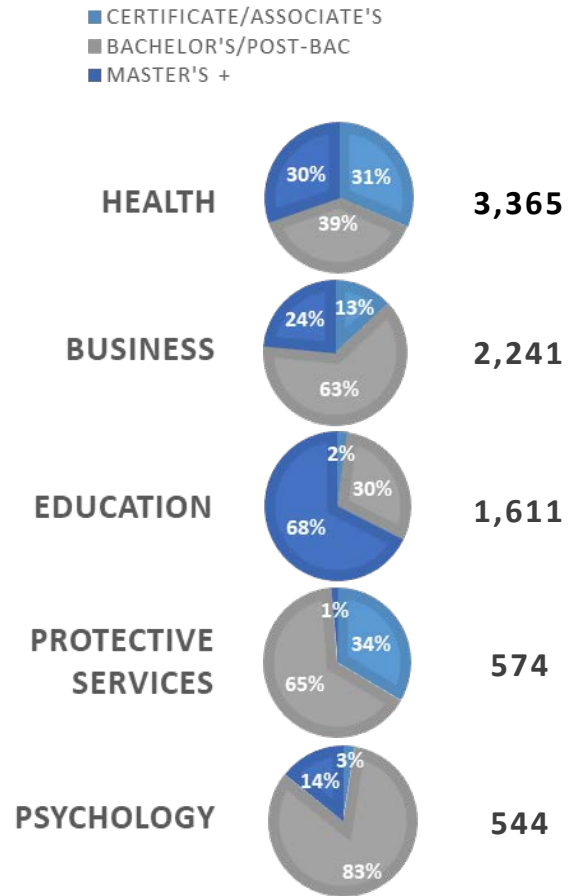
Institution Name	City	Type	Completions
Bloomsburg University of Pennsylvania	Bloomsburg	Public, 4+ years	2,167
University of Scranton	Scranton	Private, 4+ years	1,560
Wilkes University	Wilkes-Barre	Private, 4+ years	1,559
East Stroudsburg University of Pennsylvania	East Stroudsburg	Public, 4+ years	1,540
Marywood University	Scranton	Private, 4+ years	1,036
Luzerne County Community College	Wilkes-Barre	Public, <2 years	851
Misericordia University	Dallas	Private, 4+ years	826
King's College	Wilkes-Barre	Private, 4+ years	580
Lackawanna College	Scranton	Public, <4 years	414
McCann School of Business and Technology	Online	For-profit, <2 years	358
Keystone College	La Plume	Private, 2-4+ years	332
Clarks Summit University	Clarks Summit	Private, 4+ years	284
Fortis Institute	Scranton, Forty Fort	For-profit, <2 years	213
Johnson College	Scranton	Private, <2 years	160
Geisinger Commonwealth School of Medicine	Scranton	Private (graduate school)	156
Pennsylvania State University - Worthington Scranton	Scranton	Public, 2-4 years	154
Jolie Hair and Beauty Academy	Wilkes-Barre, Hazleton	For-profit, <1 year	151
Empire Beauty School	Locations	For-profit, <1 year	115
Pennsylvania State University - Schuylkill	Schuylkill Haven	Public, 2-4 years	111
Pennsylvania State University - Hazleton	Hazleton	Public, 2-4 years	108
Pennsylvania State University - Wilkes-Barre	Wilkes-Barre	Public, 2-4 years	77
Wilkes-Barre Area CTC Practical Nursing	Wilkes-Barre	CTC, 1 year	70
CTC of Lackawanna County	Scranton	CTC, 1 year	56
Schuylkill Technology Center	Frackville	CTC, 1 year	55
Susquehanna County CTC	Springville	CTC, 1 year	38
Joseph F. McCloskey School of Nursing at Schuylkill Health	Pottsville	Private, <2 years	28
Hazleton Area CTC	Hazleton	CTC, 1 year	21
Northern Tier Career Center	Towanda	CTC, 1 year	21
The Beauty Institute	Stroudsburg	For-profit, <1 year	20
CDE Career Institute	Tannersville	For-profit, <1 year	18
Yeshivath Beth Moshe	Scranton	Private, 4+ years (seminary)	8

Source: Chmura JobsEQ®

Of the 13,111 degrees or awards conferred by regional institutions of higher education, approximately 55 percent were conferred in a subject relating to health professions, business, or education. Moreover, among the top five broader fields of study, an overwhelming majority of the awards conferred were either bachelor's degrees or postgraduate. However, opportunities for workers interested in pursuing an associate's degree or certificate abound in the Health and Protective Service fields, where completions in this category approached nearly a third of all awards conferred within these respective fields.

A closer look at degree attainment by field of study shows the wide array of educational pathways offered by regional institutions of higher education. As of the 2016-2017 academic year, regional awards were conferred in approximately 280 different fields of study. The top 30 are presented in the graphic below. The top five fields of study for bachelor's degree holders include Business Administration, Registered Nursing, Psychology, Criminal Justice, and Accounting. Among holders of an associate's degree or certificate, the five most popular fields of study included Licensed Practical Nursing, Cosmetology, Registered Nursing, Medical and Clinical Assistants, and Liberal Arts and Sciences. Finally, the top five fields of study among postgraduate holders include Education, Business Administration, Social Work, Occupational Therapy, and Physician Assistant Studies.

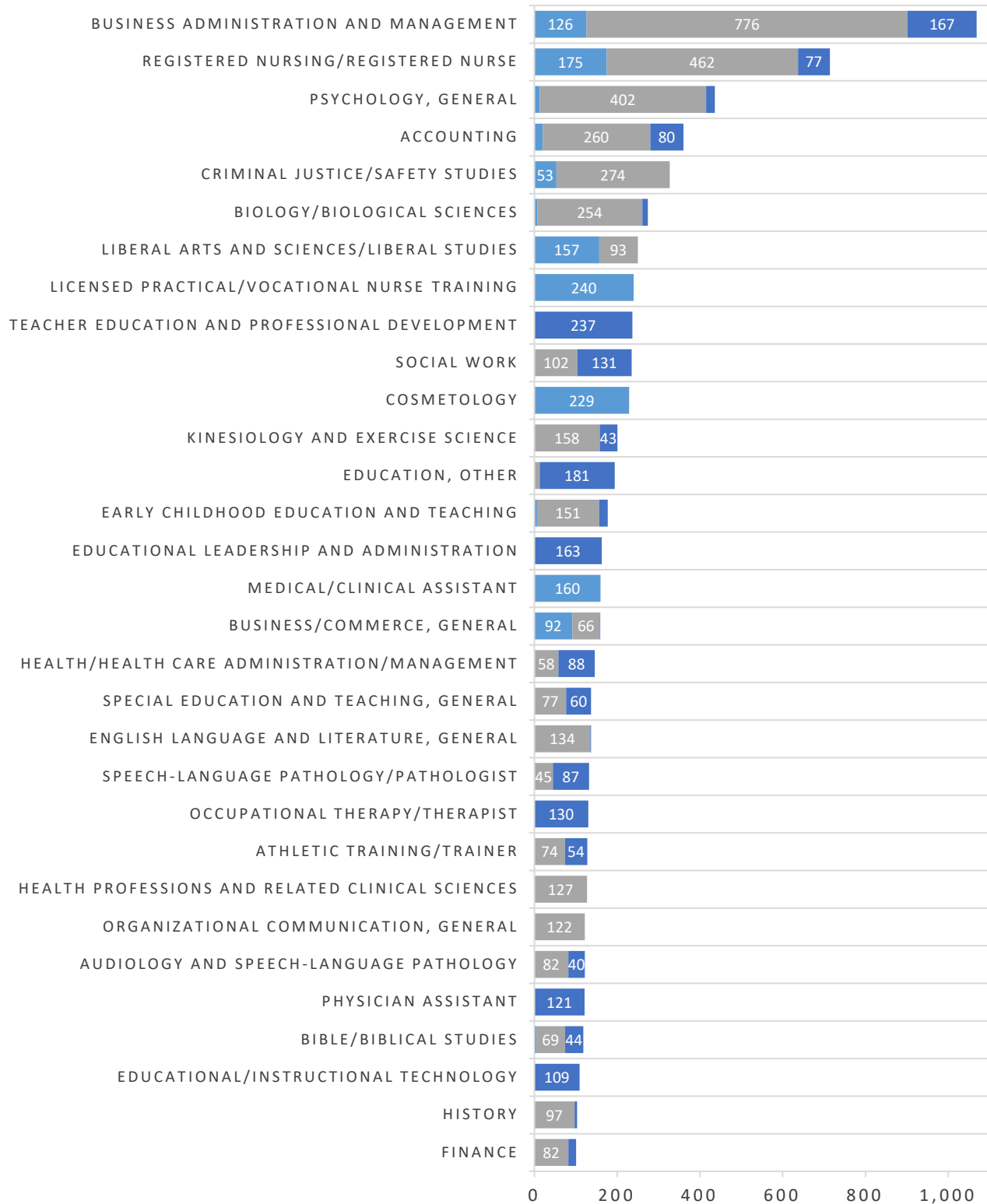
TOP FIVE DEGREES AWARDED BY FIELD OF STUDY, 2017



Source: Chmura JobsEQ®

FIELDS OF STUDY BY AWARD LEVELS, 2016-2017

■ ASSOCIATE'S DEGREE OR LESS ■ BACHELOR'S DEGREE ■ GRADUATE DEGREE



Source: Chmura JobsEQ®

Synthesis

Demographic and economic transitions risk posing a negative impact on opportunities in many industries. For instance, regional employment in 64 percent of occupations across 70 percent of industries is projected to shrink between 2018 and 2026, as the overall workforce decreases by 0.2 percent. Given the relatively high number of area workers who have attained only a high school diploma, the regional workforce is disproportionately geared toward low skill careers (at 57 percent of all occupations), compared to the statewide and national labor markets.

Such challenges notwithstanding, many sectors of Northeastern Pennsylvania's economy appear primed for expansion, and may provide accessible employment opportunities with upward mobility and transferable skills. Some demographic assets remain in Northeastern Pennsylvania's favor as well. For instance, despite a disproportionately under-educated workforce, young adults in Northeastern Pennsylvania between the ages of 25 and 34 are more likely to hold a bachelor's degree than workers over the age of 55 – a trend which is likely to continue and grow as even younger workers prepare to enter the workforce many years from now. Additionally, while more workers are seeking opportunities to work outside the region, inbound commuters tend to be younger and better educated, and also represent the fastest-growing group of commuters (compared to outbound commuters and individuals who live and work in the area). Moreover, individuals who have recently moved to Northeastern Pennsylvania from outside the region or abroad are likelier to have a college education than the native workforce, and are also likelier to have graduated from a master's or doctoral program, as well. These developments, coupled with various sectors primed for expansion, clearly set out a pathway for the region's economic restoration and bring new hope for a region struggling to grow in a more innovative, economically competitive, and efficient 21st century labor market.

Recommendations

Harness the value of Northeastern Pennsylvania's network of higher education institutions in designing a classroom to workplace pipeline through public-private partnerships.

For other industries more dependent on a formally educated workforce, the pipeline of emerging younger workers in the region may partially mitigate labor force shrinkage through retirement and other exits. Across the eleven counties comprising the geographical scope of this report, approximately 13,100 degrees were awarded from post-secondary institutions in 2017 alone. Thus, the roughly 10,400 vacancies generated by retirements in the industries of Healthcare and Social Assistance, Professional and Business Services, and Education may potentially be filled by another 7,200 recent degree earners, as these industries may offer easier access to entry-level career opportunities, as opposed to Construction, Manufacturing, or Retail Trade.

However, reliance on these emerging workers alone would prove an impractical strategy – many students of regional colleges and universities originally hail from outside of the local area, and may take their skills and educational credentials back home, or even to a new destination entirely. Thus, building a regional pipeline of educated workers requires cultivating interest in further education among local students, as well. Approximately 1,206 students across Northeastern Pennsylvania dropped out of high school in 2016, and only 11 percent of the 77,000 recent high school completers in 2016 were enrolled in post-graduate educational programs at the time of graduation.

By informing local educators and careers counselors about the benefits of postgraduate education, whether through a degree, certificate, award, or apprenticeship, local students without plans to obtain a bachelor's degree after high school might become more aware of career opportunities that exist outside of that paradigm. For instance, many educators lack the substantive knowledge of vocational and technical training programs, as most colleges of education lack certificates on vocational teacher training. Moreover, guidance counselors across the country must contend with a 482:1 student-to-counselor ratio across public high schools as of 2017, and lack both the resources and the time to discover and disseminate all the available options for high school students uninterested in pursuing a bachelor's degree after graduation.ⁱ Additionally, parents and students must overcome a perceived social bias against vocational programs, which are typically linked with “blue collar” professions with little prospect of meaningful upward mobility.

Regional workforce development organizations, by harnessing the value of their network of local employers and other community stakeholders, can act as critical facilitators in connecting employers and educators alike. When that connection occurs, rewarding and enduring partnerships can form. For instance, some local institutions, such as Lackawanna College, are utilizing growing demand in the energy and utilities sector, and collaborating with many employers in the exploration and development of the Marcellus Shale. In 2014, Cabot Oil and Gas Corporation announced a \$2.5 million donation to Lackawanna College's School of Petroleum and Natural Gas in New Milford, in order to support program scholarships, equipment updates, faculty retention, and student internships.ⁱⁱ Additional investments from Williams Talisman Energy, Exterran Holdings, and Team Oil Tools helped students obtain equipment necessary to develop the skills critical to enter a career in the field.ⁱⁱⁱ In turn, Lackawanna College's School of Petroleum and Natural Gas can boast a 90 percent employment rate for graduating students.

Partnerships like the one above give employers a voice in helping schools equip students with the skills and tools necessary to succeed in today’s workforce, and by extension, the ability to enjoy easier post-graduate career placement. According to recent surveys of state CTE directors, nearly 80 percent have noted an increased level of employer engagement over the last decade, and even more predict that such engagement will continue over the coming decade, as well. However, many employers and educators lack the information necessary to take the first steps toward building these sorts of critical partnerships. In order to build other successful employer-educator partnerships in the future, intermediaries with the requisite knowledge, connections, and efficacy are needed to help accelerate the process of employer engagement in public-private partnerships. By facilitating the formation of employer-educator consortia on an industry-by-industry basis, community stakeholders can help endow students with the ability to build rewarding careers, thereby strengthening the region’s workforce and diversifying our economy.

Utilize the grant-making process to incentivize greater stakeholder collaboration in future, while providing support for non-traditional educational avenues.

Addressing the skills gap outlined in this report is, from a statewide and national perspective, one of the most pressing public policy issues of our time, which is why many agencies on the federal and state level are attempting to jumpstart advancement through regional innovations. For instance, in February 2019, Pennsylvania Governor Tom Wolf enacted an executive order creating the Keystone Economic Development and Workforce Command center, a public-private partnership designed to align state investment with private sector needs and modernize the commonwealth’s workforce and business competitiveness.^{iv}

Consistent with the growing consensus that regional stakeholders are best equipped to divert financial resources to the appropriate recipients, a growing amount of public investment in workforce development is being distributed through grant funding. For instance, in January 2019, the Commonwealth of Pennsylvania distributed over \$2.6 million in Business-Education Partnership (BEP) grants to 22 workforce development boards across the state, with local information reported in the table below.^v This policy follow a spate of recent initiatives targeting growing industries, such as PAsmart, which invested \$30 million in job training and apprenticeships in expanding STEM fields, and the Office of Apprenticeship and Training, which approves and provides grant funding for apprenticeship programs developed by schools, community organizations, and other involved stakeholders.^{vi} Federally, the Department of Labor’s Education and Training Administration provides funding opportunities addressing a number of policy objectives, including sector-based apprenticeship strategies, occupational licensing reform, and workforce reentry opportunities for dislocated workers.^{vii}

Workforce Development Board	Award
Lackawanna	\$151,497.00
Luzerne-Schuylkill	\$100,000.00
Northern Tier (Bradford, Sullivan, Susquehanna, Tioga, Wyoming)	\$131,595.00
Pocono (Carbon, Monroe, Pike, Wayne)	\$90,900.00

Source: Pennsylvania Governor’s Office (2019)

One feasible way for regional stakeholders in workforce development to bring new opportunities to the region is through the Pennsylvania Department of Community and Economic Development's Pre-Apprenticeship and Apprenticeship Grant Program, a statewide initiative offering financial support for registered apprenticeship programs – specifically, to increase talent recruitment and development. Applications are welcomed from a wide range of applicants, including single employers, economic and workforce development organizations, CTCs, community colleges, and non-profit organizations, with a special emphasis on collaborative partnerships.^{viii} In addition to recent high school graduates and the nearly 10,400 degree earners graduating from regional colleges and universities, this report has also identified 45,000 individuals across the region who are unemployed and still looking for work, as well as 43,000 underemployed workers pursuing opportunities to fully utilize their experiences and credentials. A successful pipeline connecting just half of this combined population could potentially fill every vacancy created by retirement across Northeastern Pennsylvania over the next decade, and for students wary of making a long-term commitment or upfront investment into a formal education program, expanded access to apprenticeship opportunities might make a meaningful difference.

In addition to formal programs like apprenticeships, other ad-hoc opportunities exist for employers to provide in-house career advancement with public investment. With the proliferation of Massive Open Online Courses (MOOCs) from a number of sources like Coursera, EdX, or Udemy, it has never been easier for tech-savvy individuals to learn the skills necessary to compete in a more technologically-oriented workforce. For many workers, however, the process of getting started with such a process remains challenging. To help bring these opportunities directly to workers, the Pennsylvania Department of Community and Economic Development also provides support for employers interested in supplying their current employees with advanced technology training through the Workforce and Economic Development Network of Pennsylvania (WEDnetPA).^{ix} Advanced technology training is especially useful to workers due to the transferability of these skills across multiple sectors of the economy. As demonstrated by the skill sets necessary for the area's five target industries (in the previous section), workers with skills and experience in database management, query software, computer aided design software, and business intelligence and data analysis platforms are valuable in a host of occupations.

Just as there is an information deficit among students and educators about the potential of non-traditional educational avenues, employers are often unaware or reluctant to embrace the opportunity to invest in such training. Like expenses on facilities and equipment, such initiatives often require an immediate investment by employers in exchange for long-term returns – but workforce development stakeholders can provide enlightenment and support in combatting this information gap. By partnering with other stakeholders – including interested employers and other community partners – these agents can collaborate to deliver support that transcends county borders and delivers investment to local communities in most need of it. Even when employers are the targeted applicants for career development grants, workforce development stakeholders with more experience seeking public investments through grant applications may become especially vital resources – not only for disseminating information about opportunities like these to local employers, but also for dispensing advice about the application process for employers seeking their first grants. By drawing on the rising number of grants that emphasize multi-stakeholder proposals, entities from across the community can contribute their own assets toward a strategy that enables economic opportunity across the entire region of Northeastern Pennsylvania.

Equalize the range of services offered among regional workforce development organizations through multi-stakeholder and collective impact initiatives.

The overarching theme to many of the recommendations contained in this report involve an enhancement of existing collaborative governance mechanisms in the region. In the study of public administration, collective governance is defined as the assembly of stakeholders to resolve pressing issues of public policy that are too overwhelming for any one entity to solve alone. Collaborative governance can broadly be categorized into five approaches: (1) Funders who assemble over a mutual interest; (2) Public-Private Partnerships, which join private and public entities to solve a narrowly-focused social problem; (3) Multi-Stakeholder Initiatives, which bring together interested organizations of all sizes and backgrounds on a short to medium-term basis; (4) Social Sector Networks, which establish a forum for information sharing on a short-term basis, and (5) Collective Impact Initiatives, which convene deeply committed stakeholders from multiple sectors for long-term action to effect social change.^x

Fortunately for Northeastern Pennsylvania, there is no shortage of deeply committed actors in the field of regional workforce development. There are four regional workforce development boards (Lackawanna, Luzerne-Schuylkill, Northern Tier, and Pocono Counties), NEPA is also home to an array of stakeholders, from public agencies like CareerLink and a number of other non-profits. With the large number of committed regional actors in the sphere of workforce development, the opportunities to harness their collective effort into a comprehensive collective impact initiative are plentiful. Systemic changes at the state level are needed in order for workforce development boards to be more proactive and entrepreneurially in their approach. Thankfully, case studies from similarly situated communities illustrate a number of pathways forward. For instance, stakeholders in Northeastern Ohio established Early College Early Career (ECEC), a program that enables students to take tuition-free courses toward an advanced manufacturing or technology degree through area community colleges, and participate in paid internships at local companies.^{xi} This initiative was established by the Manufacturing Advocacy and Growth Network (MAGNET), a consortium of industry experts, economic development organizations, university partners, government agencies, and other service providers who partnered with The Cleveland Foundation, a regional philanthropic agency.^{xii}

By pooling resources and partnering with the widest range of committed peer groups in the region, local stakeholders can establish uniquely-positioned alternative education tracks for students that allow them not only to survive in today's workforce, but thrive. With Northeastern Pennsylvania's regional assets, there are no limits to the number of similar partnerships that can be formed. In the 11-county region comprising the geographic scope of this report, there are approximately seven institutions that award two-year degrees in health technologies, transportation, energy extraction, and construction, as well as four career and technology centers offering programs in similar fields, including advanced manufacturing. Furthermore, current demographic changes will necessitate such rapid increases in labor demand that some industries may actively seek out new in-house training programs or workforce development partnerships, especially in areas like healthcare, energy, and utilities. For such efforts to come to fruition, however, it is incumbent on more experienced stakeholders to develop and disseminate a business-friendly argument for workforce development investment, and illustrate the potential of deep, multi-stakeholder cross-sector initiatives. Given the desperate need for skilled local talent, initiatives that involve a mix of policymakers, educators, and employers can create forums that

leverage talent, experience, and insight into policies that generate greater value for employers and maximize opportunities for employees' career advancement.

Conclusion

Northeastern Pennsylvania sits at a convergence point of significant challenge and profound opportunity. The region has long struggled to move beyond its heavy industrial base to develop a diversified economy, but new opportunities abound in growing industries like healthcare, transportation, utilities and energy extraction, infrastructure and construction, and other advanced professional services. The area's workforce has grappled with a wave of retirements, the net export of commuters, and a steady number of out-migrants, yet still attracts growing numbers of inbound commuters and newcomers.

All of the aforementioned challenges and opportunities are deeply intertwined, and cannot be fixed by one employer, organization, or public agency alone. Addressing these multi-faceted concerns requires the involvement of every committed stakeholder in the region, including employers, universities, community colleges, career and technology centers, workforce development boards, economic development organizations, and policymakers. The successful resolution of these challenges, however, can help every participant involved, as well. Regional workers can build a lucrative, rewarding, challenging career with upward mobility in an area with a low cost of living. Employers can select from a wide range of talented prospective employees equipped with the skills to start work on day one. Community partners benefit from the economic enrichment of a community with fewer out-of-region commuters and out-migrants.

When all relevant stakeholders collaborate toward this aim, the result is an environment that enables every participant to succeed.

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