



LEHIGH VALLEY WORKFORCE AND ECONOMIC OVERVIEW AND TALENT SUPPLY STUDY

JANUARY 2022

INTRODUCTION & PURPOSE

The Lehigh Valley Economic Development Corporation (LVEDC) and the Workforce Board Lehigh Valley (WBLV) collectively work to develop the region's talent pool through attraction, education, and coordination. This study, commissioned in 2021, provides the most current data on talent demand, supply, and gaps, and considers the impact of COVID-19 along with other emerging trends including remote work, automation/changing technology, and changing demographics.

The talent study focused on five sectors that were chosen because of 1) the significant number of workers they employ; 2) these employers' concerns about access to talent; and/or 3) the potential strategic growth for these sectors in the Lehigh Valley.

LVEDC and WBLV serve Lehigh and Northampton Counties in eastern Pennsylvania, which include the cities of Allentown, Bethlehem, and Easton. WBLV is a private sector-led regional workforce system of economic and workforce development, education, employers and community partners working with data experts to ensure the Lehigh Valley workforce system has strategically positioned services for a universal population, focusing on those most in need, resulting in an educated and skilled workforce that meets business and industry global labor demands.

The findings and recommendations of this study are based on multiple sources, including input from more than 400 Lehigh Valley businesses, educational institutions, and stakeholders obtained through a survey, focus groups, and interviews conducted between May 2021 and November 2021. The study also relied on economic, employment, and demographic data collected from various sources, including the Pennsylvania Center for Workforce Information and Analysis, Emsi Burning Glass, and LVEDC's annual educational completion survey of Lehigh Valley colleges, universities, and career and technical schools.

The purpose of this study is to support LVEDC, WBLV, and their partners in regional talent strategy development in identifying opportunities to improve the alignment of talent supply and demand based on employer and specific sector needs. This document provides a summary of the full report that Camoin and EMSI Burning Glass presented. The full report includes detailed findings, recommendations, and supporting data.

328,407
2020 jobs

+4%
2020 to 2025
change in jobs
(2% statewide)

\$66,794
Avg. earnings per job
(\$71,010 statewide)

15,630
2020 payrolled
business locations

*Source: Emsi Burning Glass Q2,
2021 Dataset*

ABOUT LEHIGH VALLEY

680,139

2020 population

+3.9%

2020 to 2025
population change
(+0.3% statewide)

\$63,897

median household
income (\$61,744
statewide)

30%

adults 25 years and
over with a Bachelor's
degree or higher
(32% statewide)

Source: Emsi Burning Glass Q2.2021 Dataset

TRENDS

- Strong population and employment growth historically and projected to continue.
- Jobs increased by nearly 10% between 2010 and 2020, whereas jobs in Pennsylvania increased by about 2%.
- Unemployment in the Lehigh Valley drastically increased in April 2020 due to COVID-19 and started to recover in September 2020. Growth in job postings points to an economic recovery amid the COVID-19 pandemic.

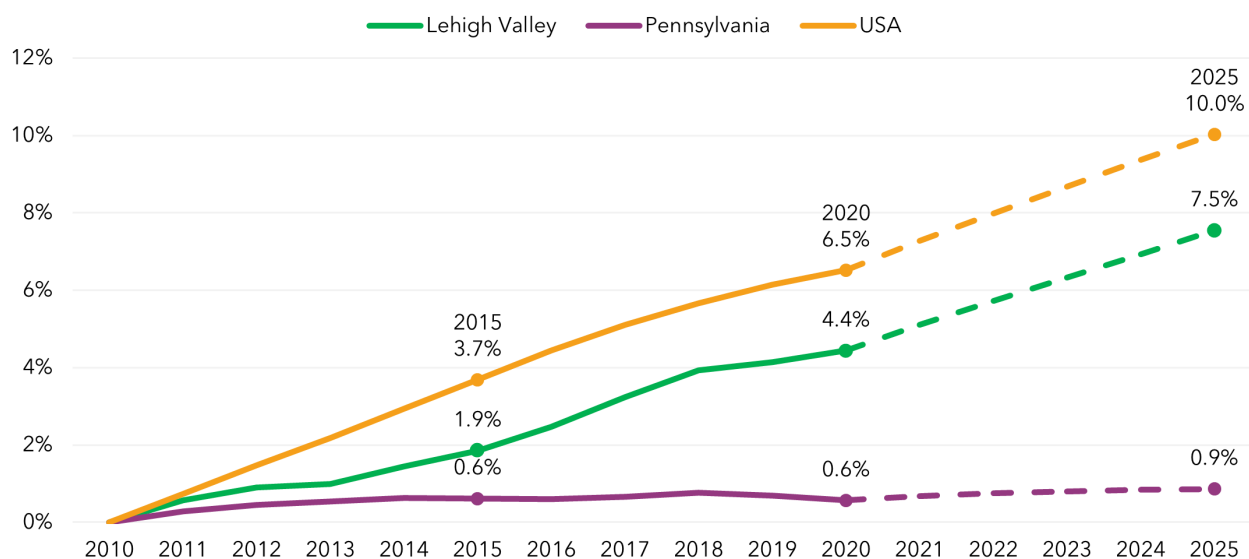
GAPS

- Job posting data points to gaps between job openings and skills as well as mismatches between education levels and degrees and employer needs.
- Retirement could pose a threat to labor supply. Baby Boomers, who are likely to retire within the next decade, accounted for nearly one quarter of the Lehigh Valley's population in 2020.

OPPORTUNITIES

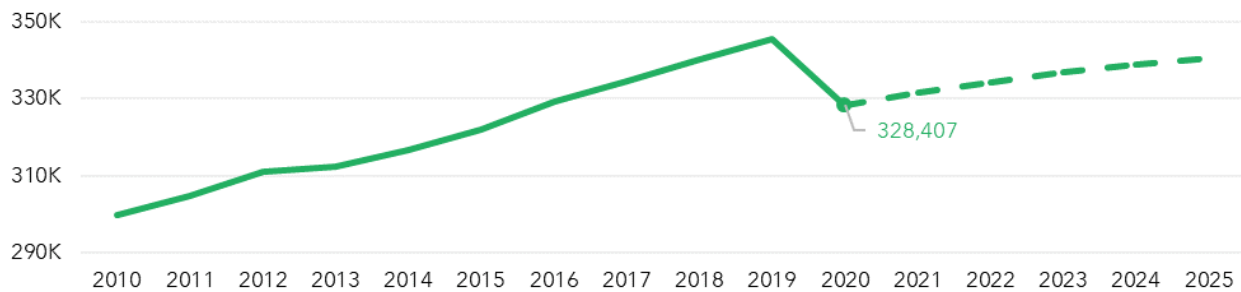
- Occupations that grew the most from 2015 to 2020 have overall higher earnings.
- The Lehigh Valley offers a lower cost of living, lower housing prices, and a high quality of life. The population has and is projected to continue growing.
- The businesses, organizations, and higher education institutions in the Lehigh Valley attract well-educated professionals and efforts to retain this talent is critical to the growth of the Lehigh Valley.

Population Growth in the Lehigh Valley



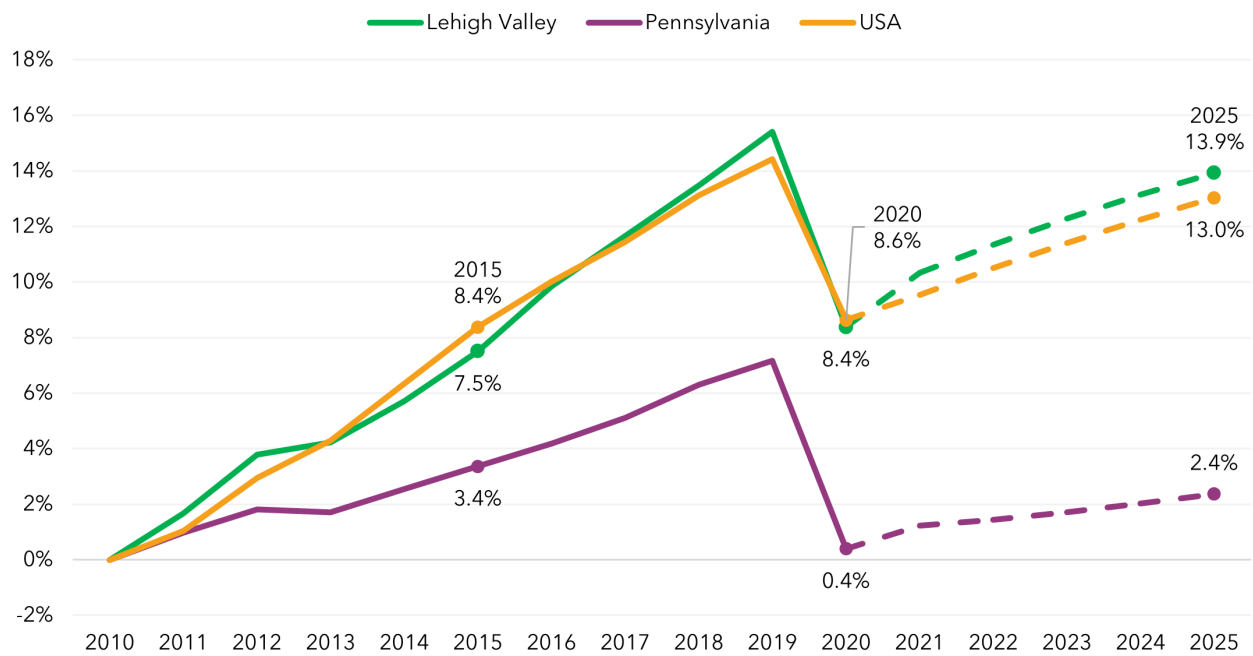
Source: Emsi Burning Glass Q2.2021 Dataset

Jobs in the Lehigh Valley



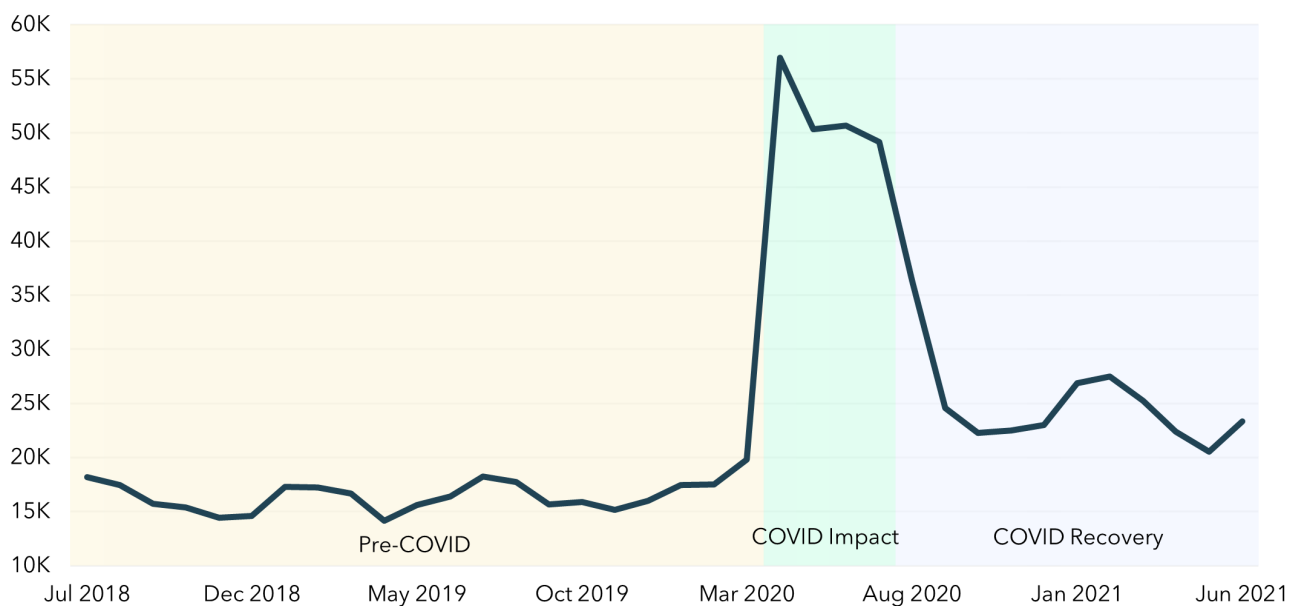
Source: Emsi Burning Glass Q2.2021 Dataset

Job Growth in the Lehigh Valley



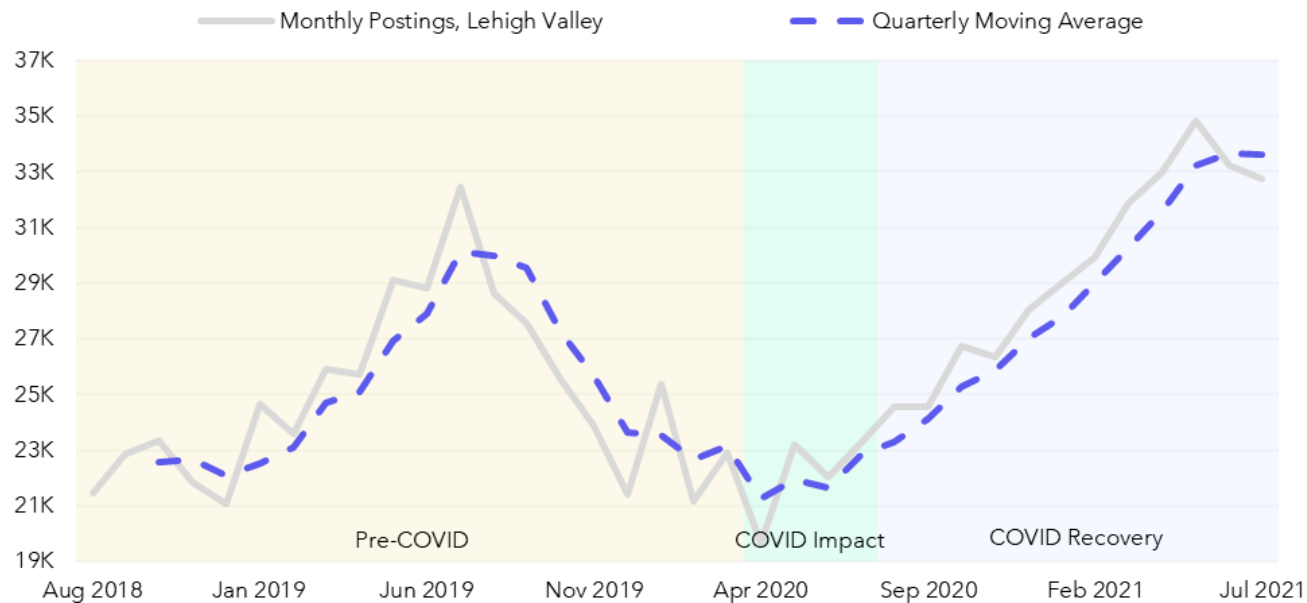
Source: Emsi Burning Glass Q2.2021 Dataset

Unemployment in the Lehigh Valley



Source: Emsi Burning Glass Q3 2021 Dataset

Job Postings in the Lehigh Valley



Quarterly Moving Average is an average over the last 3 months.

Source: Emsi Burning Glass Q3.2021 Dataset



STRATEGY



Continue to focus on skills

While labor supply shortages are a concern, employers across all the sectors are most concerned with acquiring and retaining workers with the skills needed for success. The skills to focus on include:

- Employability and "soft skills" availability and quality. This includes critical thinking or problem-solving skills, communication and interpersonal skills, digital literacy, adaptability, basic math and writing, and emotional intelligence
- Technical skills which are specific to the sectors and noted in the findings through education, training, and industry partnerships
- Expand STEM skills criteria to be applicable to all industries
- Develop short-term immediate training



Continue to develop and adopt digital tools to support all aspects of communication, learning, training, information sharing, collaboration, and working

Digital tools increase access to important information, resources, and services, including:

- Life-long learning, training, and certification that is accessible and scalable
- Mentorships and internships
- Digital dashboards and access to data, including advanced analytics for targeted talent attraction such as accessing data on people/talent movement and migration
- Communications, sharing of resources, stories, best practices
- Modernizing job fairs and events through tools such as virtual tours and experiences
- Building and maintaining digital platforms that connect employers and education



Renew focus on bringing all ages into the workforce

Addressing talent gaps will require strategies for increased participation, retention, and attraction among all worker age groups:

- The aging population, and particularly Baby Boomers, will continue to contribute to labor supply shortages as they retire from the workforce. There were also a significant number of people who retired earlier than anticipated due to COVID. Some will be wanting to return to meaningful work. Making it a priority to understand the needs of and then attract older workers will both increase the supply of labor and help provide mentorship for younger workers
- The younger workforce is focused on locating in a place where there is a sense of community. The Lehigh Valley partners need to work together and share understanding and practices on how to support a workforce with differing expectations and views of job satisfaction and opportunities
- Intensify talent attraction initiatives and campaigns including targeting through talent and people analytics and digital campaigns to reach workers across the globe.



Prepare for a future of hybrid, remote, and in-person learning, training, and working

No one could have anticipated the impact that the COVID-19 pandemic would have. COVID has created the need for greater use and acceptance of remote capability for both learning and work. The region should work to help businesses and workers adapt to remote work and help business recruit and retain remote workers.



Ensure people can get to jobs and remain employed

The current labor shortage is exacerbated by a lack of adequate and affordable housing, public transportation, and childcare/family care options.

- There is a need to leverage key partnerships to ensure the workforce can get to places of employment and remain employed with flexibility that meets the needs of both employees and employers. This will require public and private investment and can be accomplished through partnerships among municipalities, professional organizations, industry/business, developers, and service providers
- Continue and support efforts aimed at diversity, equity, and inclusion



Continue the process and commitment to stakeholder engagement and collaboration

The current system of partnership and collaboration is working well and should be maintained and leveraged for further success. This includes the Education and Talent Supply Council and other stakeholders.





ADVANCED MANUFACTURING

17,605
2020 jobs

+7%
2020 to 2025
change in jobs
(-1% statewide)

\$101,471
avg. earnings per job
(\$85,353 statewide)*

360
2020 payrolled
business locations

** Average earnings figure for the sector is a weighted average of the occupations' median earnings.*

Advanced manufacturing is a subset of manufacturing that integrates processes and technology typically requiring advanced and specialized skills.

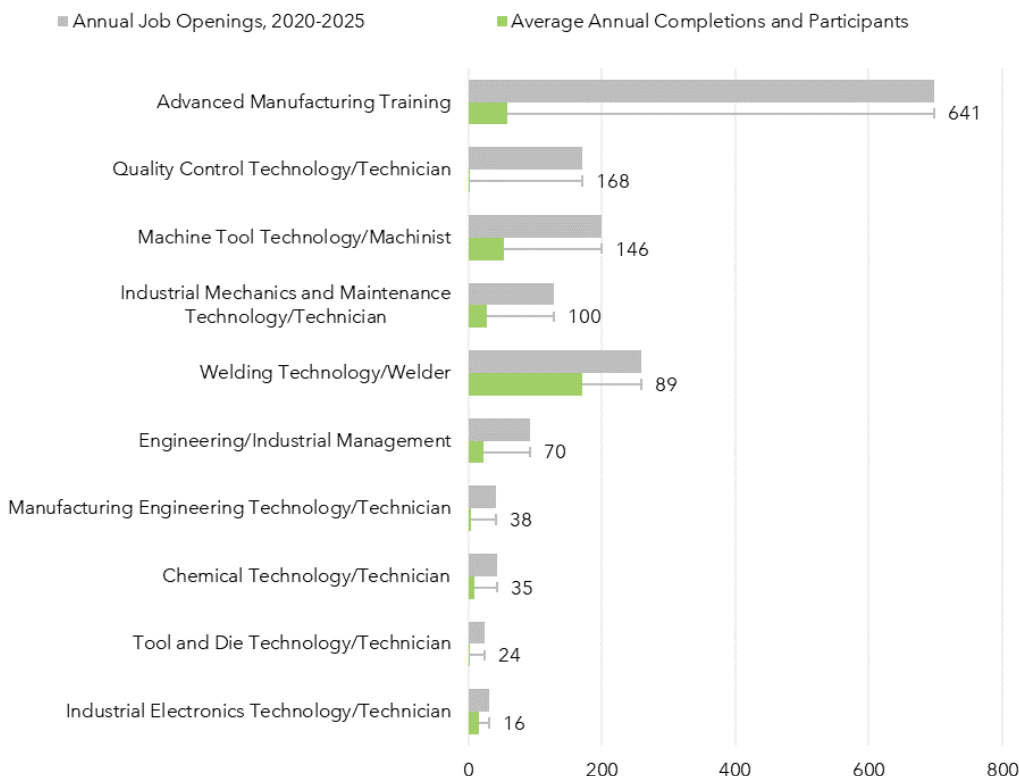
TRENDS

- Historically strong employment sector and projected to continue.
- Workforce is strongly supported by non-credit, certificate, and degree level programs offered at postsecondary institutions throughout the region.

GAPS IN JOB OPPORTUNITIES RELATIVE TO WORKFORCE TRAINING & EDUCATION

Significant hiring gaps - Advanced Manufacturing
Training educational programs, which train for a variety of assembler occupations, has the largest gap. Such data indicate that the Lehigh Valley must look to attract talent from other geographies and develop more local talent through education and training to fill the region's employment needs. Other large gaps include Quality Control Technology/Technician and Machine Tool Technology/Machinist.

Advanced Manufacturing Workforce Training & Education Program Gap



Annual Job Openings represent average annual projected openings through 2025 and Average Annual Completions and Participants show an annual average of the last five years (2016-2020) for accredited programs and three years (2018-2020) for non-credit programs. The data includes a selection of Advanced Manufacturing-related programs for all award levels and postsecondary institutions in the Lehigh Valley, as well as Kutztown University in Berks County and East Stroudsburg University based in Monroe County. Non-credit program participants are from Bethlehem Area Vo-Tech School, Career Institute of Technology, Lehigh Carbon Community College, Lehigh Career & Technical Institute, and Northampton Community College.

Source: Emsi Burning Glass
Q2.2021 Dataset and LVEDC

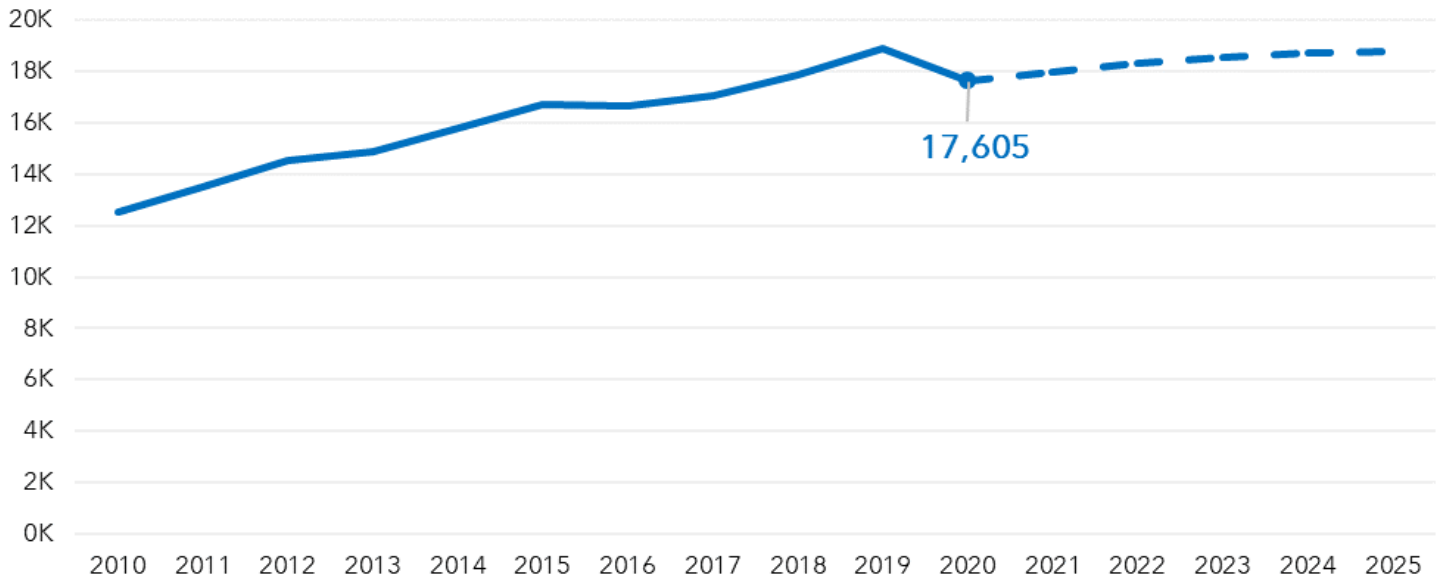
OPPORTUNITIES

- The region's strengths in Advanced Manufacturing and Transportation, Warehousing, Logistics, and Wholesale can support the future growth of one another. Businesses in the Lehigh Valley related to Transportation, Warehousing, Logistics, and Wholesale are essential in growing Advanced Manufacturing, based on the region's location just hours from major markets and supply chains in Pittsburgh, Philadelphia, New York, and New Jersey.
- Currently, some occupations within the Advanced Manufacturing sector have low entry level education requirements. With automation and technological

advancements on the rise, there is an opportunity for the workforce to upskill to meet the changing needs of the manufacturing sector and in doing so create higher incomes.

- Workforce demographics indicate that there is a lack of younger workers in Advanced Manufacturing and efforts to expose students to Advanced Manufacturing opportunities to leverage low-debt career opportunities can help to reinvigorate the workforce.

Advanced Manufacturing Employment Trends in Lehigh Valley, 2010-2025



Source: Emsi Burning Glass Q2.2021 Dataset

Advanced Manufacturing Top Occupations

Occupation	Jobs in Industry	% Job Change, 2015-2020	% of Jobs in Industry	Median Annual Earnings	Typical Entry Level Education
Miscellaneous Assemblers and Fabricators	2,426	39%	13.8%	\$38,003	HS/GED
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	720	8%	4.1%	\$40,093	HS/GED
First-Line Supervisors of Production and Operating Workers	672	9%	3.8%	\$64,760	HS/GED
Laborers and Freight, Stock, and Material Movers, hand	587	-7%	3.3%	\$30,529	No formal ed. credential req.
Inspectors, Testers, Sorters, Samplers, and Weighers	417	-22%	2.4%	\$40,467	HS/GED
Welders, Cutters, Solderers, and Brazers	410	35%	2.3%	\$44,908	HS/GED
Industrial Machinery Mechanics	407	30%	2.3%	\$61,243	HS/GED
Machinists	402	-12%	2.3%	\$49,066	HS/GED
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	373	10%	2.1%	\$71,683	HS/GED
Chemical Equipment Operators and Tenders	343	27%	1.9%	\$57,026	HS/GED

HS/GED refers to a high school diploma or Test of General Educational Development.

Source Emsi Burning Glass Q2.2021 Dataset

Advanced Manufacturing Education & Training Program Completions

Program	Non-credit	Cert.	Assoc.	Bach.	Mast.	PhD	Total
Computer and Information Sciences	0	0	37	240	31	2	310
Mechanical Engineering & Technologies/Technicians	0	0	5	167	39	15	227
Electrical and Electronics Engineering & Technology/Technician	56	0	7	45	30	8	147
Industrial Engineering & Management	0	0	0	60	72	7	139
Welding Technology/Welder	75	33	30	0	0	0	138
Chemical Engineering & Technology/Technician	0	0	8	81	8	7	104
Advanced Manufacturing Training	58	0	0	0	0	0	58
Machine Tool and Die Technology/Technician/Machinist	53	1	0	0	0	0	55
Engineering, General & Other	5	0	18	25	0	0	49
Industrial Electronics & Mechanics and Maintenance Technology	13	3	25	0	0	0	41
Electromechanical Technology/Electromechanical Engineering Technology	29	1	8	0	0	0	38
Materials Engineering	0	0	0	25	4	5	33
Manufacturing Engineering & Technologies/Technicians	0	1	4	0	6	0	10
Polymer/Plastics Engineering	0	0	0	0	6	1	7
Quality Control Technology/Technician	0	0	2	0	0	0	2

Average Annual Program Completions show an annual average of the last five years (2016-2020) for accredited programs and three years (2018-2020) for non-credit programs. The data includes a selection of programs for all award levels at postsecondary institutions in the Lehigh Valley, as well as Kutztown University in Berks County and East Stroudsburg University based in Monroe County. Non-credit program participants are from Bethlehem Area Vo-Tech School, Career Institute of Technology, Lehigh Carbon Community College, Lehigh Career & Technical Institute, and Northampton Community College.

Source: Emsi Burning Glass Q2.2021 Dataset and LVEDC



PRIORITY OCCUPATIONS FOR FOCUS

Occupations with the greatest growth potential through 2025:

- Electrical, electronic, and electromechanical assemblers, except coil winders, tapers, and finishers
- First-line supervisors of production and operating workers
- Industrial machinery mechanics
- Laborers and freight, stock, and material movers
- Miscellaneous assemblers and fabricators
- Machinists
- Welders, cutters, solderers, and brazers

Advanced Manufacturing In-demand Skills from Job Postings

Specialized Skills	Baseline Skills
Repair	Communication Skills
Hand Tools	Physical Abilities
System Applications and Products (SAP)	Problem Solving
Scheduling	Detail-oriented
Customer Service	Microsoft Office
5S Methodology	Microsoft Excel
Forklift Operation	Positive Disposition
Machinery	English
Welding	Troubleshooting
Manufacturing Processes	Teamwork / Collaboration

Source: Emsi Burning Glass Labor Insight





HEALTH CARE

46,570
2020 jobs

+8%
2020 to 2025
change in jobs
(+6% statewide)

\$80,413
avg. earnings per job
(\$76,683 statewide)*

1,307
2020 payrolled
business locations

* Average earnings figure for the sector is a weighted average of the occupations' median earnings.

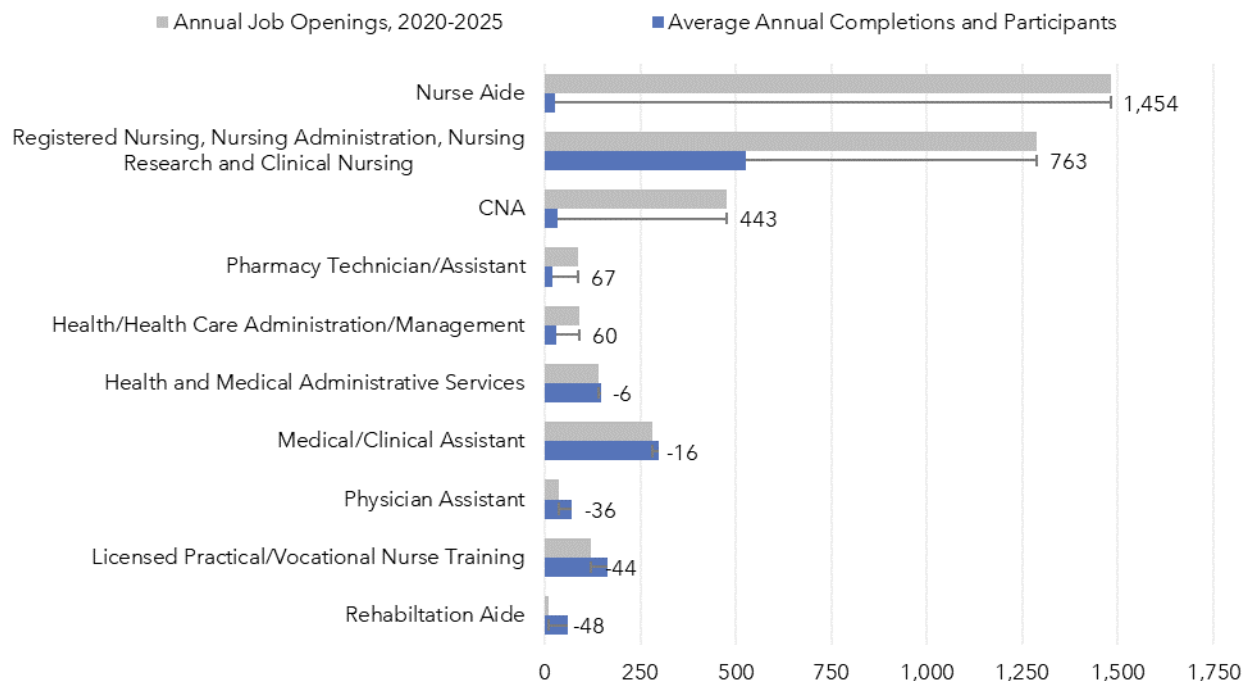
TRENDS

- The Health Care sector has seen the total number of jobs grow over the last five years and it is projected to continue.
- Registered Nurses are the largest occupation with 8,105 jobs accounting for 17% of jobs in the sector. Other top occupations include Nursing Assistants and Home Health and Personal Care Aides.
- Most Health Care occupations are not likely to be remote nor automated.

GAPS IN JOB OPPORTUNITIES RELATIVE TO WORKFORCE TRAINING & EDUCATION

Educational completions are not keeping up with occupational demand in several key programs. The largest gap between regional job openings and completions is in the Nursing Aide program with a gap of 1,454. Other hiring gaps are for Registered Nurses, Certified Nursing Assistants, Pharmacy Technicians, and Health Care Management.

Health Care Workforce Training & Education Program Gap



Annual Job Openings represent average annual projected openings through 2025 and Average Annual Completions and Participants show an annual average of the last five years (2016-2020) for accredited programs and three years (2018-2020) for non-credit programs. The data includes a selection of Health Care-related programs for all award levels and postsecondary institutions in the Lehigh Valley, as well as Kutztown University in Berks County and East Stroudsburg University based in Monroe County. Non-credit program participants are from Bethlehem Area Vo-Tech School, Career Institute of Technology, Lehigh Carbon Community College, Lehigh Career & Technical Institute, and Northampton Community College.

CNA refers to certified nursing assistant.

Source: Emsi Burning Glass Q2.2021 Dataset and LVEDC

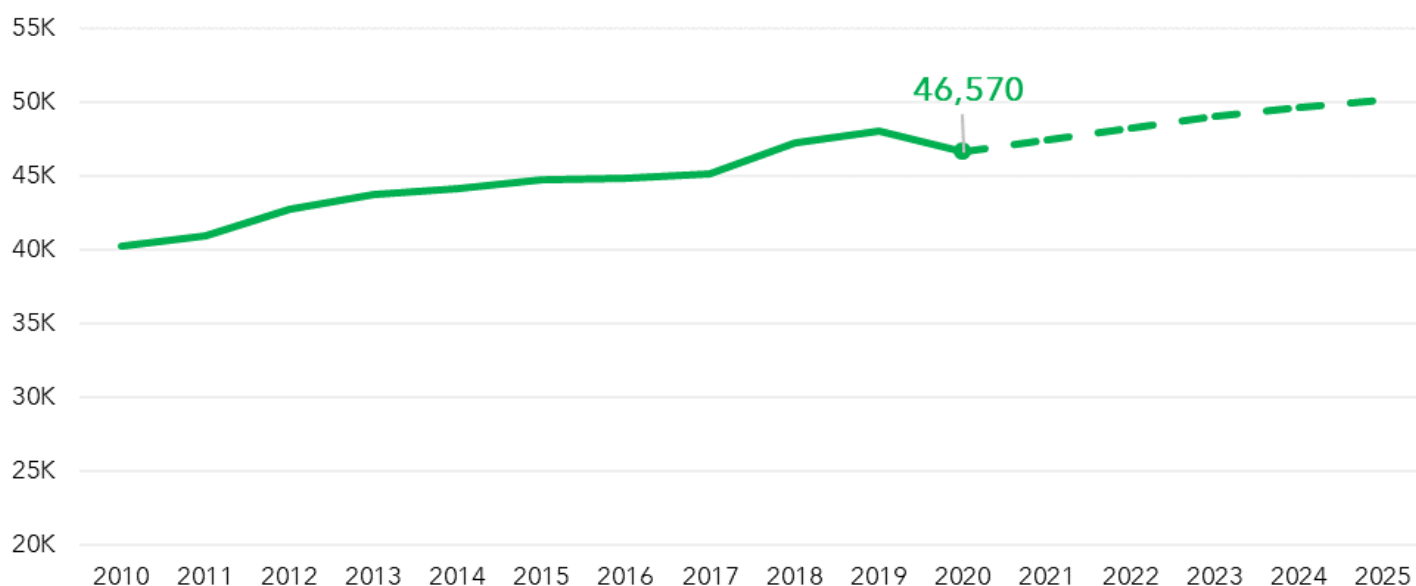
OPPORTUNITIES

- The Health Care sector offers a variety of job placements across an array of experience and educational levels. Much of the workforce demand within the sector is focused on hospitals, and therefore, there is an increased need to work directly with their operations to build programs to solve their workforce needs.
- As of 2020, 6% of the Registered Nurses commuted into the Lehigh Valley for work. With a growing demand for this occupation nationally and

regionally, there is a need for employers to increase engagement with both students and faculty to build a network of future nurses within the Lehigh Valley.

- Specialty Hospitals have grown 27% in the past five years from 2015 to 2020 and are projected to grow an additional 28% by 2025. Nationally, these operations are projected to grow based on increased demand for cancer treatment, long-term care, and disease care.

Lehigh Valley Health Care Employment Trends



Source: Emsi Burning Glass Q2.2021 Dataset



Health Care Top Occupations

Occupation	Jobs in Industry	% Job Change, 2015-2020	% of Jobs in Industry	Median Annual Earnings	Typical Entry Level Education
Registered Nurses	8,105	5%	17%	\$71,654	Bach.
Nursing Assistants	3,934	-8%	8%	\$32,769	PS nondegree/ Cert.
Home Health and Personal Care Aides	3,915	7%	8%	\$26,160	HS/GED
Medical Assistants	2,074	10%	4%	\$36,093	PS nondegree/ Cert.
Physicians, All Other; and Ophthalmologists, Except Pediatric	1,830	45%	4%	\$213,106	PhD/Prof.
Licensed Practical and Licensed Vocational Nurses	1,329	-20%	3%	\$50,983	PS nondegree/ Cert.
Receptionists and Information Clerks	1,259	7%	3%	\$33,047	HS/GED
Medical Secretaries and Administrative Assistants	891	-25%	2%	\$34,460	HS/GED
Office Clerks, General	875	-11%	2%	\$36,028	HS/GED
Medical and Health Services Managers	670	6%	1%	\$86,145	Bach.

PS nondegree/Cert. refers to a postsecondary nondegree or certificate. HS/GED refers to a high school diploma or Test of General Educational Development.

Source Emsi Burning Glass Q2.2021 Dataset

Health Care Education & Training Program Completions

Program	Non-credit	Cert.	Assoc.	Bach.	Mast.	PhD	Total
Registered Nurse/Registered Nurse	0	0	162	307	0	0	469
Computer and Information Sciences	0	0	37	240	31	2	310
Medical Clinical & Allied Health and Medical Assisting Services	46	192	60	0	0	0	299
Health Professions and Related Clinical Sciences, Other	170	0	0	33	0	0	203
Licensed Practical/Vocational Nurse Training	0	165	0	0	0	0	165
Emergency Care Attendants & Emergency Medical Technology/Technicians	112	3	0	0	0	0	115
Registered Nursing, Nursing Administration, Nursing Research and Clinical Nursing, Other	0	43	0	33	0	0	75
Physician Assistant	0	0	0	0	71	0	71
Rehabilitation Aide	60	0	0	0	0	0	60
Nurse/Nursing Assistant/Aide and Patient Care Assistant	59	0	0	0	0	0	59
Health Services/Allied Health/Health Sciences, General	0	0	29	27	0	0	56
Health Information/Medical Records Technology/Technician	0	0	44	0	0	0	44
Medical Administrative/Executive Assistant and Medical Secretary	0	2	37	0	0	0	40
Health/Health Care Administration/Management	0	16	0	10	4	0	30
Pharmacy Technician/Assistant	20	6	0	0	0	0	25

Average Annual Program Completions show an annual average of the last five years (2016-2020) for accredited programs and three years (2018-2020) for non-credit programs. The data includes a selection of programs for all award levels at postsecondary institutions in the Lehigh Valley, as well as Kutztown University in Berks County and East Stroudsburg University based in Monroe County. Non-credit program participants are from Bethlehem Area Vo-Tech School, Career Institute of Technology, Lehigh Carbon Community College, Lehigh Career & Technical Institute, and Northampton Community College. EMT and CNA refer to emergency medical technician and certified nursing assistant.

Source: Emsi Burning Glass Q2.2021 Dataset and LVEDC



PRIORITY OCCUPATIONS FOR FOCUS

Occupations with the greatest growth potential through 2025:

- Registered Nurses
- Home Health and Personal Care Aides
- Medical Assistants
- Medical and Health Service Managers
- Nursing Assistants
- Physicians, All Other; and Ophthalmologists, Except Pediatric

Health Care In-demand Skills from Job Postings

Specialized Skills	Baseline Skills
Cardiopulmonary Resuscitation (CPR)	Computer Literacy
Home Health	Communication Skills
Treatment Planning	Teamwork / Collaboration
Scheduling	Problem Solving
Patient Care	English
Home Care	Planning
Hospice	Time Management
Clinical Experience	Bilingual
Meal Preparation	Written Communication
Case Management	Spanish

Source: Emsi Burning Glass Labor Insight





HIGH VALUE BUSINESS SERVICES

26,423
2020 jobs

-5%
2020 to 2025
change in jobs
(+3% statewide)

\$111,332
avg. earnings per job
(\$118,857 statewide)*

1,806
2020 payrolled
business locations

* Average earnings figure for the sector is a weighted average of the occupations' median earnings.

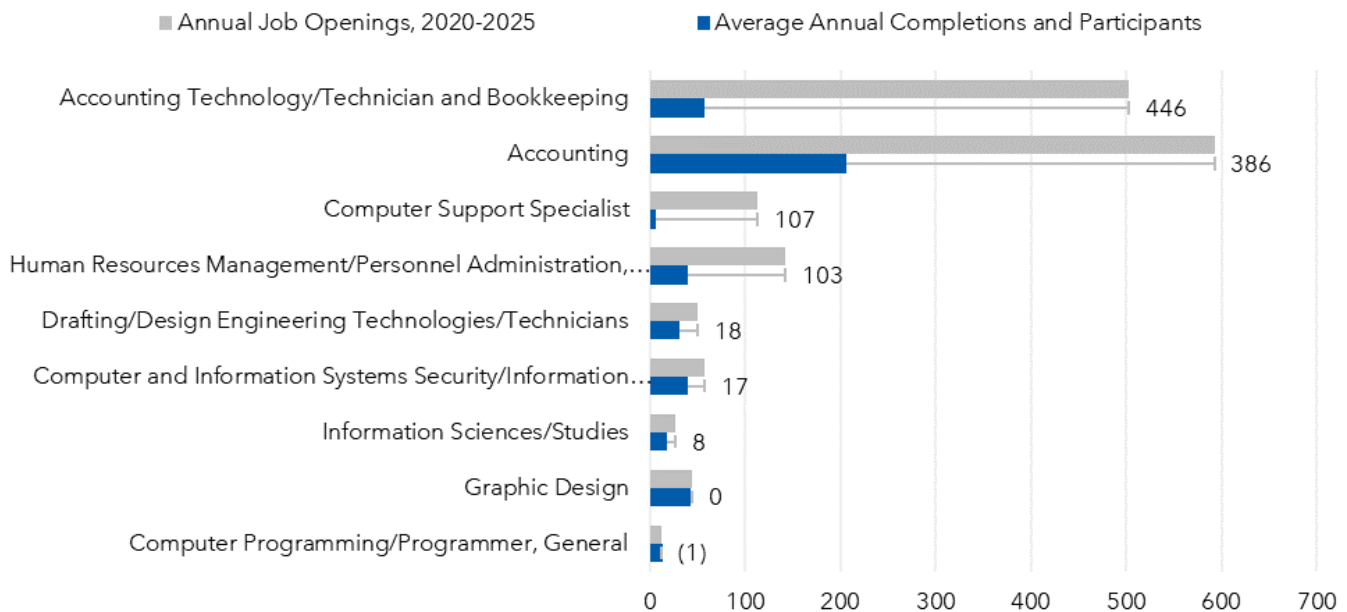
TRENDS

- Jobs have slowly decreased since 2010.
- Customer service representatives make up about one out of every three jobs in this sector.
- Many occupations are more likely to be remote compared to other sectors.
- The top occupations cover a range of educational requirements. Those requiring college degrees are supported by several educational institutions from which local employers can recruit.

GAPS IN JOB OPPORTUNITIES RELATIVE TO WORKFORCE TRAINING & EDUCATION

- Accounting Technology/Technician and Bookkeeping has the largest hiring gap.
- Business and Financial Operations is the largest out-commuting occupation. In 2020, approximately 1,060 Lehigh Valley residents worked in Business and Financial Operations occupations outside the Lehigh Valley.

High Value Business Services Workforce Training & Education Program Gap



Annual Job Openings represent average annual projected openings through 2025 and Average Annual Completions and Participants show an annual average of the last five years (2016-2020) for accredited programs and three years (2018-2020) for non-credit programs. The data includes a selection of High Value Business Services-related programs for all award levels and postsecondary institutions in the Lehigh Valley, as well as Kutztown University in Berks County and East Stroudsburg University in Monroe County. Non-credit program participants are from Bethlehem Area Vo-Tech School, Career Institute of Technology, Lehigh Carbon Community College, Lehigh Career & Technical Institute, and Northampton Community College.

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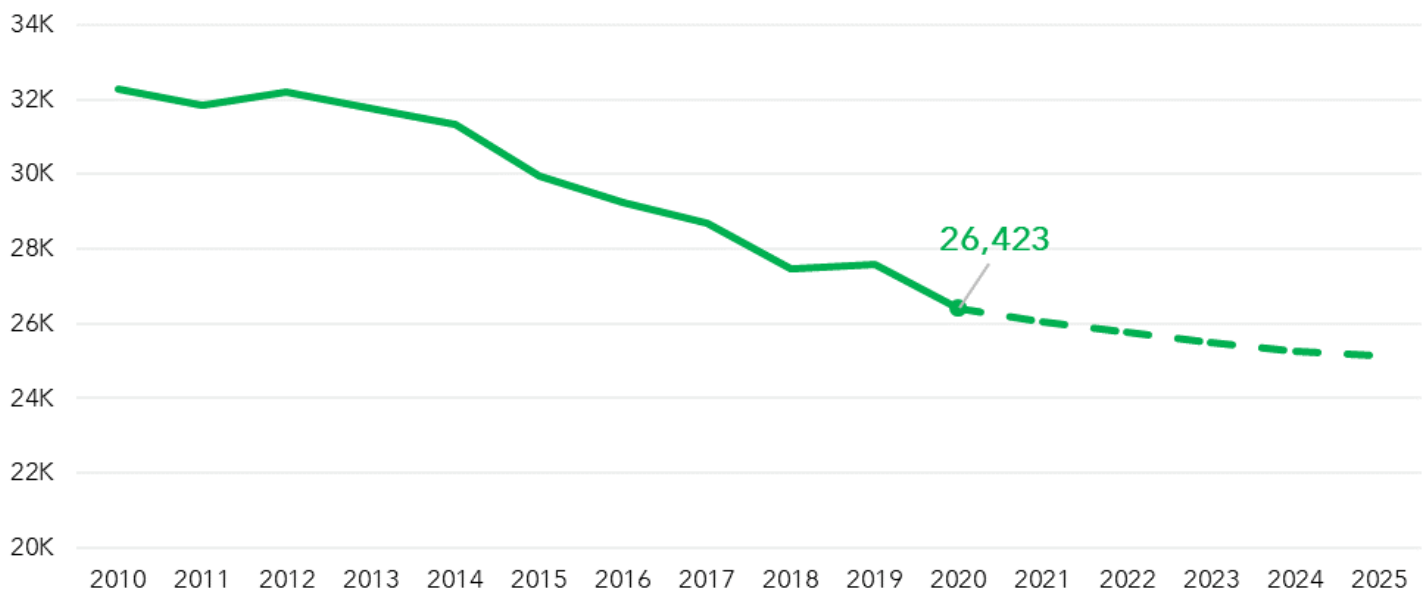
OPPORTUNITIES

- Software Developers and Software Quality Assurance Analysts and Testers rank as one of the most represented occupations within the sector. This occupation grew by 26% from 2015 to 2020 and displayed high earnings with median annual earnings of \$91,588 per job. It is also one of the least likely to be automated of the top occupations in the sector.
- The Lehigh Valley has several educational institutions that support High Value Business Services. These institutions can be better leveraged to increase engagement with students to take on

internship positions and work opportunities. Efforts to get local employers into classrooms to have discussions with students can also help bridge this gap.

- The national trend of declining numbers of college graduates, due to population trends and declining 18-year-olds comparatively, poses a challenge to the High Value Business Services sector under traditional hiring requirements. There is a need to shift hiring requirements to encompass non-traditional education and experience to expand the local talent pool.

Lehigh Valley High Value Business Employment Trends



Source: Emsi Burning Glass Q2.2021 Dataset

High Value Business Top Occupations

Occupation	Jobs in Industry	% Job Change, 2015-2020	% of Jobs in Industry	Median Annual Earnings	Typical Entry Level Education
Customer Service Representatives	2,219	-13%	8%	\$35,946	HS/GED
Accountants and Auditors	1,119	8%	4%	\$68,462	Bach.
Tellers	1,044	-2%	4%	\$33,297	HS/GED
Software Developers and Software Quality Assurance Analysts and Testers	857	26%	3%	\$91,588	Bach.
General and Operations Managers	802	24%	3%	\$102,034	Bach.
Office Clerks, General	712	-36%	3%	\$36,028	HS/GED
Lawyers	668	3%	3%	\$129,922	PhD/Prof.
First-Line Supervisors of Office and Administrative Support Workers	655	-33%	2%	\$57,144	HS/GED
Management Analysts	648	-7%	2%	\$91,588	Bach.
Bookkeeping, Accounting, and Auditing Clerks	628	-11%	2%	\$41,215	Some college, no degree

HS/GED refers to a high school diploma or Test of General Educational Development.

Source Emsi Burning Glass Q2.2021 Dataset

High Value Business Education & Training Program Completions

Program	Non-credit	Cert.	Assoc.	Bach.	Mast.	PhD	Total
Business Administration, Management, Operations, and Managerial Economics	0	1	115	802	199	2	1,119
Computer and Information Sciences	0	0	37	240	31	2	310
Finance, General	0	0	0	275	7	0	283
Accounting & Accounting Technology/Technician and Bookkeeping	3	8	38	188	18	0	255
Business/Commerce, General	0	4	131	31	15	0	181
Marketing/Marketing Management, General	0	0	6	103	2	0	112
Computer Systems Networking and Telecommunications	21	0	49	0	0	0	70
Web Page, Digital/Multimedia and Information Resources Design	36	9	7	0	0	0	52
Graphic Design	0	0	35	7	0	0	43
Computer and Information Systems Security/Information Assurance	0	0	20	16	3	0	40
Information Technology	0	0	0	38	0	0	38
Human Resources Management/Personnel Administration	0	5	12	13	4	0	34
Computer Engineering, General	0	0	0	24	4	1	29
Drafting and Design Technology/Technician, General	18	0	3	0	0	0	22
Computer Support Specialist	0	0	15	0	0	0	15
Computer Programming/Programmer, General	0	4	10	0	0	0	13

Average Annual Program Completions show an annual average of the last five years (2016-2020) for accredited programs and three years (2018-2020) for non-credit programs. The data includes a selection of programs for all award levels at postsecondary institutions in the Lehigh Valley, as well as Kutztown University in Berks County and East Stroudsburg University based in Monroe County. Non-credit program participants are from Bethlehem Area Vo-Tech School, Career Institute of Technology, Lehigh Carbon Community College, Lehigh Career & Technical Institute, and Northampton Community College. EMT and CNA refer to emergency medical technician and certified nursing assistant.

Source: Emsi Burning Glass Q2.2021 Dataset and LVEDC



PRIORITY OCCUPATIONS FOR FOCUS

Occupations with the greatest growth potential through 2025:

- Accountants and Auditors
- Software Developers and Software Quality Assurance Analysts and Testers

High Value Business Services In-demand Skills from Job Postings

Specialized Skills	Baseline Skills
Customer Service	Communication Skills
Sales	Problem Solving
Customer Contact	Teamwork / Collaboration
Scheduling	Microsoft Office
Logistics	Organizational Skills
Occupational Health and Safety	Detail-oriented
Risk Management	Building Effective Relationships
Prospective Clients	English Fluency
Product Knowledge	Written Communication
Project Management	Troubleshooting

Source: Emsi Burning Glass Labor Insight





LIFE SCIENCE RESEARCH & MANUFACTURING

6,207
2020 jobs

+5%
2020 to 2025
change in jobs
(+5% statewide)

\$116,285
avg. earnings per job
(\$139,030 statewide)

174
2020 payrolled
business locations

** Average earnings figure for the sector is a weighted average of the occupations' median earnings.*

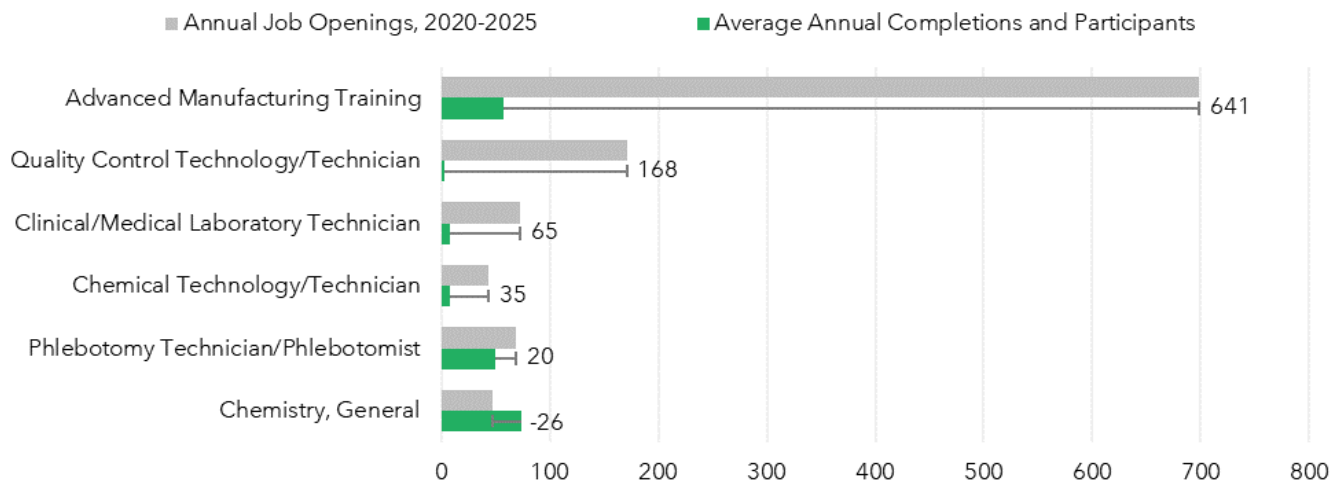
TRENDS

- Life Science Research and Manufacturing job growth in the Lehigh Valley outpaces sector growth in the comparative regions and looking forward to 2025, the sector is expected to continue gaining jobs.
- The most represented occupations in the target sector are Clinical lab technicians, Assemblers and fabricators, Phlebotomists, and Packaging and filling machine operators, together representing about 20% of Life Science Research and Manufacturing jobs.
- Medical and Botanical Manufacturing has grown nearly 300% from 2015 to 2020, adding 204 jobs. Growth is projected to continue into 2025.

GAPS IN JOB OPPORTUNITIES RELATIVE TO WORKFORCE TRAINING & EDUCATION

Clinical/Medical Laboratory Technician education and training programs have the largest hiring gap with 65 more projected annual job openings than annual program completions. The program trains for Clinical Laboratory Technicians, an occupation with 964 jobs in the Lehigh Valley and 72 annual projected job openings. However, the program graduates less than 10 students annually, all of which are at the associate degree level.

Life Science Research & Manufacturing Workforce Training & Education Program Gap



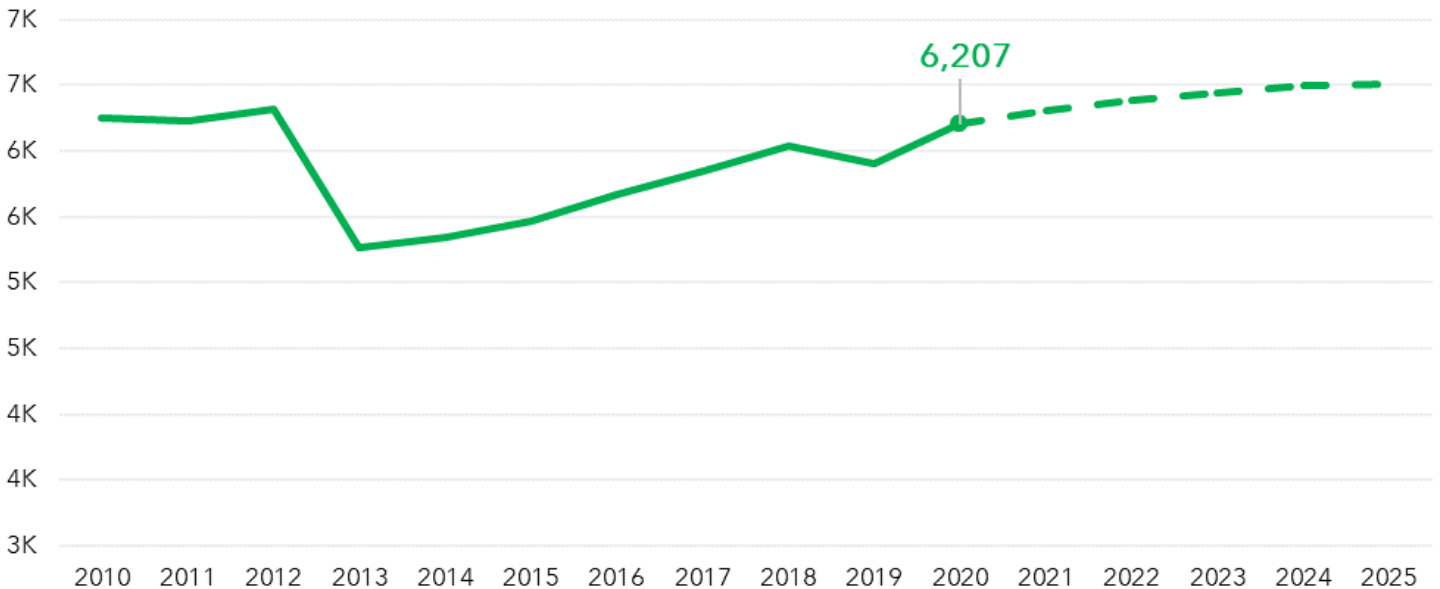
Annual Job Openings represent average annual projected openings through 2025 and Average Annual Completions and Participants show an annual average of the last five years (2016-2020) for accredited programs and three years (2018-2020) for non-credit programs. The data includes a selection of Life Science Research and Manufacturing-related programs for all award levels and postsecondary institutions in the Lehigh Valley, as well as Kutztown University in Berks County and East Stroudsburg University based in Monroe County. Non-credit program participants are from Bethlehem Area Vo-Tech School, Career Institute of Technology, Lehigh Carbon Community College, Lehigh Career & Technical Institute, and Northampton Community College.

Source: Emsi Burning Glass Q2.2021 Dataset and LVEDC

OPPORTUNITIES

- The Lehigh Valley's strengths in Health Care and Manufacturing are also assets to growing the region's Life Science Research and Manufacturing industries.
- Surgical and Medical Instrument Manufacturing is highly concentrated in the Lehigh Valley—five times more prevalent in the Lehigh Valley than the nation.

Lehigh Valley Life Science Research & Manufacturing Employment Trends



Source: Emsi Burning Glass Q2.2021 Dataset

Life Science Research & Manufacturing Top Occupations

Occupation	Jobs in Industry	% Job Change, 2015-2020	% of Jobs in Industry	Median Annual Earnings	Typical Entry Level Education
Clinical Laboratory Technologists and Technicians	314	11%	5%	\$52,146	Bach.
Miscellaneous Assemblers and Fabricators	301	90%	5%	\$38,002	HS/GED
Phlebotomists	257	-1%	4%	\$38,043	PS nondegree/Cert.
Packaging and Filling Machine Operators and Tenders	254	157%	4%	\$38,896	HS/GED
Customer Service Representatives	213	14%	3%	\$35,942	HS/GED
Inspectors, Testers, Sorters, Samplers, and Weighers	184	-1%	3%	\$40,477	HS/GED
General and Operations Managers	137	71%	2%	\$102,024	Bach.
Laborers and Freight, Stock, and Material Movers, Hand	128	27%	2%	\$30,534	No formal ed. credential
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	128	27%	2%	\$71,677	HS/GED
Chemists	122	13%	2%	\$69,389	Bach.

HS/GED refers to a high school diploma or Test of General Educational Development. PS nondegree/Cert. refers to a postsecondary nondegree or certificate.

Source Emsi Burning Glass Q2.2021 Dataset

Life Science Research & Manufacturing Education & Training Program Completions

Program	Non-credit	Cert.	Assoc.	Bach.	Mast.	PhD	Total
Business Administration, Management, Operations, and Managerial Economics	0	1	115	802	199	2	1,119
Computer and Information Sciences	0	0	37	240	31	2	310
Finance, General	0	0	0	275	7	0	283
Health Professions and Related Clinical Sciences, Other	170	0	0	33	0	0	203
Business/Commerce, General	0	4	131	31	15	0	181
Chemical and Biomolecular Engineering	0	0	0	81	12	7	100
Chemistry & Chemical Technology/Technician	0	0	17	52	9	4	82
Advanced Manufacturing Training	58	0	0	0	0	0	58
Bioengineering and Biomedical Engineering	0	0	0	48	4	1	54
Phlebotomy Comprehensive (Phlebotomy Technician/Phlebotomist)	21	28	0	0	0	0	49
Engineering, General/Other	5	0	18	25	0	0	49
Management Sciences and Quantitative Methods	0	0	0	5	19	0	23
Entrepreneurship/Entrepreneurial Studies	11	4	0	0	0	0	15
Clinical/Medical Laboratory Technician	0	0	7	0	0	0	7
Project Management	0	0	0	0	7	0	7
Quality Control Technology/Technician	0	0	2	0	0	0	2

Average Annual Program Completions show an annual average of the last five years (2016-2020) for accredited programs and three years (2018-2020) for non-credit programs. The data includes a selection of programs for all award levels at postsecondary institutions in the Lehigh Valley, as well as Kutztown University in Berks County and East Stroudsburg University based in Monroe County. Non-credit program participants are from Bethlehem Area Vo-Tech School, Career Institute of Technology, Lehigh Carbon Community College, Lehigh Career & Technical Institute, and Northampton Community College. EMT and CNA refer to emergency medical technician and certified nursing assistant.

Source: Emsi Burning Glass Q2.2021 Dataset and LVEDC





PRIORITY OCCUPATIONS FOR FOCUS

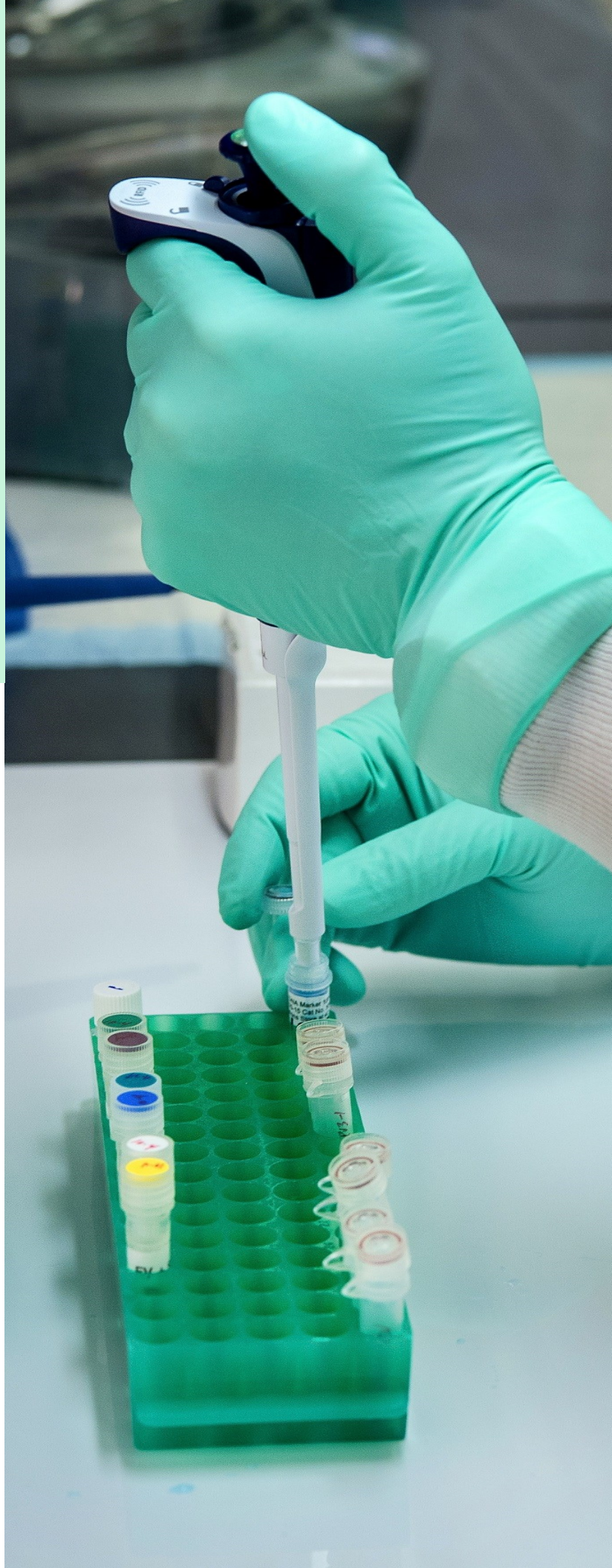
Occupations with the greatest growth potential through 2025:

- Clinical Laboratory Technologies and Technicians
- Phlebotomists
- Packaging and Filling Machine Operators and Tenders

Life Science Research & Manufacturing In-demand Skills from Job Postings

Specialized Skills	Baseline Skills
Packaging	Communication Skills
Manufacturing Principles	Teamwork / Collaboration
Cancer Knowledge	Problem Solving
Project Management	Microsoft Excel
Biotechnology	Physical Abilities
Good Manufacturing Practices	Organizational Skills
Environmental Protection	Computer Literacy
Scheduling	Detail-Oriented
Clinical Trials	Planning
Budgeting	Microsoft Word

Source: Emsi Burning Glass Labor Insight





TRANSPORTATION, WAREHOUSING, LOGISTICS & WHOLESALE

36,460
2020 jobs

+14%
2020 to 2025
change in jobs
(+4% statewide)

\$60,101
avg. earnings per job
(\$71,746 statewide)*

790
2020 payrolled
business locations

* Average earnings figure for the sector is a weighted average of the occupations' median earnings.

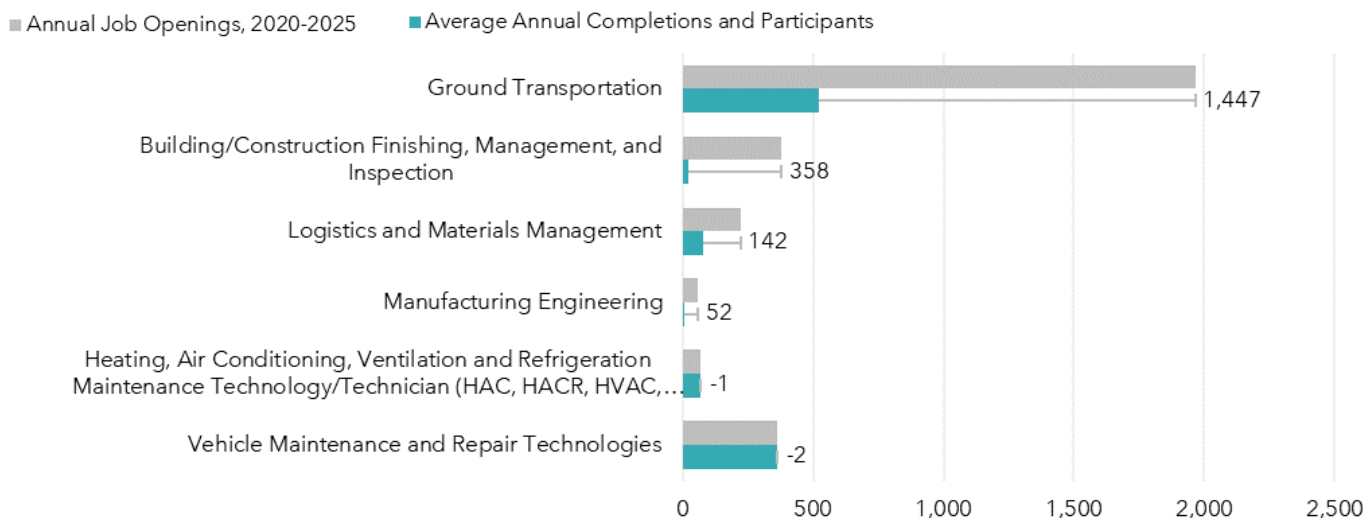
TRENDS

- Transportation, Warehousing, Logistics, and Wholesale has exhibited strong historical growth and will continue to outpace other target industries in the Lehigh Valley.
- Industry includes large amount of entry level positions.
- Transportation and Material Moving occupations attract the greatest number of in-commuters from outside the region.

GAPS IN JOB OPPORTUNITIES RELATIVE TO WORKFORCE TRAINING & EDUCATION

- Ground Transportation has the largest hiring gap in the Lehigh Valley's Transportation, Warehousing, Logistics, and Wholesale sector. The program area is comprised of three non-credit programs, including Truck and Bus Driver/Commercial Vehicle Operation. If historic educational output remains constant, the Region will need nearly 1,500 more workers every year to fill the program area's job openings.
- Other top lagging occupational fields include Building/Construction Finishing, Management, and Inspection and Logistics and Materials Management.

Transportation, Warehousing, Logistics & Wholesale Workforce Training & Education Program Gap



Annual Job Openings represent average annual projected openings through 2025 and Average Annual Completions and Participants show an annual average of the last five years (2016-2020) for accredited programs and three years (2018-2020) for non-credit programs. The data includes a selection of Transportation, Warehousing, Logistics, and Wholesale-related programs for all award levels and postsecondary institutions in the Lehigh Valley, as well as Kutztown University in Berks County and East Stroudsburg University based in Monroe County. Non-credit program participants are from Bethlehem Area Vo-Tech School, Career Institute of Technology, Lehigh Carbon Community College, Lehigh Career & Technical Institute, and Northampton Community College.

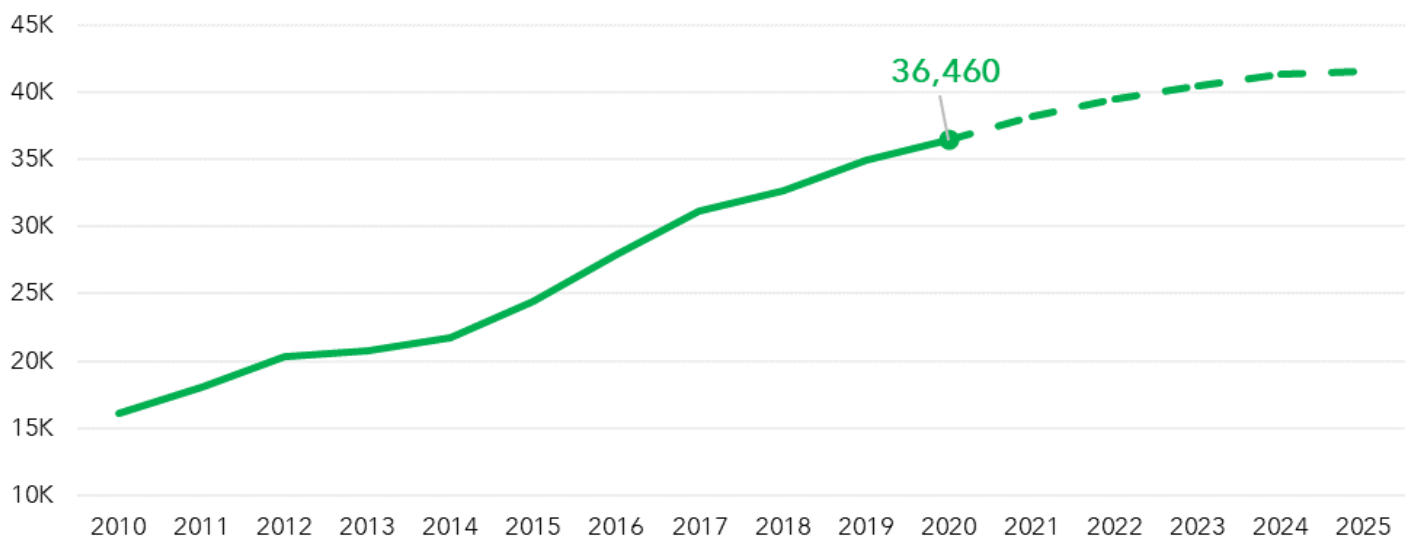
HACVR refers to heating, air conditioning, ventilation, and refrigeration.

Source: Emsi Burning Glass Q2.2021 Dataset and LVEDC

OPPORTUNITIES

- The Lehigh Valley offers cost competitive sites and labor that can be further leveraged to draw additional jobs to the Valley.
- General and Operations Managers in the sector grew by 244 jobs between 2015 and 2020, for a growth of 103%. The occupation's typical entry level of education is bachelor's degree with high median annual earnings. There is an opportunity to grow this high wage occupation by helping companies train and promote from within, retaining talent coming from regional higher education, and attracting talent to the region.
- A strong demand for Commercial Driver's License (CDL) drivers in the Lehigh Valley will continue, seeing that General Freight Trucking industries are anticipated to increase by 403 jobs between 2020 and 2025. Moreover, there is a strong need to ensure certified drivers are employed in local operations to fulfill the region's employer demand.

Lehigh Valley Transportation, Warehousing, Logistics & Wholesale Employment Trends



Source: Emsi Burning Glass Q2.2021 Dataset

Transportation, Warehousing, Logistics & Wholesale Top Occupations

Occupation	Jobs in Industry	% Job Change, 2015-2020	% of Jobs in Industry	Median Annual Earnings	Typical Entry Level Education
Laborers and Freight, Stock, and Material Movers, Hand	9,391	50%	26%	\$30,529	No formal ed. credential
Heavy and Tractor-Trailer Truck Drivers	4,707	23%	13%	\$49,506	PS nondegree/Cert.
Industrial Truck and Tractor Operators	4,054	80%	11%	\$37,759	No formal ed. credential
Stockers and Order Fillers	2,935	173%	8%	\$25,749	HS/GED
Light Truck Drivers	1,645	102%	5%	\$33,226	HS/GED
Shipping, Receiving, and Inventory Clerks	1,145	78%	3%	\$36,613	HS/GED
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	1,099	71%	3%	\$64,188	HS/GED
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	978	29%	3%	\$71,683	HS/GED
Customer Service Representatives	764	23%	2%	\$35,946	HS/GED
Packers and Packagers, Hand	629	2%	2%	\$27,940	No formal ed. credential

PS nondegree/Cert. refers to a postsecondary nondegree or certificate. HS/GED refers to a high school diploma or Test of General Educational Development.

Source Emsi Burning Glass Q2.2021 Dataset

Transportation, Warehousing, Logistics & Wholesale Education & Training Program Completions

Program	Non-credit	Cert.	Assoc.	Bach.	Mast.	PhD	Total
Truck and Bus Driver/Commercial Vehicle Operation	324	120	0	0	0	0	444
Automobile/Automotive Mechanics Technology/Technician	289	5	22	0	0	0	317
Computer and Information Sciences	0	0	37	240	31	2	310
Industrial Engineering & Management	0	0	0	60	72	7	139
Logistics, Materials, and Supply Chain Management	79	0	0	30	8	0	117
Heating, Air Conditions, Ventilation and Refrigeration Maintenance Technology/Technician	67	4	12	0	0	0	83
Construction/Heavy Equipment/Earthmoving Equipment Operation	56	0	0	0	0	0	56
Autobody/Collision and Repair Technology/Technician	56	0	0	0	0	0	56
Industrial Electronics & Mechanics and Maintenance Technology	13	3	25	0	0	0	41
Building/Property Maintenance and Management	21	0	0	0	0	0	21
Sales, Distribution, and Marketing Operations, General	21	0	0	0	0	0	21
Logistics Forklift	20	0	0	0	0	0	20
Small Engines & Gas Engines/Recreational Vehicle Repair	12	0	0	0	0	0	12
Medium/Heavy Vehicle and Truck Technology/Technician	10	0	0	0	0	0	10
Manufacturing Engineering & Technology/Technician	0	1	4	0	6	0	10

Average Annual Program Completions show an annual average of the last five years (2016-2020) for accredited programs and three years (2018-2020) for non-credit programs. The data includes a selection of programs for all award levels at postsecondary institutions in the Lehigh Valley, as well as Kutztown University in Berks County and East Stroudsburg University based in Monroe County. Non-credit program participants are from Bethlehem Area Vo-Tech School, Career Institute of Technology, Lehigh Carbon Community College, Lehigh Career & Technical Institute, and Northampton Community College. EMT and CNA refer to emergency medical technician and certified nursing assistant.

HVAC refers to heating, ventilation and air conditioning.

Source: Emsi Burning Glass Q2.2021 Dataset and LVEDC



PRIORITY OCCUPATIONS FOR FOCUS

Occupations with the greatest growth potential through 2025:

- Laborers and Freight, Stock, and Material Movers
- Light Truck Drivers
- Heavy and Tractor-Trailer Truck Drivers
- Industrial Truck and Tractor Operators
- Stockers and Order Fillers
- First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors
- Packers and Packagers

Transportation, Warehousing, Logistics & Wholesale In-demand Skills from Job Postings

Specialized Skills	Baseline Skills
Sorting	Communication Skills
Scheduling	Physical Abilities
Forklift Operation	Microsoft Office
Customer Service	Microsoft Excel
Repair	Detail-oriented
Lifting Ability	English
Packaging	Planning
Customer Contact	Teamwork / Collaboration
Logistics	Computer Literacy
Warehouse Operations	Written Communication

Source: Emsi Burning Glass Labor Insight

