

A photograph of two men in a workshop setting. The man on the left is wearing a black t-shirt, safety glasses, and a camouflage baseball cap. The man on the right is wearing a red t-shirt and safety glasses. They are both looking down at a piece of machinery, which appears to be a large industrial machine with a black frame and a silver component. The background is slightly blurred, showing a workshop environment.

2015 ANNUAL LEAP REPORT: AN OCCUPATIONAL ANALYSIS



Department of
**Economic &
Community Development**

Center for Economic Research
in Tennessee (CERT)

2015 ANNUAL LEAP REPORT: AN OCCUPATIONAL ANALYSIS

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Introduction

Tennessee is experiencing unprecedented growth. It was named #1 state of the year in 2013 and 2014 for economic development by *Business Facilities* magazine, an unparalleled accomplishment and a testament to the state's internationally competitive workforce. Tennessee has ranked #1 for Automotive Manufacturing Strength for an unprecedented five times in the past six years, and in 2015, the Volunteer State also ranked #1 for Education: Tech Skills Leaders, #2 Best Business Climate, #2 Best Infrastructure, and #4 Workforce Training Leaders.

In 2015, *Area Development* magazine named Tennessee among the top ten states in the nation for availability of skilled labor, leading workforce development, educational resources, costs of doing business and a favorable regulatory environment. Tennessee is the fastest-improving state in the nation for K-12 education from 2011-2015, based on the National Assessment of Education Progress (NAEP), the Nation's Report Card.

Economic Development is on a record trajectory. Private sector jobs have grown 11.4% during Governor Haslam's administration and 1.85% in the last twelve months. In 2014, Tennessee's population age 25 and older had its highest recorded percentage of people with an associate degree or higher (32.0%); Tennessee's inflation-adjusted GDP reached its highest level in 2014 (\$275.8 billion); and inflation-adjusted personal income reached its highest level in Tennessee since the Bureau of Economic Analysis (BEA) began recording in 2010 (\$41,532). In the last five years (January 2011 through the end of October 2015), the Department of Economic & Community Development (TNECD) has secured over 820 commitments from companies to create over 107,000 new jobs and invest \$19.4 billion in capital. Development of the workforce required to fill this significant inventory of open positions requires Tennessee institutional alignment. In order to keep up with the demand for a skilled and qualified workforce, Tennessee recognizes the importance of aligning education, industry and workforce.

Tennessee is actively addressing the challenge to ensure a skilled workforce is available for the newly relocated and expanding companies across the state. In 2014, Governor Bill Haslam challenged Tennessee with the Drive to 55— a statewide initiative to equip 55% of Tennesseans with a postsecondary degree or certificate by the year 2025. Tennessee Promise, Tennessee Reconnect and Tennessee LEAP are three programs under the Drive to 55 initiative which implement strategies to ensure access to postsecondary and to ensure the needs of industry are aligned with curriculum in the classroom.

Tennessee Promise offers high school students two years of tuition-free community or technical college and a mentor to help them through the process. Tennessee is the only state in the nation to provide this opportunity. The inaugural high school graduating class of 2015 included participation by nearly 60,000 high school seniors, with 15,830 students using Tennessee Promise benefits beginning in the fall of 2015. Community colleges across the state reported a 14% increase of students enrolling as a full time student directly after high school as compared to fall 2014. As a result of Tennessee Promise, Tennessee leads the nation in FAFSA completion, comprising 40% of the entire country's growth in FAFSA filings in 2015.

Tennessee Reconnect offers adults the opportunity to attend and earn a certificate at any of the 27 Tennessee Colleges of Applied Technology (TCATs) completely free of tuition and fees. More than 10,000 adult Tennesseans completed the online interest forms, and 4,921 adult students have entered the inaugural program in fall 2015.

Tennessee Labor Education Alignment Program (LEAP) is a \$10M grant opportunity designed to ensure postsecondary institutions are producing the skills and credentials that Tennessee employers actually need through alignment of education and industry. Drive to 55 is not just a mission for higher education, but a mission for Tennessee's future workforce and economic development.

The Governor's Workforce Subcabinet and LEAP Request for Proposal

In 2014, Governor Haslam created the Workforce Subcabinet, a collaborative team dedicated to develop and oversee implementation of a three year strategic plan that aligns state resources in an effort to attain the Drive to 55 goals. The Subcabinet is comprised of the following: Commissioner Randy Boyd, Chair (Economic and Community Development), Commissioner Raquel Hatter (Human Services), Commissioner Candice McQueen (Education), Chancellor John Morgan (Tennessee Board of Regents), Dr. Russ Deaton (Tennessee Higher Education Commission), and Commissioner Burns Phillips (Labor and Workforce Development). In addition to the initial responsibility of overseeing LEAP, the Governor's Workforce Subcabinet has developed multiple strategies to aide in the alignment of workforce, education and industry.

The LEAP Request for Proposal (RFP) pursued education, industry and workforce alignment through a \$10,000,000 competitive grant process. This competition sought to fund collaborative efforts that most directly impact a region's ability to close skills gaps and increase postsecondary attainment. Grants of up to \$1,000,000 were offered for up to 24 months to pursue one of the following tasks:

- a) Enhance, expand or create an academic program at an institution of higher education that fills a critical, demonstrable local workforce need.
- b) Acquire equipment for a higher education institution or industry education facility that is crucial to the development or enhancement of new workforce-essential competencies.

The RFP required grant recipients to establish a collaborative team that included a local economic development agency, an institution of higher education, a local K-12 school district that provides early postsecondary opportunities at the high school level and local businesses. Partners were to be included from no fewer than three counties, with the exception of major metropolitan areas. Successful applications provided a thorough description of the region's high-demand and high-skill occupations, and identified how the proposed activity would address staffing deficits in those areas. Whenever possible, plans to include industry-recognized national skills certifications were included.

The following grants were awarded in 2014. A detailed progress report will be released by THEC in January, 2016.

Advanced Manufacturing and Workforce Center

East Tennessee Development District & Roane State Community College
\$970,000

Advanced Manufacturing/ Industrial Maintenance/ Mechatronics in the Upper Cumberland

Upper Cumberland Human Resource Agency LWIA 7 & TCAT-Livingston
\$684,000

Closing Gaps through Partnerships

South Central Tennessee Workforce Alliance & TCAT-Pulaski
\$970,000

Certified Production Technician (CPT) Pathway to Advanced Manufacturing

Northwest Tennessee Workforce Board & Dyersburg State Community College
\$850,000

Filling Gaps Between Industry and Employees with Manufacturing Technology
 South Central Tennessee Development District & TCAT-Shelbyville
 \$970,000

IT Pathway Collaborative
 Nashville Technology Council & Nashville State Community College
 \$850,000

LEAP Memphis
 Greater Memphis Alliance for a Competitive Workforce & Southwest Tennessee Community College
 \$743,500

LEAP to Success
 Jackson Regional Partnership & Jackson State Community College
 \$900,000

MAD About Technology – Mobile Applications Development and Innovative Technologies
 South Central Tennessee Workforce Alliance & Columbia State Community College
 \$135,918

Manufacturing and Mechatronics for Soldiers and Students (M2S2)
 North Tennessee Workforce Board & Nashville State Community College
 \$992,037

Regional Apprenticeship Preparedness Program
 Southeast Tennessee Development District & TCAT-Athens
 \$946,280

Strengthening the Lakeway Links: Providing a Demand Driven Workforce Supply Chain
 Smoky Mountains Area Workforce Board & Walters State Community College
 \$988,000

Workforce360°

In addition to the Governor's initiatives under Drive to 55, the Tennessee Department of Economic and Community Development recognized the need to replicate the Governor's Workforce Subcabinet at a local level, statewide. Acting as an intermediary, TNECD brings together the local secondary, postsecondary and labor representatives for a direct conversation with businesses to address workforce challenges, with the understanding that the best solutions are most often achieved through a collaborative approach. This project-based system works with individual companies to identify workforce gaps and streamlines solutions across Tennessee by utilizing state department communications, interactions and resources. Region-based tactical teams provide a timely response to immediate business workforce needs, as well as strategic planning for long-term requirements with the ultimate goal of successful job fulfillment and industry satisfaction.

Introduction to the Data Analysis

In 2013, the Tennessee General Assembly adopted Public Chapter 338 which established a Labor Education Alignment Program (LEAP). LEAP created a statewide, comprehensive structure enabling students in secondary and postsecondary institutes to participate in technical training developed with input from area employers. Senate Majority Leader Mark Norris led the charge in this endeavor.

Pursuant to Section 10 of Public Chapter 338, the Department of Economic and Community Development will submit a report to partner agencies on demonstrated workforce needs within existing and prospective businesses across the state.

The Center for Economic Research in Tennessee (CERT) conducted an evaluation to identify Tennessee's in-demand jobs that are high wage growing and require at least a high school education.

Labor market gaps indicating more Tennesseans are needed to fill current and future positions were identified through one of two methods: (1) average monthly job postings¹ by regional businesses were greater than 1.5x average monthly hires by regional businesses; or (2) annual job openings² in a region were greater than program completions in fields of study that commonly supply the given occupation. Where one of these two indicators was true for an occupation, an unfilled employer demand was identified.

To promote the growth of high quality jobs across the state, the occupations identified have a median wage that is at least 90% of the region's median wage for all occupations. Where a high quality job is defined as above the median regional wage, inclusion of occupations 10% below the median threshold allows for consideration of occupations where higher earning potential is a possibility. To encourage educational institutions and students to prepare for future employer demand, the jobs identified have experienced growth or are projected to experience growth in the long-term.

The evaluation includes jobs meeting minimum thresholds for occupational employment and employment concentration quotient.³ Levels below the thresholds set for these metrics indicate low employer demand. This report only includes jobs determined to have a bright outlook⁴ by the Tennessee Department of Labor and Workforce Development. Additionally, the study includes occupations requiring at least a high school diploma or equivalent at entry level. The United States Bureau of Labor Statistics (BLS) defines for each occupation one of eight levels of education that is typical at entry level. When there are multiple educational paths, the BLS selects the occupation with the most common path.

Two statewide lists of occupations and nine regional lists of occupations are included in this report. The first statewide list of occupations includes short-term in-demand occupations and focuses on growth from the last five years (2009 to 2014). The second statewide list of occupations includes long-term in-demand occupations and focuses on projected growth for the next eight years (2014 to 2022). Some occupations can be found on both of the statewide lists, indicating current and future recruitment needed for the given occupation. For each of TNECD's nine regions, this study outlines in-demand occupations using both past and projected growth.

The jobs identified for the state and each region are important areas for the workforce to pursue, in order to meet the current and future demand of Tennessee's employers.

Methodology details are included at the end of the report.

¹Job postings data from Economic Modeling Specialists Intl. spiders over 30,000 websites for postings and has a rigorous de-duplication process to get unique job postings.

²Annual job openings for a given occupation represent estimated openings that are the result of business growth and turnover.

³Concentration quotient, or location quotient, is a metric of employment concentration that compares a region to the national average. A location quotient greater than one indicates the occupation has a higher share of employment than average, and a location quotient less than one indicates the occupation is less prevalent in the area than average.

⁴Bright outlook occupations are projected to grow in the next several years, will have job openings, and have less than 1.5 times as many postsecondary completions as average annual job openings.

Key Takeaways

STEM and STEM-Related Occupations⁵

Science, Technology, Engineering and Math (STEM) occupations in Tennessee are projected to have many openings and are high wage jobs. These two factors contributed to the presence of STEM and STEM-Related occupations in this report—25 of the total 89 occupations mentioned within are STEM occupations. 13 of the 17 occupations in this report that have a majority of employment within the healthcare and social assistance industry are STEM occupations. Last year, the Tennessee Department of Labor and Workforce Development released a report entitled *The Demand for STEM Occupations in Tennessee*,⁶ which also highlighted the projected openings and high wage of STEM occupations. STEM occupations will be highlighted throughout this report in **purple**.

IT (Computer) Occupations

IT occupations (occupations that begin with the SOC code 15-1) are projected to grow rapidly and have high wages. Many of these occupations are in-demand across several regions. These occupations include computer scientists, system analysts, software and web developers and many other information technology jobs. Computer occupations will be highlighted throughout this report in **orange**.

Retirement Age Demographics

Retirement of the baby boomer generation have significant impacts on the workforce nationwide. Workers age 55 and older are nearing retirement age over the next decade, and it will be important that when these talented workers choose to retire the workforce is prepared to fill the gaps created.

A recent national skills gap report by the Manufacturing Institute and Deloitte⁷ forecasts 3.5 million manufacturing jobs will need to be filled in the next 10 years, of which only 1.5 million will be filled. The study estimates nationwide 2.7 million of the 3.5 million jobs that will need to be filled are a result of retirement of the current workforce. Another 700,000 jobs are attributed to natural business growth. A shortage of STEM skills and a decline of technical education programs in high schools are among other contributing factors. The skills gap presents a shortage of 2 million workers over the next decade for the manufacturing sector alone, and other sectors will face similar shortages.

Understanding this future, the report highlights jobs with a high percentage of workers age 55 and older. In 2014, Tennessee workers who were age 55 and older represented 20% of the employed. Throughout this report, any occupation with more than 20% of its workforce that is age 55 and older has been displayed in a bar graph.

In both the short-term(immediate) and long-term, Tennessee has a skills gap in several occupations that also have a relatively high share of workers age 55 and older:

- Tool and Die Makers
- Industrial Engineers
- Maintenance and Repair Workers, General
- Heavy and Tractor Trailer Truck Drivers
- Medical Equipment Repairers
- First-Line Supervisors of Mechanics, Installers and Repairers
- Production, Planning and Expediting Clerks
- Operations Research Analysts
- Information Security Analysts
- Medical and Clinical Laboratory Technologists
- Healthcare Social Workers

⁵The STEM and STEM-Related Occupations in this report were identified as such by the U.S. Census Bureau and Economic Modeling Specialists Intl.

⁶"The Demand for STEM Occupations in Tennessee." Tennessee Department of Labor and Workforce Development, October 2014. - <https://www.jobs4tn.gov/admin/gsipub/htmlarea/uploads/STEMReport.pdf> ; This report uses the U.S. Bureau of Labor Statistics definition of STEM occupations.

⁷"The Skills Gap in U.S. Manufacturing: 2015 and Beyond." Deloitte and The Manufacturing Institute, 2015. - <http://www.themanufacturinginstitute.org/Research/Skills-Gap-in-Manufacturing/Skills-Gap-in-Manufacturing.aspx>

- Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products
- Dispatchers, Except Police, Fire and Ambulance
- Bus and Truck Mechanics and Diesel Engine Specialists

Industries

Many of the occupations in this report have a high concentration of employment within the following industries:

- Health Care and Social Assistance
- Manufacturing
- Wholesale Trade
- Education Services
- Transportation and Warehousing
- Professional, Scientific and Technical Services
- Finance and Insurance
- Information
- Construction
- Retail Trade

Weaknesses of Selected Metrics

There are inherent weaknesses to a number of the selected metrics. Online job postings data is a major contributor to the selection of in-demand occupations in this report, and there are occupations that generally do not use online job postings to find applicants. These occupations are more difficult to identify as in-demand within the methodology of this report.

Secondly, the BLS definition of entry-level education for an occupation may not reflect the education needed for given occupation in Tennessee. For some occupations there are multiple educational paths to enter the occupation, yet the BLS only identifies the most common path.

Sources

The Tennessee Department of Labor and Workforce Development and Economic Modeling Specialists Intl. (EMSI), which uses data from the Tennessee Department of Labor and Workforce Development and federal data sources.

Statewide Short-Term In-Demand Occupations⁸

This analysis identifies 35 occupations with low workforce supply relative to high employer demand, in the short or immediate term. Twenty-five of these occupations have also been identified as statewide long-term in-demand, and are denoted with an asterisk*. The Tennessee Higher Education Commission (THEC) has expanded on Tennessee postsecondary programs currently available for these 25 occupations at the end of this report.

There are multiple factors within this list that demonstrate a workforce gap.

- An occupation with high employment growth over the last five years is an indicator of employer demand. For example, in the last five years, employment of Maintenance and Repair Workers, General has grown by 2,079 employees and Computer Systems Analysts have grown by 1,243. Employment of Medical Equipment Repairers has grown by 30.7% and Diagnostic Medical Sonographers have grown by 23.6%.
- An employment concentration greater than 1 indicates the job is highly concentrated within the region—implying a specialized need for that occupation. For example, employment concentration of Metal-Refining Furnace Operators and Tenders is 1.72 (72% above the national average); and employment concentration of Industrial Engineers and of Ship Engineers is 1.58 (58% above the national average).
- Where average monthly postings are greater than average monthly hires, a gap is being left unfilled. For example, Heavy and Tractor-Trailer Truck Drivers have a gap of 21,934 (24,844 avg. monthly postings – 2,910 avg. monthly hires), Industrial Engineers have a gap of 755 (1,026 avg. monthly postings – 271 avg. monthly hires), and Computer System Analysts have a gap of 535 (1,012 avg. monthly postings – 477 avg. monthly hires).
- Where regional completions from related postsecondary programs are less than annual job openings, a gap is being left unfilled. For example, in 2014 Maintenance and Repair Workers, General had a gap of 810 (825 annual openings – 15 annual regional completions).
- When reviewing the regional completions metric, it is important to consider the job's typical entry level education. If there are no regional completions for an occupation, that occupation does not have a direct postsecondary path (but could require general postsecondary achievement), there is no program in the area that specifically supports the occupation, or the occupation may not require a postsecondary credential.

IT(Computer) Occupations STEM Occupations

SOC	Description	2014 Employment	2009 - 2014 Change	2009 - 2014 % Change	2014 Employment Concentration (National Avg. is 1.00)	Avg. Monthly Postings	Avg. Monthly Hires	2014 Regional Completions	2014 Annual Openings	Typical Entry Level Education	Median Hourly Earnings
11-2022	Sales Managers*	8,450	760	9.9%	1.17	939	405	6,408	271	Bachelor's	\$39.18
11-9051	Food Service Managers	8,683	1,179	15.7%	2.20	1,150	883	199	204	High school diploma+	\$18.72
13-1022	Wholesale and Retail Buyers, Except Farm Products	2,765	331	13.6%	1.25	43	131	51	103	High school diploma+	\$23.87
13-1071	Human Resources Specialists	7,362	597	8.8%	0.80	497	682	243	260	Bachelor's	\$23.81
13-1121	Meeting, Convention, and Event Planners*	968	90	10.3%	0.62	47	81	1	52	Bachelor's	\$17.85
15-1121	Computer Systems Analysts*	9,057	1,243	15.9%	0.85	1,012	477	871	386	Bachelor's	\$37.15
15-1122	Information Security Analysts*	1,026	128	14.3%	0.63	262	49	1,689	57	Bachelor's	\$35.42
15-1134	Web Developers*	1,418	94	7.1%	0.58	445	87	1,689	58	Associate's	\$25.66
15-1151	Computer User Support Specialists*	8,096	881	12.2%	0.72	1,024	526	885	337	Some college, no degree	\$20.36
15-2031	Operations Research Analysts*	1,755	218	14.2%	0.99	197	67	48	86	Bachelor's	\$30.65
17-2112	Industrial Engineers*	7,573	1,152	17.9%	1.58	1,026	271	106	274	Bachelor's	\$37.21
21-1022	Healthcare Social Workers*	3,082	202	7.0%	1.00	171	134	98	136	Master's	\$23.00
29-2011	Medical and Clinical Laboratory Technologists*	4,152	294	7.6%	1.27	226	110	689	172	Bachelor's	\$27.94
29-2031	Cardiovascular Technologists and Technicians*	959	65	7.3%	0.93	148	25	591	47	Associate's	\$23.81
29-2032	Diagnostic Medical Sonographers*	1,686	322	23.6%	1.40	98	47	629	98	Associate's	\$29.14
29-2034	Radiologic Technologists*	5,154	571	12.5%	1.32	223	143	832	183	Associate's	\$23.49

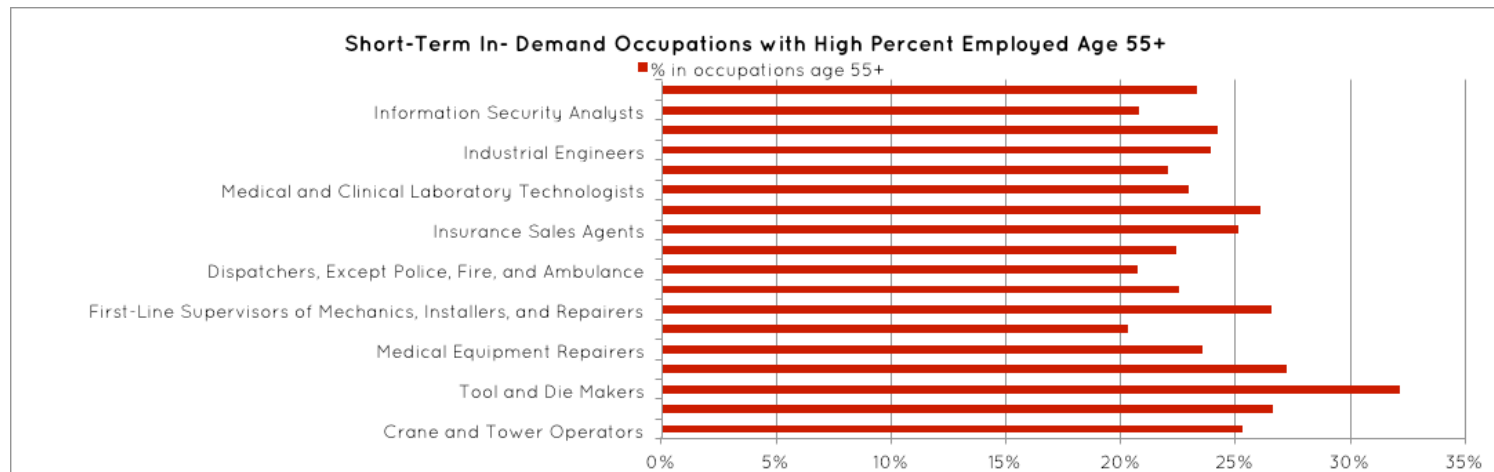
+ or equivalent to a high school diploma.

⁸See page 32 for methodology and sources. See page 32 for appendix.

IT(Computer) Occupations STEM Occupations

SOC	Description	2014 Employment	2009 - 2014 Change	2009 - 2014 % Change	2014 Employment Concentration (National Avg. is 1.00)	Avg. Monthly Postings	Avg. Monthly Hires	2014 Regional Completions	2014 Annual Openings	Typical Entry Level Education	Median Hourly Earnings
29-9011	Occupational Health and Safety Specialists	1,879	124	7.1%	1.42	208	70	596	61	Bachelor's	\$31.16
31-2021	Physical Therapist Assistants*	2,313	298	14.8%	1.50	205	113	768	117	Associate's	\$26.12
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers*	1,956	200	11.4%	0.98	15	161	20	49	High school diploma+	\$17.88
41-3021	Insurance Sales Agents	8,334	757	10.0%	1.11	901	420	0	333	High school diploma+	\$19.53
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products*	8,103	543	7.2%	1.19	610	307	26	255	Bachelor's	\$35.33
43-5011	Cargo and Freight Agents	2,288	204	9.8%	1.48	47	138	16	120	High school diploma+	\$17.92
43-5032	Dispatchers, Except Police, Fire, and Ambulance*	3,977	336	9.2%	1.05	47	246	0	196	High school diploma+	\$17.17
43-5061	Production, Planning, and Expediting Clerks*	8,332	774	10.2%	1.39	158	435	0	257	High school diploma+	\$22.38
47-2132	Insulation Workers, Mechanical	449	75	20.1%	0.79	2	34	19	34	High school diploma+	\$16.90
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers*	9,736	696	7.7%	1.12	509	476	99	366	High school diploma+	\$26.71
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists*	5,704	434	8.2%	1.17	358	292	139	211	High school diploma+	\$20.27
49-9051	Electrical Power-Line Installers and Repairers*	3,318	679	25.7%	1.45	17	182	8	149	High school diploma+	\$32.18
49-9062	Medical Equipment Repairers*	1,040	244	30.7%	1.25	59	35	0	69	Associate's	\$19.28
49-9071	Maintenance and Repair Workers, General*	28,971	2,079	7.7%	1.12	1,115	1,639	15	825	High school diploma+	\$17.18
51-4051	Metal-Refining Furnace Operators and Tenders	733	138	23.2%	1.72	2	17	0	13	High school diploma+	\$18.45
51-4111	Tool and Die Makers*	2,387	428	21.8%	1.55	32	82	9	42	High school diploma+	\$22.07
53-3032	Heavy and Tractor-Trailer Truck Drivers*	48,435	3,887	8.7%	1.47	24,844	2,910	350	1,533	Postsecondary non-degree award	\$18.59
53-5031	Ship Engineers	341	48	16.4%	1.58	2	11	0	20	Bachelor's	\$28.64
53-7021	Crane and Tower Operators	728	58	8.7%	0.81	13	44	0	41	High school diploma+	\$20.25

+ or equivalent to a high school diploma.



This analysis identifies 56 occupations with long-term projections of low workforce supply relative to high employer demand. Twenty-five of these occupations have also been identified as statewide short-term in-demand, and are denoted with an asterisk*. The Tennessee Higher Education Commission (THEC) has expanded on Tennessee postsecondary programs currently available for these 25 occupations at the end of the report.

There are multiple factors within this list that demonstrate a workforce gap.

- An occupation with a large projected growth or a large annual growth rate indicates the occupation is projected to grow over the next eight years. For example, in the next eight years, employment of Heavy and Tractor-Trailer Truck Drivers is projected to grow by 6,000 employees; Employment of Paralegals and Legal Assistants is projected to grow by 4.8% annually; employment of Brickmasons and Blockmasons is projected to grow by 4.2% annually.
- An employment concentration greater than 1 indicates the occupation is projected to be highly concentrated within the region—implying a specialized need for that occupation. For example, employment concentration of Tool and Die Makers is projected to be 1.67 (67% above the national average) and employment concentration of Industrial Engineers is projected to be 1.55 (55% above the national average).
- Where average monthly postings are greater than average monthly hires, a gap is being left unfilled. For example, Heavy and Tractor-Trailer Truck Drivers have a gap of 21,934 (24,844 avg. monthly postings – 2,910 avg. monthly hires) and Industrial Engineers have a gap of 755 (1,026 avg. monthly postings – 271 avg. monthly hires).
- Where regional completions from related postsecondary programs are less than average annual job openings, a gap will be left unfilled. For example, if trends continue, First-Line Supervisors of Office and Administrative Support Workers could have a gap of 1,171 (1,200 average annual openings – 29 annual regional completions); and Maintenance and Repair Workers, General could have a gap of 855 (880 annual openings – 15 annual regional completions).
- When reviewing the regional completions metric, it is important to consider the job's typical entry level education. If there are no regional completions for an occupation, the occupation does not have a direct postsecondary path (but could require general postsecondary achievement), there is no program in the area that specifically supports the occupation, or the occupation does not require a postsecondary credential.

+ or equivalent to a high school diploma.

⁹See page 32 for methodology and sources. See page 32 for appendix.

IT(Computer) Occupations STEM Occupations

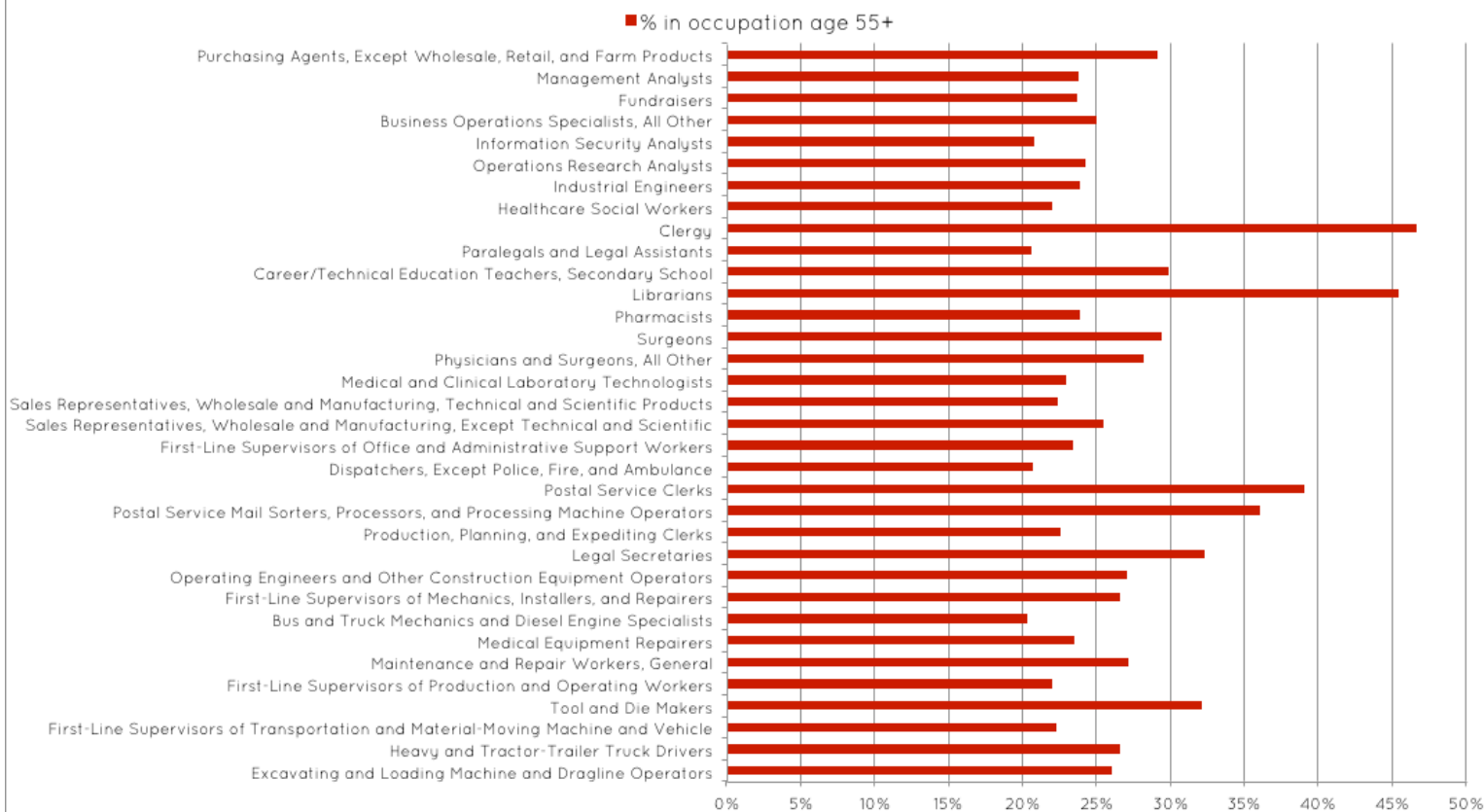
SOC	Description	2014 Employment	Projected Growth 2014-2022	Annual Growth Rate	2022 Employment Concentration (National Avg. is 1.00)	Avg. Monthly Postings	Avg. Monthk Hires	2014 Regional Completions	Avg. Annual Openings (Rounded to 5)	Typical Entry Level Education	Median Hourly Earnings
11-2022	Sales Managers*	8,200	470	0.7%	1.16	939	405	6,408	230	Bachelor's	\$39.18
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	4,040	310	0.9%	0.66	273	148	0	110	High school diploma†	\$24.56
13-1111	Management Analysts	8,410	1,400	1.9%	0.62	717	366	6,156	300	Bachelor's	\$34.78
13-1121	Meeting, Convention, and Event Planners*	1,140	350	3.4%	0.64	47	81	1	60	Bachelor's	\$17.85
13-1131	Fundraisers	840	220	2.9%	0.77	9	66	0	45	Bachelor's	\$22.42
13-1199	Business Operations Specialists, All Other	11,790	1,400	1.4%	0.59	516	481	25	335	High school diploma†	\$26.14
13-2051	Financial Analysts	2,750	410	1.7%	0.56	257	156	588	115	Bachelor's	\$32.54
15-1121	Computer Systems Analysts*	9,720	1,310	1.6%	0.85	1,012	477	871	310	Bachelor's	\$37.15
15-1122	Information Security Analysts*	980	240	2.7%	0.65	262	49	1,689	45	Bachelor's	\$35.42
15-1134	Web Developers*	1,810	210	1.4%	0.58	445	87	1,689	55	Associate's	\$25.66
15-1141	Database Administrators	1,600	220	1.6%	0.64	196	74	544	55	Bachelor's	\$38.21
15-1142	Network and Computer Systems Administrators	6,280	580	1.1%	0.73	690	315	586	170	Bachelor's	\$33.00
15-1151	Computer User Support Specialists*	8,380	1,090	1.5%	0.73	1,024	526	885	265	Some college, no degree	\$20.36
15-2031	Operations Research Analysts*	1,350	330	2.8%	0.97	197	67	48	70	Bachelor's	\$30.65
17-2112	Industrial Engineers*	7,260	540	0.9%	1.55	1,026	271	106	280	Bachelor's	\$37.21
21-1022	Healthcare Social Workers*	3,190	530	1.9%	0.99	171	134	98	135	Master's	\$23.00
21-2011	Clergy	12,090	3,600	3.3%	0.59	25	365	628	690	Bachelor's	\$20.80
23-2011	Paralegals and Legal Assistants	4,870	2,230	4.8%	0.76	314	159	205	355	Associate's	\$23.03
25-2032	Career/Technical Education Teachers, Secondary School	2,930	380	1.5%	1.60	7	61	0	130	Bachelor's	\$22.23
25-4021	Librarians	2,830	340	1.5%	0.99	16	72	87	110	Master's	\$23.92
27-3031	Public Relations Specialists	2,670	270	1.2%	0.51	237	121	552	70	Bachelor's	\$23.78
29-1051	Pharmacists	8,220	1,360	1.9%	1.40	603	331	988	365	Doctoral or professional degree	\$58.89
29-1067	Surgeons	1,080	230	2.4%	0.92	175	22	0	55	Doctoral or professional degree	\$92.81
29-1069	Physicians and Surgeons, All Other	7,530	1,700	2.6%	1.00	475	180	1,202	400	Doctoral or professional degree	\$103.70
29-1123	Physical Therapists	4,570	810	2.1%	0.96	879	191	818	215	Doctoral or professional degree	\$40.08
29-2011	Medical and Clinical Laboratory Technologists*	4,260	390	1.1%	1.29	226	110	689	160	Bachelor's	\$27.94
29-2031	Cardiovascular Technologists and Technicians*	910	240	2.9%	0.98	148	25	591	40	Associate's	\$23.81
29-2032	Diagnostic Medical Sonographers*	1,550	560	3.9%	1.43	98	47	629	90	Associate's	\$29.14
29-2034	Radiologic Technologists*	5,140	860	2.0%	1.35	223	143	832	175	Associate's	\$23.49
31-2021	Physical Therapist Assistants*	2,230	470	2.4%	1.42	205	113	768	105	Associate's	\$26.12
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers*	4,820	480	1.2%	0.97	15	161	20	110	High school diploma†	\$17.88
41-1011	First-Line Supervisors of Retail Sales Workers	36,040	530	0.2%	1.13	4,779	1,867	27	845	High school diploma†	\$17.29
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products*	10,420	1,120	1.3%	1.17	610	307	26	345	Bachelor's	\$35.33
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	23,360	1,070	0.6%	0.79	937	886	76	590	High school diploma†	\$24.43
43-1011	First-Line Supervisors of Office and Administrative Support Workers	30,620	3,790	1.5%	1.07	1,797	1,496	29	1,200	High school diploma†	\$21.91
43-5032	Dispatchers, Except Police, Fire, and Ambulance*	4,210	460	1.3%	1.09	47	246	0	175	High school diploma†	\$17.17
43-5051	Postal Service Clerks	1,370	250	2.2%	1.06	3	30	16	55	High school diploma†	\$26.72
43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	2,240	480	2.5%	1.01	9	45	16	75	High school diploma†	\$26.21
43-5061	Production, Planning, and Expediting Clerks*	8,920	620	0.9%	1.37	158	435	0	300	High school diploma†	\$22.38
43-6012	Legal Secretaries	2,140	530	2.8%	0.57	78	85	0	90	High school diploma†	\$19.02
47-2021	Brickmasons and Blockmasons	980	380	4.2%	0.99	1	101	13	60	High school diploma†	\$19.31

† or equivalent to a high school diploma.

SOC	Description	2014 Employment	Projected Growth 2014-2022	Annual Growth Rate	2022 Employment Concentration (National Avg. is 1.00)	Avg. Monthly Postings	Avg. Monthly Hires	2014 Regional Completions	Avg. Annual Openings (Rounded to 5)	Typical Entry Level Education	Median Hourly Earnings
47-2073	Operating Engineers and Other Construction Equipment Operators	4,710	670	1.7%	0.69	39	303	0	185	High school diploma+	\$17.39
47-2111	Electricians	11,350	1,010	1.1%	0.83	308	642	196	340	High school diploma+	\$22.50
47-2211	Sheet Metal Workers	4,390	630	1.7%	1.31	39	238	0	160	High school diploma+	\$17.97
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers*	9,850	620	0.8%	1.12	509	476	99	335	High school diploma+	\$26.71
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	5,490	980	2.1%	1.21	272	234	0	200	Postsecondary non-degree award	\$19.15
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists*	6,080	330	0.7%	1.19	358	292	139	170	High school diploma+	\$20.27
49-9051	Electrical Power-Line Installers and Repairers*	3,320	330	1.2%	1.39	17	182	8	155	High school diploma+	\$32.18
49-9052	Telecommunications Line Installers and	1,880	270	1.7%	0.80	17	100	0	80	High school diploma+	\$17.52
49-9062	Medical Equipment Repairers*	1,200	330	3.1%	1.29	59	35	0	75	Associate's	\$19.28
49-9071	Maintenance and Repair Workers, General*	31,210	2,410	0.9%	1.11	1,115	1,639	15	880	High school diploma+	\$17.18
51-1011	First-Line Supervisors of Production and Operating Workers	15,050	360	0.3%	1.21	979	515	99	255	Postsecondary non-degree award	\$24.20
51-4111	Tool and Die Makers*	2,620	380	1.7%	1.67	32	82	9	65	High school diploma+	\$22.07
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	4,480	450	1.2%	1.14	534	225	103	175	High school diploma+	\$25.90
53-3032	Heavy and Tractor-Trailer Truck Drivers*	54,400	6,000	1.3%	1.48	24,844	2,910	350	1,610	Postsecondary non-degree award	\$18.59
53-7032	Excavating and Loading Machine and Dragline Operators	1,340	240	2.1%	1.30	2	74	0	40	High school diploma+	\$16.51

+ or equivalent to a high school diploma.

Long-Term In- Demand Occupations with High Percent Employed Age 55+



Regional In-Demand Occupations¹⁰

The Tennessee Department of Economic and Community Development divides Tennessee into 9 county-based regions: East, Greater Memphis, Northeast, Northern Middle, Northwest, Southeast, Southern Middle, Southwest and Upper Cumberland. The TNECD regions have diverse economic conditions resulting in differences in workforce supply and demand. This study reviews each region individually to account for some of this diversity.

East Region

The East Region is comprised of the following counties: Anderson, Blount, Campbell, Claiborne, Cocke, Grainger, Hamblen, Jefferson, Knox, Loudon, Monroe, Morgan, Roane, Scott, Sevier and Union. The region employed over 470,000 Tennesseans in 2014. The projected employment growth from 2014 to 2022 is 9.5%. The median wage for all occupations within the region is \$17.55.

627,661

2014 Population
Age 25 to 64

-0.3%

Projected Growth of
Population Age 25 to 64
from 2014 to 2020

\$36,302

2013 Per Capita
Personal Income¹¹

87.4%

2013 Population Age 25
to 64 with a high school
diploma or higher¹²

20,370

Tennesseans employed
in STEM Jobs in 2014

35%

Above the National
Average for Employment
Concentration in
STEM Jobs

East Regional In-Demand Occupations

This analysis identifies 14 regional occupations with low workforce supply relative to high employer demand. There are multiple factors within this list that demonstrate a workforce gap.

- An occupation with a large projected percent change for the next eight years indicates growing employer demand, and in each of these cases projected growth is greater than historical growth. For example, employment of Physicians and Surgeons, All Others grew 0.9% in the last five years, and is projected to grow 19.0% in the next eight years.
- An employment concentration greater than 1 indicates the occupation is highly concentrated within the region—implying a specialized need for that occupation. For example, employment concentration of Environmental Science and Protection Technicians is 1.77 (77% above the national average).
- Where average monthly postings are greater than average monthly hires, there is a gap that is being left unfilled. For example, Physical Therapists have a regional gap of 126 (154 avg. monthly postings – 28 avg. monthly hires).
- Where regional completions from related postsecondary programs are less than average annual job openings, a gap will be left unfilled. For example, Telecommunications Equipment Installers and Repairers have a regional gap of 27 (27 annual openings – 0 related completions in the region).

¹⁰See page 33 for methodology and sources.

¹¹Next data release: Nov. 19, 2015.

¹²Next data release: Dec. 3, 2015.

- When reviewing the regional completions metric, it is important to consider the job's typical entry level education. If there are no regional completions for an occupation, that occupation does not have a direct postsecondary path (but could require general postsecondary achievement), there is no program in the area that specifically supports the occupation, or the occupation may not require a postsecondary credential. First-line supervisors of Office and Administrative Support Workers, for example, are in high demand as indicated by postings and annual openings. The lack of postsecondary credential completions for this job is likely due to the entry level requirement of a high school diploma, and no postsecondary programs in the region directly related to this job.

East Regional In-Demand Occupations

IT(Computer) Occupations

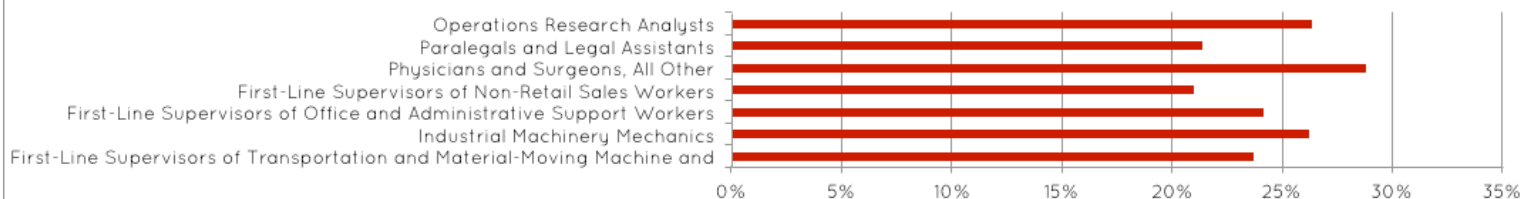
STEM Occupations

SOC	Description	2014 Employment	2009 - 2014 % Change	2014 - 2022 % Change	2014 Employment Concentration (National Avg. is 1.00)	Avg. Monthly Postings	Avg. Monthly Hires	2014 Regional Completions	2014 Annual Openings	Typical Entry Level Education	Median Hourly Earnings
15-1122	Information Security Analysts	218	10.66%	22.02 %	0.78	44	8	387	10	Bachelor's	\$39.29
15-1141	Database Administrators	251	0.80%	10.76%	0.65	19	11	107	9	Bachelor's	\$36.09
15-1142	Network and Computer Systems Administrators	880	2.33%	9.55%	0.70	85	43	107	25	Bachelor's	\$32.35
15-1151	Computer User Support Specialists	1,510	8.48%	13.84%	0.78	128	84	186	52	Some college, no degree	\$19.86
15-2031	Operations Research Analysts	272	12.86%	20.96 %	0.89	18	9	33	14	Bachelor's	\$27.88
19-4091	Environmental Science and Protection Technicians, Including Health	207	1.47%	11.11%	1.77	18	8	51	12	Associate's	\$20.93
23-2011	Paralegals and Legal Assistants	552	1.10%	13.04%	0.58	53	20	35	20	Associate's	\$21.83
29-1069	Physicians and Surgeons, All Other	1,011	0.50%	18.99%	0.93	90	29	673	52	Doctoral or professional degree	\$105.14
29-1123	Physical Therapists	619	9.95%	24.72 %	0.89	154	28	405	37	Doctoral or professional degree	\$38.46
41-1012	First-Line Supervisors of Non-Retail Sales Workers	744	0.54%	10.35%	0.86	122	31	0	20	High school diploma+	\$32.67
43-1011	First-Line Supervisors of Office and Administrative Support Workers	4,919	3.45%	11.45%	1.01	291	246	0	195	High school diploma+	\$20.67
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	814	5.99%	11.43%	1.10	34	29	0	27	Postsecondary non-degree award	\$17.34
49-9041	Industrial Machinery Mechanics	951	13.21%	26.29 %	0.87	27	31	62	64	High school diploma+	\$22.85
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	536	1.90%	15.67%	0.80	67	25	55	27	High school diploma+	\$23.94

+ or equivalent to a high school diploma.

In-Demand Occupations in the East Region with High Percent Employed Age 55+

■ % in occupation age 55+



Greater Memphis Region

The Greater Memphis Region is comprised of the following counties: Fayette, Lauderdale, Shelby and Tipton. The region employed over 498,000 Tennesseans in 2014. The projected employment growth from 2014 to 2022 is 6.6%. The median wage for all occupations within the region is \$18.79.

569,725

2014 Population
Age 25 to 64

0.47%

Projected Growth of
Population Age 25 to 64
from 2014 to 2020

\$42,689

2013 Per Capita
Personal Income¹³

87.8%

2013 Population Age 25
to 64 with a high school
diploma or higher¹⁴

20,214

Tennesseans employed
in STEM Jobs in 2014

29%

Below the National
Average for Employment
Concentration in
STEM Jobs

Greater Memphis Regional In-Demand Occupations

This analysis identifies 23 regional occupations with low workforce supply relative to high employer demand. There are multiple factors within this list that demonstrate a workforce gap.

- An occupation with a large projected percent change for the next eight years indicates growing employer demand, and in each of these cases projected growth is greater than historical growth. For example, employment of Computer User Support Specialists grew 0.3% in the last five years, and is projected to grow 15.5% in the next eight years.
- An employment concentration greater than 1 indicates the occupation is highly concentrated within the region—implying a specialized need for that occupation. For example, employment concentration of Heavy and Tractor-Trailer Truck Drivers is 1.61 (61% above the national average).
- Where average monthly postings are greater than average monthly hires, there is a gap that is being left unfilled. For example, Computer Systems Analysts have a regional gap of 122 (242 avg. monthly postings – 120 avg. monthly hires).
- Where regional completions from related postsecondary programs are less than average annual job openings, a gap will be left unfilled. For example, Human Resource Specialists have a regional gap of 32 (27 regional annual openings – 59 related completions in the region).
- When reviewing the regional completions metric, it is important to consider the job's typical entry level education. If there are no regional completions for an occupation, that occupation does not have a direct postsecondary path (but could require general postsecondary achievement), there is no program in the area that specifically supports the occupation, or the occupation may not require a postsecondary credential. Dispatchers, for example, are in high demand as indicated by postings and annual openings. The lack of postsecondary credential completions for this job is likely due to the entry level requirement of a high school diploma, and no postsecondary programs in the region directly related to this job.

¹³Next data release: Nov. 19, 2015.

¹⁴Next data release: Dec. 3, 2015.

Greater Memphis Regional In-Demand Occupations

IT(Computer) Occupations

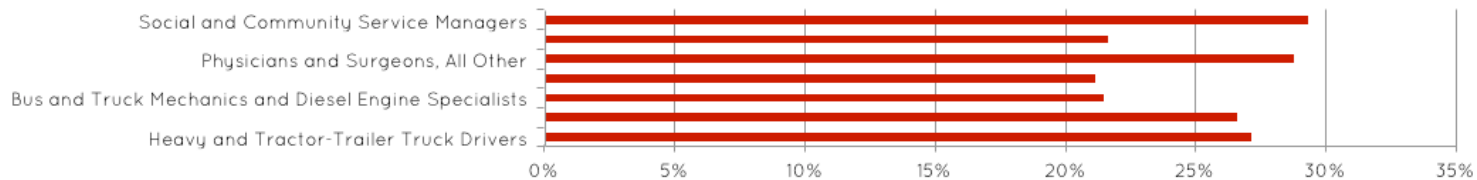
STEM Occupations

SOC	Description	2014 Employment	2009 - 2014 % Change	2014 - 2022 % Change	2014 Employment Concentration (National Avg. is 1.00)	Avg. Monthly Postings	Avg. Monthly Hires	2014 Regional Completions	2014 Annual Openings	Typical Entry Level Education	Median Hourly Earnings
11-9151	Social and Community Service Managers	234	5.41%	27.35%	0.52	23	14	800	14	Bachelor's	\$27.87
13-1071	Human Resources Specialists	1,498	6.32%	15.35%	0.89	79	173	27	59	Bachelor's	\$25.29
13-1131	Fundraisers	357	6.25%	14.85%	1.75	2	18	0	14	Bachelor's	\$25.02
13-1151	Training and Development Specialists	967	3.09%	8.48%	1.10	74	50	27	29	Bachelor's	\$27.88
15-1121	Computer Systems Analysts	1,918	7.27%	13.35%	0.99	242	120	86	64	Bachelor's	\$38.05
15-1134	Web Developers	381	4.38%	8.66%	0.86	97	25	233	10	Associate's	\$23.56
15-1141	Database Administrators	307	0.66%	9.45%	0.75	47	18	52	10	Bachelor's	\$38.40
15-1151	Computer User Support Specialists	1,158	0.26%	15.54%	0.56	196	86	174	42	Some college, no degree	\$21.66
29-1069	Physicians and Surgeons, All Other	1,679	4.81%	10.84%	1.46	82	49	0	68	Doctoral or professional degree	\$104.65
29-1123	Physical Therapists	570	3.83%	14.91%	0.78	149	28	0	26	Doctoral or professional degree	\$39.48
29-1126	Respiratory Therapists	680	3.19%	10.00%	1.55	29	18	54	19	Associate's	\$22.12
29-2021	Dental Hygienists	594	4.39%	16.50%	0.83	2	27	21	29	Associate's	\$29.62
29-2031	Cardiovascular Technologists and Technicians	235	11.90%	22.13%	1.26	56	6	0	10	Associate's	\$22.54
29-2032	Diagnostic Medical Sonographers	270	18.42%	31.85%	1.23	30	7	12	15	Associate's	\$28.24
29-2034	Radiologic Technologists	779	6.42%	16.17%	1.09	73	20	37	28	Associate's	\$25.50
31-2021	Physical Therapist Assistants	290	7.01%	14.14%	1.03	33	14	46	12	Associate's	\$26.71
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	209	1.46%	10.05%	0.58	2	16	0	5	High school diploma+	\$17.18
43-5032	Dispatchers, Except Police, Fire, and Ambulance	896	1.82%	10.16%	1.30	12	50	0	39	High school diploma+	\$17.87
47-2111	Electricians	1,609	0.25%	11.06%	0.78	50	115	32	55	High school diploma+	\$23.62
47-2221	Structural Iron and Steel Workers	215	0.47%	11.16%	0.99	0	17	10	11	High school diploma+	\$19.19
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	1,026	0.98%	7.41%	1.16	95	47	79	34	High school diploma+	\$21.03
49-9041	Industrial Machinery Mechanics	895	6.29%	16.09%	0.77	46	28	66	46	High school diploma+	\$23.76
53-3032	Heavy and Tractor-Trailer Truck Drivers	9,647	3.55%	8.21%	1.61	3,056	503	64	268	Postsecondary non-degree award	\$20.30

+ or equivalent to a high school diploma.

In-Demand Occupations in the Greater Memphis Region with High Percent Employed Age 55+

■ % in occupation age 55+



Northeast Region

The Northeast Region is comprised of the following counties: Carter, Greene, Hancock, Hawkins, Johnson, Sullivan, Unicoi and Washington. The region employed over 181,000 Tennesseans in 2014. The projected employment growth from 2014 to 2022 is 8.0%. The median wage for all occupations within the region is \$17.20.

267,047

2014 Population
Age 25 to 64

-1.37%

Projected Growth of
Population Age 25 to 64
from 2014 to 2020

\$34,611

2013 Per Capita
Personal Income¹⁵

86.5%

2013 Population Age 25
to 64 with a high school
diploma or higher¹⁶

6,796

Tennesseans employed
in STEM Jobs in 2014

36%

Below the National
Average for Employment
Concentration in
STEM Jobs

Northeast Regional In-Demand Occupations

This analysis identifies 15 regional occupations with low workforce supply relative to high employer demand. There are multiple factors within this list that demonstrate a workforce gap.

- An occupation with a large projected percent change for the next eight years indicates growing employer demand, and in each of these cases projected growth is greater than historical growth. For example, employment of Human Resource Specialists grew 0.3% in the last five years, and is projected to grow 13.7% in the next eight years.
- An employment concentration greater than 1 indicates the occupation is highly concentrated within the region—implying a specialized need for that occupation. For example, employment concentration of Diagnostic Medical Sonographers is 1.93 (93% above the national average).
- Where average monthly postings are greater than average monthly hires, there is a gap that is being left unfilled. For example, First-Line Supervisors of Retail Sales Workers have a regional gap of 236 (361 avg. monthly postings – 125 avg. monthly hires).
- Where regional completions from related postsecondary programs are less than average annual job openings, a gap will be left unfilled. For example, Human Resource Specialists have a regional gap of 13 (13 regional annual openings – 0 related completions in the region).
- When reviewing the regional completions metric, it is important to consider the job's typical entry level education. If there are no regional completions for an occupation, that occupation does not have a direct postsecondary path (but could require general postsecondary achievement), there is no program in the area that specifically supports the occupation, or the occupation may not require a postsecondary credential. First-Line Supervisors of Retail Sales Workers, for example, are in high demand as indicated by postings and annual openings. The lack of postsecondary credential completions for this job is likely due to the entry-level requirement of a high school diploma, and no postsecondary programs in the region directly related to this job.

¹⁵Next data release: Nov. 19, 2015.

¹⁶Next data release: Dec. 3, 2015.

Northeast Regional In-Demand Occupations

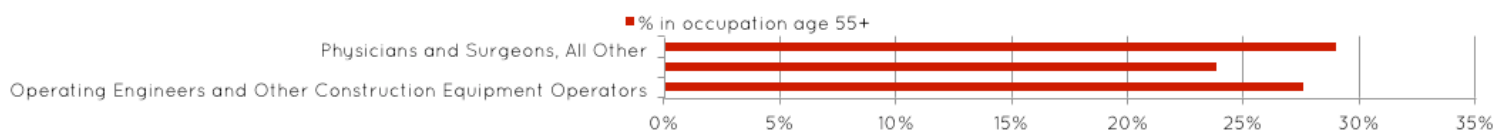
IT(Computer) Occupations

STEM Occupations

SOC	Description	2014 Employment	2009 - 2014 % Change	2014 - 2022 % Change	2014 Employment Concentration (National Avg. is 1.00)	Avg. Monthly Postings	Avg. Monthly Hires	2014 Regional Completions	2014 Annual Openings	Typical Entry Level Education	Median Hourly Earnings
13-1022	Wholesale and Retail Buyers, Except Farm Products	88	8.64 %	18.18%	0.60	0	4	0	4	High school diploma+	\$21.65
13-1071	Human Resources Specialists	342	0.29 %	13.74%	0.56	12	25	0	13	Bachelor's	\$21.58
13-1151	Training and Development Specialists	225	1.35% %	12.89%	0.70	9	11	0	8	Bachelor's	\$23.64
29-1067	Surgeons	104	4.00 %	26.92%	1.90	10	3	0	6	Doctoral or professional degree	\$95.92
29-1069	Physicians and Surgeons, All Other	685	2.54% %	18.10%	1.63	51	21	70	35	Doctoral or professional degree	\$94.99
29-1123	Physical Therapists	242	1.26% %	18.60%	0.90	109	12	38	12	Doctoral or professional degree	\$40.73
29-2032	Diagnostic Medical Sonographers	154	11.59 %	30.52%	1.93	5	6	2	8	Associate's	\$26.13
29-2081	Opticians, Dispensing	108	8.00 %	25.00%	1.12	0	5	2	7	High school diploma+	\$18.19
31-2021	Physical Therapist Assistants	118	6.31% %	20.34%	1.15	27	6	2	6	Associate's	\$26.72
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	117	9.35% %	14.53%	0.89	0	10	0	4	High school diploma+	\$17.22
41-1011	First-Line Supervisors of Retail Sales Workers	1,941	1.84% %	10.41%	1.22	361	125	0	72	High school diploma+	\$15.96
43-1011	First-Line Supervisors of Office and Administrative Support Workers	1,930	3.21% %	11.30%	1.03	93	101	0	76	High school diploma+	\$18.70
43-5032	Dispatchers, Except Police, Fire, and Ambulance	182	2.82% %	8.24%	0.72	1	11	0	8	High school diploma+	\$16.23
47-2073	Operating Engineers and Other Construction Equipment Operators	391	6.25% %	16.62%	0.86	3	25	0	18	High school diploma+	\$15.62
49-9052	Telecommunications Line Installers and Repairers	120	1.69% %	9.17%	0.79	0	6	0	5	High school diploma+	\$17.05

+ or equivalent to a high school diploma.

In- Demand Occupations in the Northeast Region with High Percent Employed Age 55+



Northern Middle Region

The Northern Middle Region is comprised of the following counties: Cheatham, Davidson, Dickson, Houston, Humphreys, Montgomery, Robertson, Rutherford, Stewart, Sumner, Trousdale, Williamson and Wilson. The region employed over 854,000 Tennesseans in 2014. The projected employment growth from 2014 to 2022 is 13.0%. The median wage for all occupations within the region is \$19.55.

1,005,812

2014 Population
Age 25 to 64

3.7%

Projected Growth of
Population Age 25 to 64
from 2014 to 2020

\$46,334

2013 Per Capita
Personal Income¹⁷

89.9%

2013 Population Age 25
to 64 with a high school
diploma or higher¹⁸

40,558

Tennesseans employed
in STEM Jobs in 2014

19%

Below the National
Average for Employment
Concentration in
STEM Jobs

Northern Middle Regional In-Demand Occupations

This analysis identifies 10 regional occupations with low workforce supply relative to high employer demand. There are multiple factors within this list that demonstrate a workforce gap.

- An occupation with a large projected percent change for the next eight years indicates growing employer demand, and in each of these cases projected growth is greater than historical growth. For example, employment of Operating Engineers and Other Construction Equipment Operators grew 3.6% in the last five years, and is projected to grow 18.8% in the next eight years.
- An employment concentration greater than 1 indicates the occupation is highly concentrated within the region—implying a specialized need for that occupation. For example, employment concentration of Sheet Metal Workers is 1.40 (40% above the national average).
- Where average monthly postings are greater than average monthly hires, there is a gap that is being left unfilled. For example, Software Developers, Applications have a regional gap of 390 (532 avg. monthly postings – 142 avg. monthly hires).
- Where regional completions from related postsecondary programs are less than average annual job openings, a gap will be left unfilled.
- When reviewing the regional completions metric, it is important to consider the job's typical entry level education. If there are no regional completions for an occupation, that occupation does not have a direct postsecondary path (but could require general postsecondary achievement), there is no program in the area that specifically supports the occupation, or the occupation may not require a postsecondary credential. Business Operations Specialists, All Other, for example, are in high demand as indicated by postings and annual openings. The lack of postsecondary credential completions for this job is likely due to the entry level requirement of a high school diploma, and no postsecondary programs in the region directly related to this job.

¹⁷Next data release: Nov. 19, 2015.

¹⁸Next data release: Dec. 3, 2015.

Northern Middle Regional In-Demand Occupations

IT(Computer) Occupations

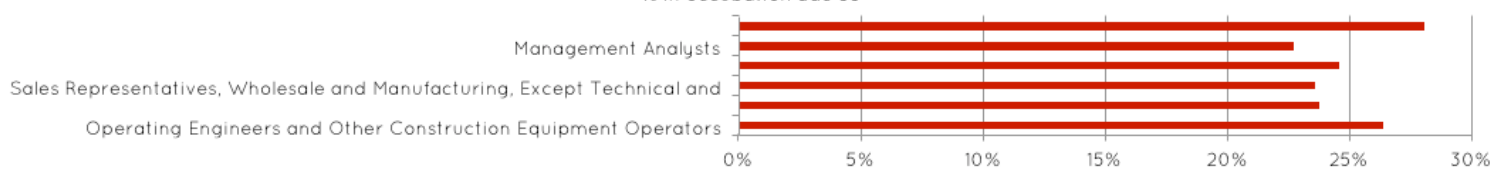
STEM Occupations

SOC	Description	2014 Employment	2009 - 2014 % Change	2014 - 2022 % Change	2014 Employment Concentration (National Avg. is 1.00)	Avg. Monthly Postings	Avg. Monthly Hires	2014 Regional Completions	2014 Annual Openings	Typical Entry Level Education	Median Hourly Earnings
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	1,082	1.22%	14.23%	0.59	114	45	0	41	High school diploma+	\$25.54
13-1111	Management Analysts	3,288	11.84%	18.92%	0.87	447	159	1,666	135	Bachelor's	\$33.21
13-1199	Business Operations Specialists, All Other	4,268	2.30%	13.21%	0.71	277	177	0	134	High school diploma+	\$25.68
15-1132	Software Developers, Applications	2,542	16.18%	24.90%	0.59	532	142	260	117	Bachelor's	\$38.17
15-1141	Database Administrators	519	6.79%	18.11%	0.74	117	26	133	23	Bachelor's	\$37.65
27-3031	Public Relations Specialists	803	0.25%	17.68%	0.61	123	47	170	30	Bachelor's	\$25.66
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	6,785	8.44%	17.01%	0.77	357	296	51	291	High school diploma+	\$23.97
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	2,583	5.13%	22.49%	0.84	62	205	71	104	High school diploma+	\$26.65
47-2073	Operating Engineers and Other Construction Equipment Operators	1,311	3.55%	18.84%	0.61	11	91	0	67	High school diploma+	\$18.27
47-2211	Sheet Metal Workers	1,153	13.04%	19.86%	1.40	16	86	0	54	High school diploma+	\$19.65

+ or equivalent to a high school diploma.

In-Demand Occupations in the Northern Middle Region with High Percent Employed Age 55+

■ % in occupation age 55+



Northwest Region¹⁹

The Northwest Region is comprised of the following counties: Benton, Carroll, Crockett, Dyer, Gibson, Henry, Lake, Obion and Weakley. The region employed over 75,000 Tennesseans in 2014. The projected employment growth from 2014 to 2022 is 4.0%. The median wage for all occupations within the region is \$15.55.

127,260

2014 Population
Age 25 to 64

-1.9%

Projected Growth of
Population Age 25 to 64
from 2014 to 2020

\$34,378

2013 Per Capita
Personal Income²⁰

85.8%

2013 Population Age 25
to 64 with a high school
diploma or higher²¹

1,473

Tennesseans employed
in STEM Jobs in 2014

66%

Below the National
Average for Employment
Concentration in
STEM Jobs

Northwest Regional In-Demand Occupations

This analysis identifies 7 regional occupations with low workforce supply relative to high employer demand. There are multiple factors within this list that demonstrate a workforce gap.

- An occupation with a large projected percent change for the next eight years indicates growing employer demand, and in each of these cases projected growth is greater than historical growth. For example, employment of Paralegals and Legal Assistants grew 1.7% in the last five years, and is projected to grow 11.7% in the next eight years.
- An employment concentration greater than 1 indicates the occupation is highly concentrated within the region—implying a specialized need for that occupation. For example, employment concentration of Pharmacists is 1.58 (58% above the national average).
- Where average monthly postings are greater than average monthly hires, there is a gap that is being left unfilled. For example, Physical Therapists have a regional gap of 54 (60 avg. monthly postings – 6 avg. monthly hires).
- Where regional completions from related postsecondary programs are less than average annual job openings, a gap will be left unfilled. For example, Paralegals and Legal Assistants have a regional gap of 2 (2 regional annual openings – 0 related completions in the region).
- When reviewing the regional completions metric, it is important to consider the job's typical entry level education. If there are no regional completions for an occupation, that occupation does not have a direct postsecondary path (but could require general postsecondary achievement), there is no program in the area that specifically supports the occupation, or the occupation may not require a postsecondary credential. Bus and Truck Mechanics and Diesel Engine Specialists, for example, are in high demand as indicated by postings and annual openings. The lack of postsecondary credential completions for this job is likely due to the entry level requirement of a high school diploma, and no postsecondary programs in the region directly related to this job.

¹⁹The Northwest Region has a smaller population and less employment than other regions in Tennessee. Therefore the following adjustments to the methodology for the Northwest region are made: 2. The growth from 2009 to 2014 must have been greater than 0%, the projected growth for the occupation must be greater than the projected regional growth for 2014 to 2022 AND the projected growth for the next eight years must be greater than 1x the growth for the previous 5 years. 3. The 2014 employment concentration, a metric of employment concentration within a region, must be greater than 0.4, 40% of the national average. 4. The occupation's average monthly job postings from August 2014 to August 2015 must be greater than the average monthly hires from August 2014 to August 2015 OR the occupation's regional completions in 2014 must be less than annual openings in 2014.

²⁰Next data release: Nov. 19, 2015.

²¹Next data release: Dec. 3, 2015.

Northwest Regional In-Demand Occupations

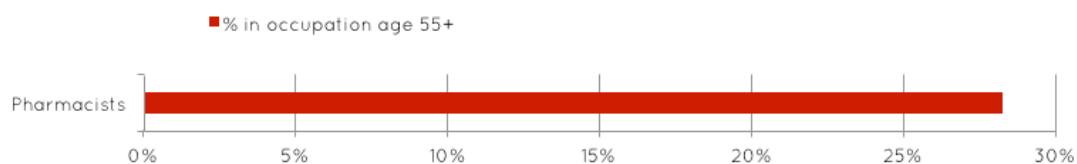
IT(Computer) Occupations

STEM Occupations

SOC	Description	2014 Employment	2009 - 2014 % Change	2014 - 2022 % Change	2014 Employment Concentration (National Avg. is 1.00)	Avg. Monthly Postings	Avg. Monthly Hires	2014 Regional Completions	2014 Annual Openings	Typical Entry Level Education	Median Hourly Earnings
21-2011	Clergy	36	9.09%	11.11%	1.39	2	12	0	1	Bachelor's	\$25.29
23-2011	Paralegals and Legal Assistants	60	1.69%	11.67%	0.40	0	3	0	2	Associate's	\$16.88
29-1051	Pharmacists	254	1.20%	11.42%	1.58	10	12	10	10	Doctoral or professional degree	\$63.29
29-1123	Physical Therapists	144	19.01%	23.61%	1.30	60	6	8	8	Doctoral or professional degree	\$47.76
35-1011	Chefs and Head Cooks	32	3.23%	6.25%	0.50	0	3	0	Insf. Data	High school diploma†	\$14.51
41-1011	First-Line Supervisors of Retail Sales Workers	932	1.75%	7.19%	1.42	192	61	0	30	High school diploma†	\$18.34
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	174	2.35%	9.20%	1.30	9	10	0	6	High school diploma†	\$16.88

† or equivalent to a high school diploma.

In-Demand Occupations in the Northwest Region with High Percent Employed Age 55+



Southeast Region

The Southeast Region is comprised of the following counties: Bledsoe, Bradley, Grundy, Hamilton, McMinn, Marion, Meigs, Polk, Rhea and Sequatchie. The region employed over 272,000 Tennesseans. The projected employment growth from 2014 to 2022 is 8.3%. The median wage for all occupations within the region is \$17.56.

334,482

2014 Population
Age 25 to 64

0.6%

Projected Growth of
Population Age 25 to 64
from 2014 to 2020

\$37,880

2013 Per Capita
Personal Income²²

86.0%

2013 Population Age 25
to 64 with a high school
diploma or higher²³

10,416

Tennesseans employed
in STEM Jobs in 2014

34%

Below the National
Average for Employment
Concentration in
STEM Jobs

Southeast Regional In-Demand Occupations

This analysis identifies 15 regional occupations with low workforce supply relative to high employer demand. There are multiple factors within this list that demonstrate a workforce gap.

- An occupation with a large projected percent change for the next eight years indicates growing employer demand, and in each of these cases projected growth is greater than historical growth. For example, employment of Network and Computer Systems Administrators grew 1.3% in the last five years, and is projected to grow 13.1% in the next eight years.
- An employment concentration greater than 1 indicates the occupation is highly concentrated within the region—implying a specialized need for that occupation. For example, employment concentration of Surgeons is 2.27 (127% above the national average).
- Where average monthly postings are greater than average monthly hires, there is a gap that is being left unfilled. For example, Computer Systems Analysts have a regional gap of 46 (81 avg. monthly postings – 35 avg. monthly hires).
- Where regional completions from related postsecondary programs are less than average annual job openings, a gap will be left unfilled. For example, Training and Development Specialists have a regional gap of 6 (16 annual openings – 10 related completions in the region).
- When reviewing the regional completions metric, it is important to consider the job's typical entry level education. If there are no regional completions for an occupation, that occupation does not have a direct postsecondary path (but could require general postsecondary achievement), there is no program in the area that specifically supports the occupation, or the occupation may not require a postsecondary credential. First-Line Supervisors of Office and Administrative Support Workers, for example, are in high demand as indicated by postings and annual openings. The lack of postsecondary credential completions for this job is likely due to the entry level requirement of a high school diploma, and few postsecondary programs in the region directly related to this job.

²²Next data release: Nov. 19, 2015.

²³Next data release: Dec. 3, 2015.

Southeast Regional In-Demand Occupations

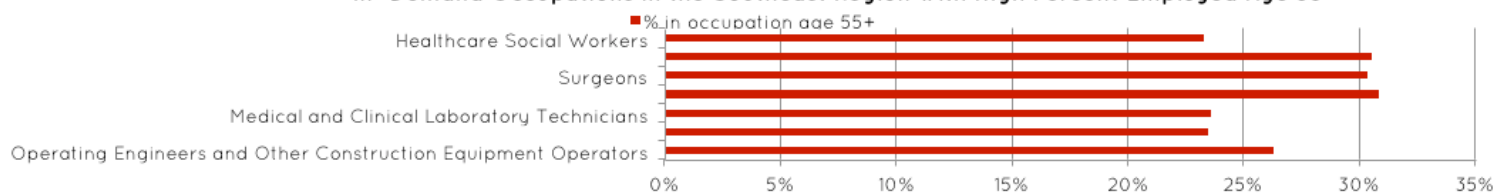
IT(Computer) Occupations

STEM Occupations

SOC	Description	2014 Employment	2009 - 2014 % Change	2014 - 2022 % Change	2014 Employment Concentration (National Avg. is 1.00)	Avg. Monthly Postings	Avg. Monthly Hires	2014 Regional Completions	2014 Annual Openings	Typical Entry Level Education	Median Hourly Earnings
13-1151	Training and Development Specialists	460	7.48%	11.52%	0.96	22	22	10	16	Bachelor's	\$30.13
15-1121	Computer Systems Analysts	823	1.86%	20.66%	0.77	81	35	59	36	Bachelor's	\$40.12
15-1142	Network and Computer Systems Administrators	473	1.28%	13.11%	0.65	44	28	28	16	Bachelor's	\$34.13
21-1022	Healthcare Social Workers	252	5.00%	19.05%	0.82	26	11	12	12	Master's	\$20.38
29-1063	Internists, General	152	2.01%	13.16%	1.57	38	5	0	7	Doctoral or professional degree	\$118.27
29-1067	Surgeons	187	9.36%	17.65%	2.27	15	6	0	9	Doctoral or professional degree	\$90.83
29-1069	Physicians and Surgeons, All Other	476	4.62%	21.85%	0.76	50	14	98	27	Doctoral or professional degree	\$104.53
29-1126	Respiratory Therapists	371	6.92%	11.86%	1.55	19	12	93	12	Associate's	\$25.10
29-2012	Medical and Clinical Laboratory Technicians	395	5.61%	18.73%	1.23	26	15	80	21	Associate's	\$16.08
29-2031	Cardiovascular Technologists and Technicians	145	11.54%	22.76%	1.41	19	4	80	7	Associate's	\$25.58
29-2032	Diagnostic Medical Sonographers	163	18.12%	33.74%	1.37	12	5	94	10	Associate's	\$31.68
29-2034	Radiologic Technologists	548	7.87%	14.96%	1.41	25	15	121	19	Associate's	\$23.63
43-1011	First-Line Supervisors of Office and Administrative Support Workers	2,853	3.29%	9.78%	1.01	157	143	2	107	High school diploma+	\$20.47
47-2073	Operating Engineers and Other Construction Equipment Operators	509	0.39%	21.22%	0.75	4	39	0	26	High school diploma+	\$16.83
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	212	17.78%	48.11%	0.72	8	11	0	20	High school diploma+	\$16.56

† or equivalent to a high school diploma.

In-Demand Occupations in the Southeast Region with High Percent Employed Age 55+



Southern Middle Region

The Southern Middle Region is comprised of the following counties: Bedford, Coffee, Franklin, Giles, Hickman, Lawrence, Lewis, Lincoln, Marshall, Maury, Moore, Perry and Wayne. The region employed over 134,000 Tennesseans in 2014. The projected employment growth from 2014 to 2022 is 9.8%. The median wage for all occupations within the region is \$16.13.

221,690

2014 Population
Age 25 to 64

-1.0%

Projected Growth of
Population Age 25 to 64
from 2014 to 2020

\$32,462

2013 Per Capita
Personal Income²⁴

84.6%

2013 Population Age 25
to 64 with a high school
diploma or higher²⁵

4,891

Tennesseans employed
in STEM Jobs in 2014

37%

Below the National
Average for Employment
Concentration in
STEM Jobs

Southern Middle Regional In-Demand Occupations

This analysis identifies 10 regional occupations with low workforce supply relative to high employer demand. There are multiple factors within this list that demonstrate a workforce gap.

- An occupation with a large projected percent change for the next eight years indicates growing employer demand, and in each of these cases projected growth is greater than historical growth. For example, employment of Bill and Account Collectors grew 25.9% in the last five years, and is projected to grow 42.7% in the next eight years.
- An employment concentration greater than 1 indicates the occupation is highly concentrated within the region—implying a specialized need for that occupation. For example, employment concentration of Structural Iron and Steel Workers is 1.28 (28% above the national average).
- Where average monthly postings are greater than average monthly hires, there is a gap that is being left unfilled. For example, First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators have a regional gap of 22 (31 avg. monthly postings – 9 avg. monthly hires).
- Where regional completions from related postsecondary programs are less than average annual job openings, a gap will be left unfilled. For example, Human Resource Specialists have a regional gap of 12 (12 annual openings – 0 related completions in the region).
- When reviewing the regional completions metric, it is important to consider the job's typical entry level education. If there are no regional completions for an occupation, that occupation does not have a direct postsecondary path (but could require general postsecondary achievement), there is no program in the area that specifically supports the occupation, or the occupation may not require a postsecondary credential. Bus and Truck Mechanics and Diesel Engine Specialists, for example, are in high demand as indicated by postings and annual openings. The lack of postsecondary credential completions for this job is likely due to the entry level requirement of a high school diploma, and no postsecondary programs in the region directly related to this job.

²⁴Next data release: Nov. 19, 2015.

²⁵Next data release: Dec. 3, 2015.

Southern Middle Regional In-Demand Occupations

IT(Computer) Occupations

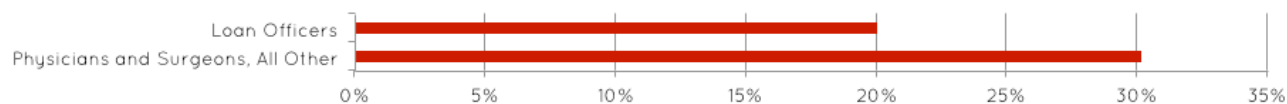
STEM Occupations

SOC	Description	2014 Employment	2009 - 2014 % Change	2014 - 2022 % Change	2014 Employment Concentration (National Avg. is 1.00)	Avg. Monthly Postings	Avg. Monthly Hires	2014 Regional Completions	2014 Annual Openings	Typical Entry Level Education	Median Hourly Earnings
13-1022	Wholesale and Retail Buyers, Except Farm Products	76	5.56%	15.79%	0.71	0	4	0	4	High school diploma+	\$17.81
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	204	5.15%	15.20%	0.71	19	9	0	8	High school diploma+	\$22.09
13-1071	Human Resources Specialists	244	12.96%	22.13%	0.54	9	25	0	12	Bachelor's	\$22.98
13-2072	Loan Officers	357	3.78%	10.08%	1.21	2	12	0	13	Bachelor's	\$25.36
29-1069	Physicians and Surgeons, All Other	157	6.08%	25.48 %	0.51	14	6	89	10	Doctoral or professional degree	\$109.09
43-3011	Bill and Account Collectors	185	25.85%	42.70 %	0.54	2	15	0	16	High school diploma+	\$14.62
43-5032	Dispatchers, Except Police, Fire, and Ambulance	113	10.78%	19.47%	0.61	1	7	0	7	High school diploma+	\$17.36
47-2221	Structural Iron and Steel Workers	75	10.29%	22.67 %	1.28	0	7	0	5	High school diploma+	\$21.91
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	190	3.83%	19.47%	0.80	5	10	0	9	High school diploma+	\$17.63
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	174	7.41%	13.79%	0.91	31	9	0	8	High school diploma+	\$22.34

+ or equivalent to a high school diploma.

In- Demand Occupations in the Southern Middle Region with High Percent Employed Age 55+

■ % in occupation age 55+



Southwest Region

The Southern Region is comprised of the following counties: Chester, Decatur, Hardeman, Hardin, Haywood, Henderson, McNairy and Madison. The region employed over 94,000 Tennesseans in 2014. The projected employment growth from 2014 to 2022 is 7.4%. The median wage for all occupations within the region is \$16.64.

129,037

2014 Population
Age 25 to 64

-1.7%

Projected Growth of
Population Age 25 to 64
from 2014 to 2020

\$34,665

2013 Per Capita
Personal Income²⁶

84.8%

2013 Population Age 25
to 64 with a high school
diploma or higher²⁷

2,126

Tennesseans employed
in STEM Jobs in 2014

61%

Below the National
Average for Employment
Concentration in
STEM Jobs

Southwest Regional In-Demand Occupations

This analysis identifies 13 regional occupations with low workforce supply relative to high employer demand. There are multiple factors within this list that demonstrate a workforce gap.

- An occupation with a large projected percent change for the next eight years indicates growing employer demand, and in each of these cases projected growth is greater than historical growth. For example, employment of First-Line Supervisors of Mechanics, Installers and Repairers grew 0.3% in the last five years, and is projected to grow 8.3% in the next eight years.
- An employment concentration greater than 1 indicates the occupation is highly concentrated within the region—implying a specialized need for that occupation. For example, employment concentration of Logging Equipment Operators is 7.22 (622% above the national average).
- Where average monthly postings are greater than average monthly hires, there is a gap that is being left unfilled. For example, Family and General Practitioners have a regional gap of 26 (28 avg. monthly postings – 2 avg. monthly hires).
- Where regional completions from related postsecondary programs are less than average annual job openings, a gap will be left unfilled. For example, Dental Hygienists have a regional gap of 3 (6 annual openings – 3 related completions in the region).
- When reviewing the regional completions metric, it is important to consider the job's typical entry level education. If there are no regional completions for an occupation, that occupation does not have a direct postsecondary path (but could require general postsecondary achievement), there is no program in the area that specifically supports the occupation, or the occupation may not require a postsecondary credential. First-Line Supervisors of Retail Sales Workers, for example, are in high demand as indicated by postings and annual openings. The lack of postsecondary credential completions for this job is likely due to the entry level requirement of a high school diploma, and no postsecondary programs in the region directly related to this job.

²⁶Next data release: Nov. 19, 2015.

²⁷Next data release: Dec. 3, 2015.

Southwest Regional In-Demand Occupations

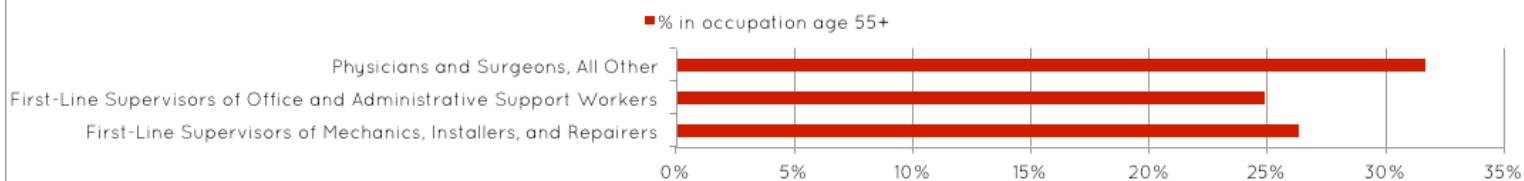
IT(Computer) Occupations

STEM Occupations

SOC	Description	2014 Employment	2009 - 2014 % Change	2014 - 2022 % Change	2014 Employment Concentration (National Avg. is 1.00)	Avg. Monthly Postings	Avg. Monthly Hires	2014 Regional Completions	2014 Annual Openings	Typical Entry Level Education	Median Hourly Earnings
13-1022	Wholesale and Retail Buyers, Except Farm Products	53	8.16%	13.21%	0.70	0	2	0	2	High school diploma+	\$21.40
13-1071	Human Resources Specialists	205	9.63%	20.49%	0.65	9	20	0	10	Bachelor's	\$21.05
21-1023	Mental Health and Substance Abuse Social Workers	86	13.16%	20.93%	1.11	4	4	0	5	Bachelor's	\$15.42
29-1062	Family and General Practitioners	77	1.32%	14.29%	0.89	28	2	0	4	Doctoral or professional degree	\$104.67
29-1069	Physicians and Surgeons, All Other	160	5.96%	17.50%	0.73	26	4	3	8	Doctoral or professional degree	\$105.54
29-2021	Dental Hygienists	109	1.87%	20.18%	0.80	1	3	3	6	Associate's	\$24.10
41-1011	First-Line Supervisors of Retail Sales Workers	1,028	4.05%	10.80%	1.25	219	71	0	38	High school diploma+	\$19.12
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	156	8.33%	19.23%	0.66	14	4	0	7	Bachelor's	\$37.17
43-1011	First-Line Supervisors of Office and Administrative Support Workers	1,052	2.33%	8.17%	1.08	40	45	0	37	High school diploma+	\$19.74
45-4022	Logging Equipment Operators	136	4.62%	27.94%	7.22	0	14	0	9	High school diploma+	\$16.24
47-2071	Paving, Surfacing, and Tamping Equipment Operators	68	3.03%	19.12%	1.82	0	3	0	3	High school diploma+	\$15.15
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	303	0.33%	8.25%	1.01	13	14	0	12	High school diploma+	\$25.01
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	135	3.85%	7.41%	1.01	15	7	0	5	High school diploma+	\$23.04

+ or equivalent to a high school diploma.

In-Demand Occupations in the Southwest Region with High Percent Employed Age 55+



Upper Cumberland Region

The Upper Cumberland Region is comprised of the following counties: Cannon, Clay, Cumberland, DeKalb, Fentress, Jackson, Macon, Overton, Pickett, Putnam, Smith, Van Buren, Warren and White. The region employed over 98,000 Tennesseans in 2014. The projected employment growth from 2014 to 2022 is 6.7%. The median wage for all occupations within the region is \$15.47.

171,962

2014 Population
Age 25 to 64

-1.0%

Projected Growth of
Population Age 25 to 64
from 2014 to 2020

\$34,886

2013 Per Capita
Personal Income²⁸

83.2%

2013 Population Age 25
to 64 with a high school
diploma or higher²⁹

1,992

Tennesseans employed
in STEM Jobs in 2014

65%

Below the National
Average for Employment
Concentration in
STEM Jobs

Upper Cumberland Regional In-Demand Occupations

This analysis identifies 14 regional occupations with low workforce supply relative to high employer demand. There are multiple factors within this list that demonstrate a workforce gap.

- An occupation with a large projected percent change for the next eight years indicates growing employer demand, and in each of these cases projected growth is greater than historical growth. For example, employment of Training and Development Specialists grew 1.1% in the last five years, and is projected to grow 14.6% in the next eight years.
- An employment concentration greater than 1 indicates the occupation is highly concentrated within the region—implying a specialized need for that occupation. For example, employment concentration of Paving, Surfacing and Tamping Equipment Operators is 2.61 (161% above the national average).
- Where average monthly postings are greater than average monthly hires, there is a gap that is being left unfilled. For example, Physical Therapists have a regional gap of 37 (42 avg. monthly postings – 5 avg. monthly hires).
- Where regional completions from related postsecondary programs are less than average annual job openings, a gap will be left unfilled. For example, Pharmacists have a regional gap of 10 (10 annual openings – 0 related completions in the region).
- When reviewing the regional completions metric, it is important to consider the job's typical entry level education. If there are no regional completions for an occupation, that occupation does not have a direct postsecondary path (but could require general postsecondary achievement), there is no program in the area that specifically supports the occupation, or the occupation may not require a postsecondary credential. First-line Supervisors of Office and Administrative Support Workers, for example, are in high demand as indicated by postings and annual openings. The lack of postsecondary credential completions for this job is likely due to the entry level requirement of a high school diploma, and no postsecondary programs in the region directly related to this job.

²⁸Next data release: Nov. 19, 2015.

²⁹Next data release: Dec. 3, 2015.

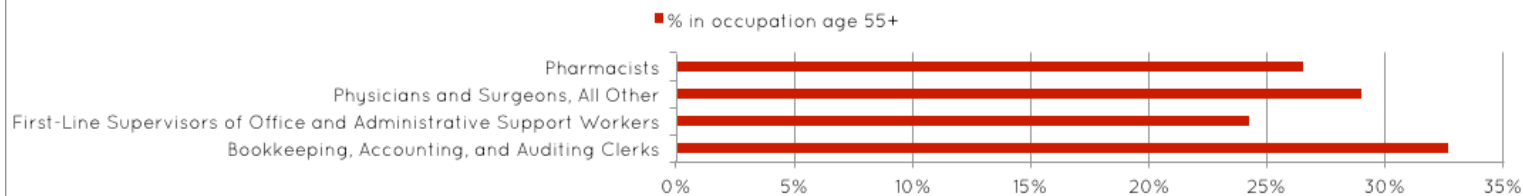
Upper Cumberland Regional In-Demand Occupations

IT(Computer) Occupations STEM Occupations

SOC	Description	2014 Employment	2009 - 2014 % Change	2014 - 2022 % Change	2014 Employment Concentration (National Avg. is 1.00)	Avg. Monthly Postings	Avg. Monthly Hires	2014 Regional Completions	2014 Annual Openings	Typical Entry Level Education	Median Hourly Earnings
13-1071	Human Resources Specialists	167	3.73%	7.19%	0.50	4	13	0	5	Bachelor's	\$18.60
13-1151	Training and Development Specialists	89	1.14%	14.61%	0.51	2	4	0	3	Bachelor's	\$21.68
21-1023	Mental Health and Substance Abuse Social Workers	46	6.98%	30.43 %	0.57	11	3	0	3	Bachelor's	\$16.59
29-1051	Pharmacists	242	1.26%	9.50%	1.15	7	11	0	10	Doctoral or professional degree	\$59.63
29-1069	Physicians and Surgeons, All Other	206	5.10%	15.53%	0.91	10	7	0	10	Doctoral or professional degree	\$100.71
29-1123	Physical Therapists	99	12.50%	25.25%	0.68	42	5	0	6	Doctoral or professional degree	\$41.36
29-2021	Dental Hygienists	94	11.90%	22.34 %	0.66	0	4	0	6	Associate's	\$35.41
41-1012	First-Line Supervisors of Non-Retail Sales Workers	120	4.35%	10.83%	0.66	16	5	0	4	High school diploma+	\$44.12
43-1011	First-Line Supervisors of Office and Administrative Support Workers	963	5.13%	8.20%	0.94	27	44	0	34	High school diploma+	\$19.41
43-3031	Bookkeeping, Accounting, and Auditing Clerks	967	4.43%	7.45%	0.84	2	59	0	19	High school diploma+	\$15.04
43-4131	Loan Interviewers and Clerks	138	10.40%	26.09 %	0.90	1	6	0	6	High school diploma+	\$17.21
43-5032	Dispatchers, Except Police, Fire, and Ambulance	125	1.63%	10.40 %	0.92	0	6	0	6	High school diploma+	\$14.42
47-2071	Paving, Surfacing, and Tamping Equipment Operators	102	4.08%	10.78%	2.61	0	5	0	3	High school diploma+	\$14.72
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	114	2.70%	9.65%	0.81	9	5	0	5	High school diploma+	\$24.37

+ or equivalent to a high school diploma.

In- Demand Occupations in the Upper Cumberland Region with High Percent Employed Age 55+



Methodologies

Statewide Short-Term In-Demand Occupations Methodology

The following must be true for an occupation to be identified as a short-term in-demand occupation:

1. The occupation must have grown by 40 jobs in the last 5 years (2009 to 2014) AND the percent growth must have been greater than 7%, the average growth for all occupations within Tennessee during the last 5 years.
2. The occupation's average monthly job postings from August 2014 to August 2015 must be greater than 1.5 times the average monthly hires from August 2014 to August 2015 OR the occupation's regional completions in 2014 must be less than annual openings in 2014.
3. The occupation has a median hourly wage that is 90% of the median wage in Tennessee for all occupations.
4. The occupation must have employed more than 200 people in Tennessee in 2014.
5. The 2014 employment concentration, a metric of employment concentration within a region, must be greater than 0.5, half the national average.
6. The typical entry level education of the occupation must require a minimum of a high school diploma.
7. The occupation has been identified by the Tennessee Department of Labor and Workforce Development as having a bright outlook in Tennessee.

Sources: 1) 2009 to 2014 growth and percent growth – Economic Modeling Specialists Intl. 2) average monthly postings, average monthly hires, regional completions, annual openings – Economic Modeling Specialists Intl. 3) median wage – Economic Modeling Specialists Intl. 4) 2014 employment – Economic Modeling Specialists Intl. 5) 2014 employment concentration – Economic Modeling Specialists Intl. 6) entry level education – Economic Modeling Specialists Intl. 7) bright outlook – Tennessee Department of Labor and Workforce Development (www.jobs4tn.gov)

Statewide Long-Term In-Demand Occupations Methodology

The following must be true for an occupation to be identified as a long-term in-demand occupation:

1. The occupation must be projected to grow by 200 jobs in the next 8 years (2014 to 2022) AND the annual growth rate will be greater than 0.1%.
2. The occupation's average monthly job postings from August 2014 to August 2015 must be greater than 1.5 times the average monthly hires from August 2014 to August 2015 OR the occupation's regional completions in 2014 must be less than the average annual openings (rounded to 5).
3. The occupation has a median hourly wage that is 90% of the median wage in Tennessee for all occupations.
4. The occupation must have employed more than 200 people in Tennessee in 2014.
5. The 2022 employment concentration, a metric of employment concentration within a region, must be greater than 0.5, half the national average.
6. The typical entry level education of the occupation must require a minimum of a high school diploma.
7. The occupation has been identified by the Tennessee Department of Labor and Workforce Development as having a bright outlook in Tennessee.

Sources: 1) growth 2014 to 2022, annual growth rate– Tennessee Department of Labor and Workforce Development 2) average monthly postings, average monthly hires, regional completions – Economic Modeling Specialists Intl.; average annual openings (rounded to 5) – Tennessee Department of Labor and Workforce Development 3) median wage – Economic Modeling Specialists Intl. 4) 2014 employment –Tennessee Department of Labor and Workforce Development 5) 2022 employment concentration – Economic Modeling Specialists Intl. 6) entry level education – Economic Modeling Specialists Intl. 7) bright outlook – Tennessee Department of Labor and Workforce Development (www.jobs4tn.gov)

Regional In-Demand Occupations Methodology

The following must be true for an occupation to be identified as in demand occupation within a region:

1. The growth from 2009 to 2014 must have been greater than 0%, the projected growth for the occupation must be greater than the projected regional growth for 2014 to 2022 AND the projected growth for the next eight years must be greater than 1.5x the growth for the previous 5 years.
2. The occupation's average monthly job postings from August 2014 to August 2015 must be greater than 1.5 times the average monthly hires from August 2014 to August 2015 OR the occupation's regional completions in 2014 must be less than annual openings in 2014.
3. The occupation has a median hourly wage that is 90% of the regional median wage for all occupations.
4. The occupation must have employed more than 0.04% of the total regional employment in 2014.
5. The 2014 employment concentration, a metric of employment concentration within a region, must be greater than 0.5, half the national average.
6. The typical entry level education of the occupation must require a minimum of a high school diploma.
7. The occupation has been identified by the Tennessee Department of Labor and Workforce Development as having a bright outlook in Tennessee.

Sources: 1) growth 2009 to 2014, growth 2014 to 2022 - Economic Modeling Specialists Intl. 2) average monthly postings, average monthly hires, regional completions, annual openings - Economic Modeling Specialists Intl. 3) median wage - Economic Modeling Specialists Intl. 4) 2014 employment - Economic Modeling Specialists Intl. 5) 2014 employment concentration - Economic Modeling Specialists Intl. 6) entry level education - Economic Modeling Specialists Intl. 7) bright outlook - Tennessee Department of Labor and Workforce Development (www.jobs4tn.gov)

Appendix

The 2015 Annual LEAP Report highlights 25 occupations that are both short-term and long-term in-demand occupations in Tennessee. These occupations have experienced high growth in the last five years and are projected to experience high growth for the next eight years. The Tennessee Higher Education Commission has identified the Tennessee institutions and programs that align with these occupations.

SOC Code and Occupation Title	General Area of Study (from CIP Code)	Institution	Academic Program (public institutions) or CIP Title (private or unavailable institutions)
11-2022 Sales Managers	Business, Management, Marketing, and Related Support Services	Aquinas College	Business Administration And Management, General
		Argosy University-Nashville	Business Administration And Management, General
		Austin Peay State University	Management Technology
		Belmont University	Business Administration And Management, General
			Business/Commerce, General
			Marketing/Marketing Management, General
		Bethel University	Business Administration And Management, General
		Bryan College-Dayton	Business Administration And Management, General
		Carson-Newman University	Business Administration And Management, General
		Chattanooga State Community College	Business
		Christian Brothers University	Business Administration And Management, General
		Cleveland State Community College	Accounting
			Business
			Business And Management
			Computer Business Applications
			Customer Service
		Columbia State Community College	Business
			Business
		Cumberland University	Business Administration And Management, General
		Daymar Institute-Clarksville	Business Administration And Management, General
		Daymar Institute-Murfreesboro	Business Administration And Management, General
		Daymar Institute-Nashville	Business Administration And Management, General
		DeVry University-Tennessee	Business Administration And Management, General
		Dyersburg State Community College	Business
		East Tennessee State University	Management
			Marketing
		Fisk University	Business/Commerce, General
		Freed-Hardeman University	Business Administration And Management, General
		ITT Technical Institute-Chattanooga	Business/Commerce, General
		ITT Technical Institute-Cordova	Business Administration And Management, General
		ITT Technical Institute-Johnson City	Business/Commerce, General
		ITT Technical Institute-Knoxville	Business/Commerce, General
		ITT Technical Institute-Nashville	Business/Commerce, General
		Jackson State Community College	Business
		King University	Business Administration And Management, General
		Lane College	Business Administration And Management, General
		Le Moyne-Owen College	Business Administration And Management, General
		Lee University	Business Administration And Management, General
		Lincoln Memorial University	Business Administration And Management, General
		Lipscomb University	Business Administration And Management, General
		Martin Methodist College	Business Administration And Management, General
		Maryville College	Business Administration And Management, General
		Middle Tennessee State University	Business Administration
			Management
		Milligan College	Business Administration And Management, General
		Motlow State Community College	Business
		Nashville State Community College	Business
		National College-Nashville	Business Administration And Management, General
		Northeast State Community College	Business
			Business
			Pre-Business Transfer
		Pellissippi State Community College	Promotion Methods
			Business Administration And Management, General
			Business Administration And Management, General
		Roane State Community College	Business
		South College	Business Administration And Management, General
		Southern Adventist University	Business Administration And Management, General
			Business
			Customs Brokerage
		Southwest Tennessee Community College	Mid-Management

SOC Code and Occupation Title	General Area of Study (from CIP Code)	Institution	Academic Program (public institutions) or CIP Title (private or unavailable institutions)
		Strayer University - Tennessee	Business/Commerce, General
		Tennessee State University	Business Administration
		Tennessee Technological University	Business Management
		Tennessee Temple University	Business Administration And Management, General
		Tennessee Wesleyan College	Business Administration And Management, General
		Trevecca Nazarene University	Business Administration And Management, General
		Tusculum College	Business Administration And Management, General
		Union University	Business Administration And Management, General
		University of Memphis	Management
			Marketing Management
		University of Phoenix-Tennessee	Business Administration And Management, General
		University of Tennessee, Chattanooga	Business Administration
		University of Tennessee, Knoxville	Management
		University of Tennessee, Martin	Management
		Virginia College - Knoxville	Business Administration And Management, General
		Virginia College-School of Business and Health-Chattanooga	Business Administration And Management, General
		Volunteer State Community College	Business
		Walters State Community College	Business
		Welch College	Business Administration And Management, General
		Carson-Newman University	Consumer Merchandising/Retailing Management
		None found with specific program at or below bachelor - level; please utilize General Area of Study or seek graduate - level program	Pharmaceutical Marketing And Management
13-1121 Meeting, Convention, and Event Planners	Business, Management, Marketing, and Related Support Services	None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Meeting And Event Planning
		None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Facilities Planning And Management
15-1121 Computer Systems Analysts	Computer and Information Sciences and Support Services	Austin Peay State University	Computer Science & Info System
		Belmont University	Computer And Information Sciences, General
		Bethel University	Information Technology
		Carson-Newman University	Computer And Information Sciences, General
		Chattanooga College Medical Dental and Technical Careers	Computer Systems Networking And Telecommunications
		Chattanooga State Community College	Information Systems Tech
		Christian Brothers University	Computer And Information Sciences, General
		Cleveland State Community College	Network Systems Design
		Columbia State Community College	Information Systems Technology
		Cumberland University	Computer And Information Sciences, General
		Daymar Institute-Clarksville	Information Technology
		Daymar Institute-Murfreesboro	Information Technology
		Daymar Institute-Nashville	Information Technology
			Computer Systems Analysis/Analyst
		DeVry University-Tennessee	Computer Systems Networking And Telecommunications
		East Tennessee State University	Computing
		Fisk University	Computer And Information Sciences, General
		Fountainhead College of Technology	Information Technology
		Freed-Hardeman University	Computer And Information Sciences, General
		ITT Technical Institute-Chattanooga	Computer Systems Networking And Telecommunications
		ITT Technical Institute-Cordova	Computer Systems Networking And Telecommunications
		ITT Technical Institute-Johnson City	Computer Systems Networking And Telecommunications
		ITT Technical Institute-Knoxville	Computer Systems Networking And Telecommunications
		ITT Technical Institute-Nashville	Computer Systems Networking And Telecommunications

SOC Code and Occupation Title	General Area of Study (from CIP Code)	Institution	Academic Program (public institutions) or CIP Title (private or unavailable institutions)
15-1121 Computer Systems Analysts	Computer and Information Sciences and Support Services	Jackson State Community College	Computer & Information Systems
		King University	Information Technology
		Lane College	Computer And Information Sciences, General
		Lee University	Computer And Information Sciences, General
		Lipscomb University	Information Technology
		Maryville College	Computer And Information Sciences, General
		Milligan College	Computer And Information Sciences, General
		Motlow State Community College	Information Systems Technology
		Nashville State Community College	Computer Information Systems
			Computer Network Technology
		Northeast State Community College	Computer & Information Sciences
			A+/Network+Certification Preparation
		Pellissippi State Community College	Comp Science & Info Tech
			Information Systems Fundamentals
			University Computer Science Preparation
		Remington College-Memphis Campus	Computer Systems Networking And Telecommunications
		Roane State Community College	Computer Science
		South College	Computer Systems Networking And Telecommunications
		Southwest Tennessee Community College	Information Technology
		Strayer University-Tennessee	Information Technology
		Tennessee Temple University	Computer And Information Sciences, General
		Tennessee Wesleyan College	Computer And Information Sciences, General
		Trevecca Nazarene University	Information Technology
		Union University	Information Technology
		University of Phoenix-Tennessee	Computer Systems Analysis/Analyst
		Virginia College-Knoxville	Computer Systems Networking And Telecommunications
		Volunteer State Community College	Computer Information Technology
		Walters State Community College	Computer & Information Science
		Bryan College-Dayton	Computer Science
		Carson-Newman University	Computer Science
		Christian Brothers University	Computer Science
		DeVry University-Tennessee	Computer Systems Networking And Telecommunications
			Computer And Information Systems Security/Information Assurance
		Fountainhead College of Technology	Information Technology
			Computer And Information Systems Security/Information Assurance
		ITT Technical Institute-Chattanooga	System, Networking, And Lan/Wan Management/Manager
			Computer And Information Systems Security/Information Assurance
		ITT Technical Institute-Cordova	Network And System Administration/Administrator
			Computer And Information Systems Security/Information Assurance
		ITT Technical Institute-Johnson City	Computer And Information Systems Security/Information Assurance
		ITT Technical Institute-Knoxville	Computer And Information Systems Security/Information Assurance
		ITT Technical Institute-Nashville	Computer And Information Systems Security/Information Assurance
		Le Moyne-Owen College	Computer Science
			Computer And Information Systems Security/Information Assurance
		Lipscomb University	Computer Science
			Network And System Administration/Administrator
		Martin Methodist College	Computer Science
		Middle Tennessee State University	Computer Science
		Miller-Motte Technical College-Clarksville	Network And System Administration/Administrator
			Computer Network Technology
		Nashville State Community College	Information Security
			Computer And Information Systems Security/Information Assurance
		National College-Nashville	Computer Science
		Rhodes College	Computer Science
		Sewanee-The University of the South	Computer Science
		Southern Adventist University	Computer Science
		Tennessee State University	Computer Science
		Tennessee Technological University	Computer Science
		Union University	Computer Science
		University of Memphis	Computer Science
			Computer And Information Systems Security/Information Assurance
		University of Phoenix-Tennessee	Computer Science
		University of Tennessee, Chattanooga	Computer Science
		University of Tennessee, Knoxville	Computer Science
		University of Tennessee, Martin	Computer Science
		Vanderbilt University	Computer Science
		Vatterott College-Applying Farms	Computer And Information Systems Security/Information Assurance
		Vatterott College-Dividend	Network And System Administration/Administrator
		None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Information Technology Project Management
	Homeland Security, Law Enforcement, Firefighting, and Related Protective Services	Christian Brothers University	Cyber/Computer Forensics And Counterterrorism

SOC Code and Occupation Title	General Area of Study (from CIP Code)	Institution	Academic Program (public institutions) or CIP Title (private or unavailable institutions)
15-1134 Web Developers	Computer and Information Sciences and Support Services	Belmont University	Web Page, Digital/Multimedia And Information Resources Design
			Web Design
		Chattanooga State Community College	Web Page Authoring (RODP)
			Web Programming
			Web Technology (RODP)
		Cleveland State Community College	Web Page Authoring (RODP)
		Columbia State Community College	Web Page Authoring (RODP)
		Daymar Institute-Clarksville	Web Page, Digital/Multimedia And Information Resources Design
		Daymar Institute-Nashville	Web Page, Digital/Multimedia And Information Resources Design
		DeVry University-Tennessee	Web Page, Digital/Multimedia And Information Resources Design
		Dyersburg State Community College	Web Page Authoring (RODP)
		Fountainhead College of Technology	Computer Programming/Programmer, General
		ITT Technical Institute-Chattanooga	Computer Programming/Programmer, General
		ITT Technical Institute-Cordova	Computer Programming/Programmer, General
		ITT Technical Institute-Johnson City	Computer Programming/Programmer, General
		ITT Technical Institute-Knoxville	Computer Programming/Programmer, General
		ITT Technical Institute-Nashville	Computer Programming/Programmer, General
		Jackson State Community College	Web Page Authoring (RODP)
			Computer Science
		Lipscomb University	Web Page, Digital/Multimedia And Information Resources Design
		Motlow State Community College	Web Page Authoring (RODP)
		Nashville State Community College	Web Page Authoring
		Northeast State Community College	Web Page Authoring (RODP)
			Accessible Web Design And Compliance
			E-Commerce Web Design
			Interactive Web Design
			Mobile Web Design
			Web Design Tools
			Web Page Authoring
		Roane State Community College	Web Page Authoring (RODP)
		Southern Adventist University	Computer Programming/Programmer, General
		Southwest Tennessee Community College	Web Page Authoring (RODP)
		Tennessee College of Applied Technology at Murfreesboro	Graphic Design And Web Development Technology
		The Art Institute of Tennessee-Nashville	Web Page, Digital/Multimedia And Information Resources Design
			Web Page, Digital/Multimedia And Information Resources Design
		Trevecca Nazarene University	Web/Multimedia Management And Webmaster
		University of Phoenix-Tennessee	Computer Programming/Programmer, General
		Volunteer State Community College	Web Applications Developer (Level II)
			Web Designer (Level I)
		Walters State Community College	Web Page Authoring (RODP)
15-1151 Computer User Support Specialists	Agriculture, Agriculture Operations, and Related Sciences	None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Agricultural Business Technology
	Computer and Information Sciences and Support Services	Strayer University-Tennessee	Computer Support Specialist
		University of Phoenix-Tennessee	Computer Support Specialist
	Family and Consumer Sciences/ Human Sciences	None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Medical Office Computer Specialist/Assistant
15-2031 Operations Research Analysts	Business, Management, Marketing, and Related Support Services	Cumberland University	Management Science
		Lincoln Memorial University	Management Science
		Southern Adventist University	Management Science
	Engineering	None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Operations Research
17-2112 Industrial Engineers	Engineering	University of Tennessee, Knoxville	Industrial Engineering
		None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Manufacturing Engineering
	Engineering Technologies and Engineering-Related Fields	Christian Brothers University	Packaging Science

SOC Code and Occupation Title	General Area of Study (from CIP Code)	Institution	Academic Program (public institutions) or CIP Title (private or unavailable institutions)
21-1022 Healthcare Social Workers	Family and Consumer Sciences/ Human Sciences	None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Clinical/Medical Social Work
	Public Administration and Social Service Professions	Austin Peay State University	Social Work
		Belmont University	Social Work
		East Tennessee State University	Social Work
		Freed-Hardeman University	Social Work
		Le Moyne-Owen College	Social Work
		Lincoln Memorial University	Social Work
		Lipscomb University	Social Work
		Middle Tennessee State University	Social Work
		Southern Adventist University	Social Work
		Tennessee State University	Social Work
		Trevecca Nazarene University	Social Work
		Union University	Social Work
		University of Memphis	Social Work
		University of Tennessee, Chattanooga	Social Work
		University of Tennessee, Knoxville	Social Work
		University of Tennessee, Martin	Social Work
		None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Social Work, Other
29-2011 Medical and Clinical Laboratory Technologists	Health Professions and Related Programs	Austin Peay State University	Medical Laboratory Science
		Roane State Community College	Polysomnography Technology
		Tennessee College of Applied Technology at Murfreesboro	Phlebotomy
		Tennessee College of Applied Technology at Nashville	Phlebotomy
		University of Tennessee Health Science Center	Medical Laboratory Sciences
		University of Tennessee, Knoxville	Medical Laboratory Science
		None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Cytogenetics/Genetics/Clinical Genetics Technology/Technologist
			Cytotechnology/Cytotechnologist
			Histologic Technology/Histotechnologist
		Baptist Memorial College of Health Sciences	Clinical Laboratory Science/Medical Technology/Technologist
		Lincoln Memorial University	Clinical Laboratory Science/Medical Technology/Technologist
		Southern Adventist University	Clinical Laboratory Science/Medical Technology/Technologist
29-2031 Cardiovascular Technologists and Technicians	Health Professions and Related Programs	Chattanooga State Community College	Cardiovascular Sonography
		Northeast State Community College	Cardiovascular Technology
		None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Cardiopulmonary Technology/Technologist
			Electrocardiograph Technology/Technician
			Perfusion Technology/Perfusionist
		Fortis Institute-Nashville	Cardiovascular Technology/Technologist
29-2032 Diagnostic Medical Sonographers	Health Professions and Related Programs	Chattanooga State Community College	Diagnostic Medical Sonography
		Volunteer State Community College	Diagnostic Medical Sonography
		Baptist Memorial College of Health Sciences	Diagnostic Medical Sonography/Sonographer And Ultrasound Technician

SOC Code and Occupation Title	General Area of Study (from CIP Code)	Institution	Academic Program (public institutions) or CIP Title (private or unavailable institutions)
29-2034 Radiologic Technologists	Health Professions and Related Programs	Chattanooga State Community College	Mammography
			Radiation Therapy Technology
			Radiologic Technology
		Columbia State Community College	Radiologic Technology
		Jackson State Community College	Radiography
		Roane State Community College	Radiologic Technology
		Southwest Tennessee Community College	Radiologic Technology
		Volunteer State Community College	Radiologic Technology
		Baptist Memorial College of Health Sciences	Medical Radiologic Technology/Science - Radiation Therapist
			Radiologic Technology/Science - Radiographer
		Concorde Career College-Memphis	Radiologic Technology/Science - Radiographer
		Fortis Institute-Cookeville	Medical Radiologic Technology/Science - Radiation Therapist
		Fortis Institute-Nashville	Medical Radiologic Technology/Science - Radiation Therapist
		South College	Radiologic Technology/Science - Radiographer
		Southern Adventist University	Medical Radiologic Technology/Science - Radiation Therapist
		None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Mammography Technician/Technology
31-2021 Physical Therapist Assistants	Health Professions and Related Programs	Chattanooga State Community College	Physical Therapist Assistant
		Jackson State Community College	Physical Therapist Assistant
		Roane State Community College	Physical Therapy Assistant
		Southwest Tennessee Community College	Physical Therapist Assistant
		Volunteer State Community College	Physical Therapist Assistant
		Walters State Community College	Physical Therapist Assistant
		Concorde Career College-Memphis	Physical Therapy Technician/Assistant
		Daymar Institute-Clarksville	Physical Therapy Technician/Assistant
37-1012 First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	Agriculture, Agriculture Operations, and Related Sciences	Nashville State Community College	Horticulture & Land Gardening
		Tennessee College of Applied Technology at Chattanooga	Landscape & Turf Management
			Horticulture
		Walters State Community College	Landscape Management
			Production Horticulture
		None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Greenhouse Operations And Management
			Plant Nursery Operations And Management
	Parks, Recreation, Leisure, and Fitness Studies	None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Turf And Turfgrass Management
			Golf Course Operation And Grounds Management
41-4011 Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	Business, Management, Marketing, and Related Support Services	Northeast State Community College	Customer Service And Sales
43-5032 Dispatchers, Except Police, Fire, and Ambulance	Business, Management, Marketing, and Related Support Services	None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Traffic, Customs, And Transportation Clerk/Technician
43-5061 Production, Planning, and Expediting Clerks	Business, Management, Marketing, and Related Support Services	None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Parts, Warehousing, And Inventory Management Operations
49-1011 First-Line Supervisors of Mechanics, Installers, and Repairers	Business, Management, Marketing, and Related Support Services	Chattanooga State Community College	Supervision
		Pellissippi State Community College	Supervision
		University of Phoenix-Tennessee	Operations Management And Supervision
	Construction Trades	Tennessee College of Applied Technology at Chattanooga	Industrial Electricity
		Tennessee College of Applied Technology at Oneida	Power Line Construction And Maintenance
		Tennessee College of Applied Technology at Pulaski	Residential/ Commercial Electrician And Green
		Tennessee College of Applied Technology at Shelbyville	Industrial Electricity
	Mechanic and Repair Technologies/Technicians	None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	High Performance And Custom Engine Technician/Mechanic
			Recreation Vehicle (Rv) Service Technician
			Vehicle Maintenance And Repair Technologies, General

SOC Code and Occupation Title	General Area of Study (from CIP Code)	Institution	Academic Program (public institutions) or CIP Title (private or unavailable institutions)
49-3031 Bus and Truck Mechanics and Diesel Engine Specialists	Mechanic and Repair Technologies/Technicians	Lincoln College of Technology-Nashville	Medium/Heavy Vehicle And Truck Technology/Technician
		Tennessee College of Applied Technology at Chattanooga	Diesel Equipment Technology
		Tennessee College of Applied Technology at Elizabethton	Diesel Powered Equipment Tech
		Tennessee College of Applied Technology at Harriman	Diesel Powered Equipment Tech
		Tennessee College of Applied Technology at Knoxville	Diesel Powered Equipment Tech
		Tennessee College of Applied Technology at Livingston	Diesel Technology
		Tennessee College of Applied Technology at Memphis	Diesel Powered Equipment Tech
		Vatterott College-Appling Farms	Diesel Mechanics Technology/Technician
49-9051 Electrical Power-Line Installers and Repairers	Construction Trades	Tennessee College of Applied Technology at Chattanooga	Industrial Electricity
		Tennessee College of Applied Technology at Oneida	Power Line Construction And Maintenance
		Tennessee College of Applied Technology at Pulaski	Residential/ Commercial Electrician And Green
		Tennessee College of Applied Technology at Shelbyville	Industrial Electricity
		None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Electrical And Power Transmission Installers, Other
49-9062 Medical Equipment Repairers	Engineering Technologies and Engineering-Related Fields	None found with specific program at or below bachelor-level; please utilize General Area of Study or seek graduate-level program	Biomedical Technology/Technician
49-9071 Maintenance and Repair Workers, General	Construction Trades	Southern Adventist University	Building/Property Maintenance
51-4111 Tool and Die Makers	Precision Production	Tennessee College of Applied Technology at Jackson	Tool & Die Technology
53-3032 Heavy and Tractor-Trailer Truck Drivers	Transportation and Materials Moving	Miller-Motte Technical College-Chattanooga	Truck And Bus Driver/Commercial Vehicle Operator And Instructor
		Miller-Motte Technical College-Clarksville	Truck And Bus Driver/Commercial Vehicle Operator And Instructor
		Miller-Motte Technical College-Madison	Truck And Bus Driver/Commercial Vehicle Operator And Instructor
		Tennessee College of Applied Technology at Chattanooga	Commercial Truck Driving
		Tennessee College of Applied Technology at Jackson	Truck Driving
		Tennessee College of Applied Technology at Knoxville	Truck Driving
		Tennessee College of Applied Technology at Memphis	Truck Driving
		Tennessee College of Applied Technology at Nashville	Truck Driving
		Tennessee College of Applied Technology at Shelbyville	Truck Driving
		Vatterott College-Appling Farms	Truck And Bus Driver/Commercial Vehicle Operator And Instructor



Department of
**Economic &
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Center for Economic Research
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