



Occupational outlook for high school students in Northeast Tennessee: Education for high-wage and high-growth jobs

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Abstract

This technical assistance report summarizes the data on high-wage and high-growth occupations in the two economic regions where high schools participating in the Northeast Tennessee College and Career-Ready Consortium reside. The data show that the occupations with the highest percentage increase in jobs, or “high-growth” occupations, may not offer the greatest number of job openings in these two regions. High-growth occupations tend to offer fewer jobs, but jobs with higher earnings, than occupations with the greatest number of job openings. Statewide, 21 percent of occupations are both high-wage and high-growth. In both high-wage and high-growth occupations in Tennessee, the largest share of jobs is held by workers with at least a four-year college degree.

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Introduction

This technical assistance report summarizes the data on high-wage and high-growth occupations in the economic regions where Northeast Tennessee College and Career-Ready Consortium (NETCO) schools reside. These data are available through the Tennessee Occupational Outlook Tool [1], along with supplementary information on the level of education corresponding to jobs in different Tennessee regions.

Recent research from the Regional Education Laboratory (REL) Appalachia describes the occupational outlook in different economic regions of Tennessee. In that study, Mokher (2011) [2] links workforce and education data to show how Career and Technical Education (CTE) programs can prepare high school students for local employment in high-wage and high-growth occupations. The REL Appalachia created an interactive spreadsheet—the Tennessee Occupational Outlook Tool—to help educators use the data in the report. The data tool is available upon request by emailing relappalachia@cna.org.

High-wage and high-growth occupations

Occupations with above average wages or above average growth vary across economic regions of the state. Data show that the occupations that are projected to have the highest *percentage* increase in jobs (called “high-growth” occupations in this report) may not offer the greatest *number* of job openings in the two Tennessee economic regions that are home to NETCO-participating schools. To illustrate these different types of demand, this report describes the two regions’ high-growth occupations as well as the occupations with the greatest number of projected job openings between 2006 and 2016. The report then highlights differences in terms of workers’ educational levels and wages.

Definitions

Earnings

High-wage occupations: Occupations having earnings at least 20 percent greater than the region’s estimated median wage in 2006. [2]

Demand

High-growth occupations: Occupations having at least 20 percent greater projected job growth between 2006 and 2016 than the region’s median projected growth. [2] Growth refers to the *percentage* increase in jobs.

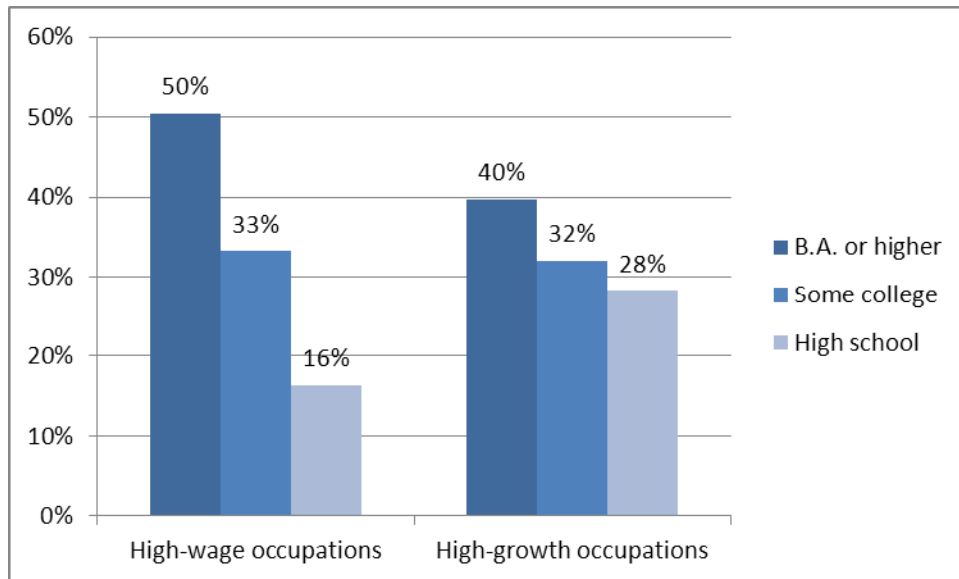
Occupations with the greatest number of projected job openings: Occupations having the highest *number* of expected openings in the 10-year interval between 2006 and 2016.

Statewide

Education levels of workers in high-wage and high-growth occupations

In both high-wage and high-growth occupations in Tennessee, the largest share of jobs is held by workers with at least a four-year college degree. Figure 1 shows that 83 percent of high-wage occupations are held by workers who generally have at least some college education and 72 percent of high-growth occupations are held by workers who generally have at least some college education.

Figure 1: Percentage of high-wage and high-growth occupations in Tennessee with workers at the three primary education levels (in 2006)



Source: (Mokher, 2011). Tennessee Occupational Outlook Tool.

Economic Regions 1 and 2

NETCO and non-NETCO school districts and schools

The Tennessee Occupational Outlook Tool (and the study it is based on) shows information for the state's 13 economic regions [3]. All high schools participating in NETCO belong to either Region 1 or Region 2. NETCO schools are in all nine of the school districts that comprise Region 1 and in six of the 11 school districts comprising Region 2. Table 1 shows the districts and schools in Regions 1 and 2.

Table 1: Economic regions of NETCO-participating high schools

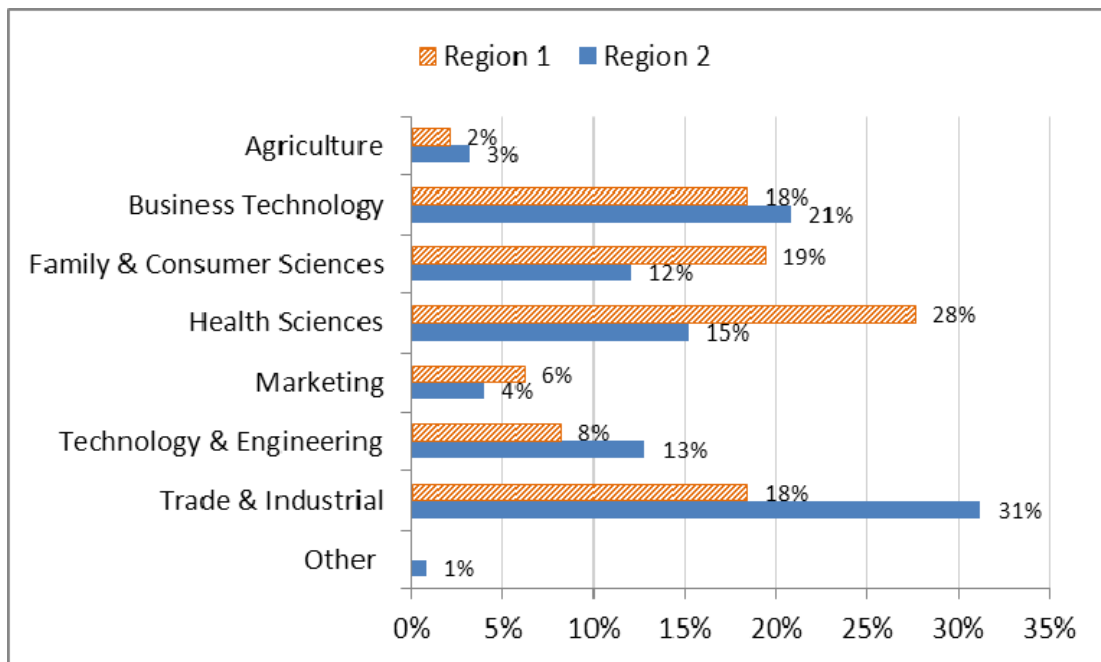
| REGION 1 | | REGION 2 | |
|-------------------|---|---------------------------|---|
| School District | High School | School District | High School |
| Carter County | Cloudland High School Hampton High School Happy Valley High School Unaka High School | Cocke County | Cocke County High School Cosby High School |
| Elizabethton City | Elizabethton High School | Greene County | Chuckey-Doak High School North Greene High School South Greene High School West Greene High School |
| Johnson County | Johnson County High School | Greeneville City | Greeneville High School |
| Bristol City | Tennessee High School | Hamblen County | Morristown-Hamblen East High School Morristown-Hamblen West High School |
| Kingsport City | Dobyns-Bennett High School | Hancock County | Hancock County High School |
| Sullivan County | Sullivan Central High School Sullivan East High School Sullivan North High School Sullivan South High School | Hawkins County | Cherokee High School Clinch School Volunteer High School |
| Unicoi County | Unicoi High School | <i>*5 other districts</i> | <i>12 other schools</i> |
| Johnson City | Science Hill High School | | |
| Washington County | Daniel Boone High School Davie Crockett High School | | |

*Non-NETCO school districts and high schools in Region 2: **Claiborne County**—Claiborne High School, Cumberland Gap High School; **Grainger County**—Grainger Academy, Grainger High School, Washburn School; **Jefferson County**—Jefferson County High School; **Sevier County**—Gatlinburg Pittman High, Pigeon Forge High School, Sevier County High School, Seymour High School; **Union County**—Union County Alternative Center, Union County High School

Alignment of high-wage, high-growth occupations with Career and Technical Education Program Areas

Overall, 21 percent of Tennessee’s occupations are both high-wage and high-growth. In Regions 1 and 2, respectively, 10 and 13 percent of occupations are both high-wage and high-growth. Figure 2 shows the percentage of high-wage, high-growth occupations in Regions 1 and 2 that correspond to concentrations in each of the seven Career and Technical Education (CTE) Program Areas.

Figure 2: Percentage of high-wage, high-growth occupations in Regions 1 and 2 in each CTE Program Area, 2006



Source: (Mokher, 2011). Tennessee Occupational Outlook Tool.

Among occupations that are both high-wage and high-growth in NETCO schools’ economic regions, four CTE Program Areas stand out: Business Technology, Family and Consumer Sciences, Health Sciences, and Trade and Industrial. In Region 1, Health Sciences has the greatest percentage (28%) of high-wage, high-growth occupations, followed by Family and Consumer Sciences at 19%, and Business Technology and Trade and Industrial, both at 18%. In Region 2, Trade and Industrial has the greatest percentage (31%), followed by Business Technology (21%). The “Other” category represents the high-wage, high-growth occupations in Region 2—music directors and composers—that do not correspond to any CTE Program Area. Complete lists of all high-wage and high-growth occupations and their corresponding CTE Program Areas are provided in appendix Tables A-1 (Region 1) and A-2 (Region 2). Next, we present the highest-wage and highest-growth [4] occupations in Regions 1 and 2, separately.

Economic Region 1

High-wage occupations

Region 1 has 403 occupations in which workers earn at least 20 percent more than the median wage for the region [5]. Table 2 shows that for the 10 highest-wage occupations in the region, average earnings exceed \$100,000 and workers generally have a four-year college degree. Seven of these occupations are in the Health Sciences CTE Program Area, and three are in Technology Engineering. (One of these is also classified as Trade and Industrial.)

Table 2: The 10 highest-wage occupations in Region 1, 2006

| High-Wage Occupations | Median Wage | Educational Level | CTE Program Area |
|------------------------------------|-------------|-------------------|--|
| Dentists, General | \$156,190 | B.A. or higher | Health Sciences |
| Pediatricians, General | \$150,263 | B.A. or higher | Health Sciences |
| Family and General Practitioners | \$149,138 | B.A. or higher | Health Sciences |
| Physicians and Surgeons, All Other | \$139,032 | B.A. or higher | Health Sciences |
| Dentists, All Other Specialists | \$137,460 | B.A. or higher | Health Sciences |
| Podiatrists | \$120,611 | B.A. or higher | Health Sciences |
| Air Traffic Controllers | \$116,381 | Some college | Technology & Engineering |
| Nuclear Engineers | \$115,339 | B.A. or higher | Technology & Engineering, Trade & Industrial |
| Physicists | \$113,779 | B.A. or higher | Technology & Engineering |
| Pharmacists | \$109,927 | B.A. or higher | Health Sciences |

Source: (Mokher, 2011). Tennessee Occupational Outlook Tool.

Occupations with the highest number of job openings and high-growth occupations

The Tennessee Department of Labor and Workforce Development projected the number of openings in each of the state's occupations between 2006 and 2016 [6]. Based on these projections, Tables 3 and 6 present the 10 occupations that have the greatest *number* of projected job openings in Regions 1 and 2, respectively. Tables 4 and 7 present the 10 highest-growth occupations in each region; following these tables, the corresponding sections compare the 10 occupations with the most job openings with the 10 occupations with the highest-growth in each economic region.

In Region 1, the occupations with the greatest expected percentage growth are not the occupations with the greatest number of job openings. Table 3 shows that the 10 occupations with the region's greatest *number* of projected job openings have at least 500 projected job openings between 2006 and 2016. Table 4 shows that nine of the 10 highest-growth occupations (those with the greatest *percentage change* in projected job openings) have fewer than 100 job openings in the same time period.

Table 3: The 10 occupations with the greatest number of projected job openings in Region 1, 2006-2016

| Occupations with the Most Job Openings | # Projected Openings | Projected Growth | Median Wage | Educational Level |
|--|----------------------|------------------|-------------|-------------------|
| Retail Salespersons | 1,790 | 34% | \$18,376 | Some college |
| Registered Nurses | 1,420 | 35% | \$51,876 | B.A. or higher |
| Nursing, Psychiatric, and Home Health Aides | 1,310 | 114% | \$21,945 | High school |
| Security Guards | 1,130 | 73% | \$21,577 | Some college |
| Customer Service Representatives | 840 | 29% | \$25,110 | Some college |
| Combined Food Preparation and Serving Workers, Including Fast Food | 640 | 21% | \$14,725 | High school |
| Postsecondary Teachers | 620 | 36% | \$37,593 | B.A. or higher |
| Waiters and Waitresses | 600 | 21% | \$15,180 | High school |
| Nursing Aides, Orderlies, and Attendants | 540 | 24% | \$20,632 | High school |
| Office Clerks, General | 500 | 18% | \$22,623 | Some college |

Source: (Mokher, 2011). Tennessee Occupational Outlook Tool.

Table 4: The 10 occupations with the highest projected growth in Region 1, 2006-2016

| High-Growth Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level |
|--|----------------------|------------------|-------------|-------------------|
| Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic | 70 | 350% | \$34,112 | High school |
| Nursing, Psychiatric, and Home Health Aides | 1,310 | 114% | \$21,945 | High school |
| Substance Abuse and Behavioral Disorder Counselors | 30 | 100% | \$35,233 | B.A. or higher |
| Budget Analysts | 10 | 100% | \$55,464 | B.A. or higher |
| Mathematical Science Occupations | 10 | 100% | \$45,164 | B.A. or higher |
| Locker Room, Coatroom, and Dressing Room Attendants | 10 | 100% | \$17,456 | Some college |
| Construction and Extraction Occupations | 10 | 100% | \$29,520 | High school |
| Other Construction and Related Workers, All Other | 10 | 100% | \$29,520 | High school |
| Physician Assistants | 50 | 83% | \$76,445 | B.A. or higher |
| Biological Science Teachers, Postsecondary | 30 | 75% | \$57,931 | B.A. or higher |

Source: (Mokher, 2011). Tennessee Occupational Outlook Tool.

In Region 1, high-growth occupations (Table 4) tend to have fewer jobs, but jobs with higher earnings, than occupations with the greatest number of projected job openings (Table 3). Workers in only two of the 10 occupations with the most openings—but six of the 10 highest growth occupations—earn at least the regional median wage (\$32,301). The highest median wage among occupations with the most openings is approximately \$52,000 (for registered nurses) versus \$76,000 for the high-growth occupation with the highest earnings (physician assistants). Three of the top 10 high-growth occupations (physicians assistants, biological science teachers – postsecondary, and budget analysts) earn higher wages than any of the 10 occupations with the most openings.

Workers in high-growth occupations also generally have higher educational levels than workers in occupations with the greatest number of projected job openings in the region. Five of the top 10 high-growth occupations but only two of the 10 occupations with the most openings generally employ workers with at least a four-year college degree.

Economic Region 2

High-wage occupations

Region 2 has 431 occupations in which workers earn at least 20 percent more than the median wage for the region [7]. Table 5 shows that for the 10 highest wage occupations in the region, average earnings exceed \$90,000 and workers generally have a four-year college degree or higher. Six of these occupations are in the Health Sciences CTE Program Area, two are in Business Technology, and two are in Technology Engineering.

Table 5: The 10 highest-wage occupations in Region 2, 2006

| High-Wage Occupations | Median Wage | Educational Level | CTE Program Area |
|----------------------------------|-------------|-------------------|--------------------------|
| Dentists, General | \$156,190 | B.A. or higher | Health Sciences |
| Pediatricians, General | \$151,531 | B.A. or higher | Health Sciences |
| Family and General Practitioners | \$148,568 | B.A. or higher | Health Sciences |
| Dentists, All Other Specialists | \$137,460 | B.A. or higher | Health Sciences |
| Pharmacists | \$117,160 | B.A. or higher | Health Sciences |
| Physicists | \$113,779 | B.A. or higher | Technology & Engineering |
| Chief Executives | \$103,464 | B.A. or higher | Business Technology |
| Materials Engineers | \$96,816 | B.A. or higher | Technology & Engineering |
| Management Analysts | \$95,118 | B.A. or higher | Business Technology |
| Audiologists | \$92,402 | B.A. or higher | Health Sciences |

Source: (Mokher, 2011). Tennessee Occupational Outlook Tool.

Occupations with the most job openings and high-growth occupations

In Region 2, the occupations with the greatest expected percentage growth are not the occupations with the greatest number of job openings. Table 6 shows that the 10 occupations with the greatest *number* of projected job openings have at least 450 projected job openings between 2006 and 2016. Table 7 shows that none of the 10 highest-growth occupations (those with the greatest *percentage change* in projected job openings) have more than 70 job openings.

Table 6: The 10 occupations with the greatest number of projected job openings in Region 2, 2006-2016

| Occupations with the Most Job Openings | # Projected Openings | Projected Growth | Median Wage | Educational Level |
|---|----------------------|------------------|-------------|-------------------|
| Retail Salespersons | 1,240 | 22% | \$19,101 | Some college |
| Truck Drivers, Heavy and Tractor-Trailer | 1,150 | 31% | \$34,527 | High school |
| Office Clerks, General | 910 | 32% | \$22,789 | Some college |
| Construction Laborers | 830 | 40% | \$24,303 | High school |
| Carpenters | 770 | 44% | \$28,703 | High school |
| Machinists | 770 | 35% | \$33,789 | High school |
| Automotive Service Technicians and Mechanics | 610 | 78% | \$27,955 | High school |
| Registered Nurses | 510 | 30% | \$51,688 | B.A. or higher |
| Maids and Housekeeping Cleaners | 460 | 17% | \$17,916 | High school |
| Vehicle and Mobile Equipment Mechanics, Installers, and Repairers | 450 | 37% | \$31,516 | High school |

Source: (Mokher, 2011). Tennessee Occupational Outlook Tool.

Table 7: The 10 occupations with the highest projected growth in Region 2, 2006-2016

| High-Growth Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level |
|---|----------------------|------------------|-------------|-------------------|
| Life, Physical, and Social Science Technicians, All Other | 20 | 200% | \$39,601 | Some college |
| Transportation and Material Moving Occupations | 20 | 200% | \$24,894 | High school |
| Tax Examiners, Collectors, and Revenue Agents | 30 | 150% | \$29,837 | Some college |
| Life Scientists | 30 | 150% | \$45,940 | B.A. or higher |
| Health Technologists and Technicians | 30 | 150% | \$41,585 | Some college |
| Electrical and Electronics Repairers, Powerhouse, | 70 | 117% | \$53,396 | Some college |
| Advertising Sales Agents | 50 | 100% | \$29,341 | B.A. or higher |
| News Analysts, Reporters and Correspondents | 40 | 100% | \$24,328 | B.A. or higher |
| Commercial Pilots | 20 | 100% | \$64,723 | B.A. or higher |
| Entertainment Attendants and Related Workers | 20 | 100% | \$18,094 | Some college |

Source: (Mokher, 2011). Tennessee Occupational Outlook Tool.

In Region 2, high-growth occupations (Table 6) tend to have fewer jobs, but jobs with higher earnings, than occupations with the greatest number of projected job openings (Table 7). The highest median wage among occupations with the most job openings is approximately \$52,000 (for registered nurses) versus \$65,000 for the high-growth occupation with the highest earnings (commercial pilots). Each of the top 10 high-growth occupations has higher median wages than its counterpart ranking among the 10 occupations with the greatest number of projected job openings. Two of the top 10 high-growth occupations earn higher wages than the highest-earning occupation among those with the most openings.

Workers in high-growth occupations also generally have higher educational levels than workers in occupations with the greatest number of projected job openings in the region. Nine of the 10 highest-growth occupations, but only three of the 10 occupations with the most openings, generally employ workers with at least some college education. Further, in four of the high-growth occupations but in only one of the occupations with the greatest number of job openings, workers generally have at least a four-year degree.



APPENDIX

The following appendix tables (A-1 and A-2) list the occupations that the Tennessee Occupational Outlook Tool classifies as both high-wage and high-growth in Regions 1 and 2.

The seven CTE Program Areas are abbreviated as follows:

AG – Agriculture

BT – Business Technology

FC – Family & Consumer Sciences

HS – Health Sciences

MK – Marketing

TE – Technology & Engineering

TI – Trade & Industrial

Region 1

The Tennessee Occupational Outlook Tool includes 79 unique occupations that are both high-wage and high-growth in Region 1 [8]. Table A-1 lists these occupations.

Appendix Table A-1: The 79 high-wage, high-growth occupations in Region 1

High-Wage and High-Growth Occupations – Region 1

| Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level | CTE Program Area | | | | | | |
|---|----------------------|------------------|-------------|-------------------|------------------|----|----|----|----|----|----|
| | | | | | AG | BT | FC | HS | MK | TE | TI |
| Accountants and Auditors | 120 | 17% | \$43,690 | B.A. or higher | | X | | | | | |
| Administrative Services Managers | 60 | 18% | \$48,660 | Some college | | X | | | | | |
| Advertising and Promotions Managers | 10 | 20% | \$61,530 | B.A. or higher | | X | | | X | | |
| Advertising Sales Agents | 140 | 70% | \$33,195 | B.A. or higher | | | | | X | | |
| Biological Science Teachers, Postsecondary | 30 | 75% | \$57,931 | B.A. or higher | X | | | | | X | |
| Brickmasons and Blockmasons | 40 | 36% | \$38,196 | High school | | | | | | | X |
| Budget Analysts | 10 | 100% | \$55,464 | B.A. or higher | | X | | | | | |
| Cardiovascular Technologists and Technicians | 20 | 33% | \$38,250 | Some college | | | | X | | | |
| Child, Family, and School Social Workers | 120 | 27% | \$34,408 | B.A. or higher | | | X | | | | |
| Clinical, Counseling, and School Psychologists | 20 | 14% | \$39,464 | B.A. or higher | | | X | X | | | |
| Community and Social Service Occupations, All Other | 60 | 30% | \$34,881 | B.A. or higher | | | X | | | | |

High-Wage and High-Growth Occupations – Region 1 *(continued)*

| Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level | AG | BT | FC | HS | MK | TE | TI |
|--|----------------------|------------------|-------------|-------------------|----|----|----|----|----|----|----|
| Compensation, Benefits, and Job Analysis Specialists | 10 | 20% | \$56,669 | B.A. or higher | | X | | | | | |
| Computer Systems Analysts | 20 | 14% | \$46,008 | B.A. or higher | | X | | | | X | |
| Cost Estimators | 30 | 16% | \$39,034 | Some college | | X | | | | | |
| Counselors, Social Workers, and Other Community and Social Service Specialists | 60 | 14% | \$34,881 | B.A. or higher | | | X | | | | |
| Database Administrators | 10 | 17% | \$39,520 | B.A. or higher | | X | | | | X | |
| Detectives and Criminal Investigators | 40 | 25% | \$39,873 | B.A. or higher | | | | | | | X |
| Dietitians and Nutritionists | 20 | 40% | \$48,360 | B.A. or higher | | | X | X | | | |
| Editors | 30 | 43% | \$37,530 | B.A. or higher | | | | | | | X |
| Electrical Power-Line Installers and Repairers | 10 | 14% | \$55,878 | High school | | | | | | | X |
| Embalmers | 10 | 50% | \$45,858 | Some college | | | X | | | | |
| Employment, Recruitment, and Placement Specialists | 70 | 58% | \$36,560 | B.A. or higher | | X | | | | | |
| English Language and Literature Teachers, Postsecondary | 50 | 63% | \$47,782 | B.A. or higher | | | X | | | | |
| Family and General Practitioners | 40 | 40% | \$149,138 | B.A. or higher | | | | X | | | |
| Financial Specialists | 50 | 19% | \$41,131 | B.A. or higher | | X | | | | | |
| Funeral Directors | 40 | 57% | \$38,002 | Some college | | X | X | | | | |
| Grinding and Polishing Workers, Hand | 20 | 67% | \$37,163 | High school | | | | | | | X |
| Health Diagnosing and Treating Practitioners | 220 | 54% | \$46,460 | B.A. or higher | | | | X | | | |
| Health Technologists and Technicians | 10 | 14% | \$46,460 | Some college | | | | X | | | |

High-Wage and High-Growth Occupations – Region 1 *(continued)*

| Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level | AG | BT | FC | HS | MK | TE | TI |
|---|----------------------|------------------|-------------|-------------------|----|----|----|----|----|----|----|
| Industrial Engineers | 30 | 18% | \$64,252 | B.A. or higher | | | | | | X | |
| Instructional Coordinators | 10 | 33% | \$59,175 | B.A. or higher | | | X | | | | |
| Internists, General | 60 | 40% | \$46,460 | B.A. or higher | | | | X | | | |
| Life Scientists | 30 | 23% | \$50,878 | B.A. or higher | X | | | | | | |
| Loan Officers | 110 | 31% | \$38,680 | Some college | | X | | | | | |
| Lodging Managers | 10 | 17% | \$43,211 | Some college | | X | | | X | | |
| Machinists | 150 | 18% | \$33,200 | High school | | | | | | | X |
| Mathematical Science Occupations | 10 | 100% | \$45,164 | B.A. or higher | | | | | | X | |
| Mechanical Drafters | 10 | 33% | \$37,254 | Some college | | | | | | X | X |
| Medical and Health Services Managers | 110 | 30% | \$71,542 | B.A. or higher | | X | | X | | | |
| Medical and Public Health Social Workers | 60 | 55% | \$38,625 | B.A. or higher | | | X | X | | | |
| Mental Health and Substance Abuse Social Workers | 190 | 61% | \$34,140 | B.A. or higher | | | X | X | | | |
| Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic | 50 | 29% | \$34,376 | High school | | | | | | | X |
| Multi-Media Artists and Animators | 20 | 40% | \$46,642 | B.A. or higher | | | | | | | X |
| Network Systems and Data Communications Analysts | 30 | 30% | \$60,151 | B.A. or higher | | X | | | | X | |
| Nuclear Medicine Technologists | 20 | 50% | \$59,124 | Some college | | | | X | | | |

High-Wage and High-Growth Occupations – Region 1 *(continued)*

| Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level | AG | BT | FC | HS | MK | TE | TI |
|--|----------------------|------------------|-------------|-------------------|----|----|----|----|----|----|----|
| Occupational Health and Safety Specialists and Technicians | 10 | 17% | \$46,460 | B.A. or higher | | | | X | | | |
| Occupational Therapists | 30 | 33% | \$68,530 | B.A. or higher | | | | X | | | |
| Opticians, Dispensing | 30 | 25% | \$36,153 | Some college | | | | X | | | |
| Other Healthcare Practitioners and Technical Workers, All Other | 20 | 17% | \$46,460 | B.A. or higher | | | | X | | | |
| Pharmacists | 160 | 40% | \$109,927 | B.A. or higher | | | | X | | | |
| Philosophy and Religion Teachers, Postsecondary | 10 | 33% | \$46,339 | B.A. or higher | | | X | | | | |
| Physical Therapist Assistants | 30 | 43% | \$44,796 | Some college | | | | X | | | |
| Physical Therapists | 40 | 22% | \$78,099 | B.A. or higher | | | | X | | | |
| Physician Assistants | 50 | 83% | \$76,445 | B.A. or higher | | | | X | | | |
| Physicians and Surgeons, All Other | 160 | 28% | \$139,032 | B.A. or higher | | | | X | | | |
| Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic | 70 | 350% | \$34,112 | High school | | | | | | | X |
| Police and Sheriff's Patrol Officers | 110 | 18% | \$34,876 | Some college | | | | | | | X |
| Postsecondary Teachers | 620 | 36% | \$37,593 | B.A. or higher | | | X | | | | |
| Psychology Teachers, Postsecondary | 10 | 33% | \$52,493 | B.A. or higher | | | X | X | | | |
| Public Relations Managers | 10 | 33% | \$42,218 | B.A. or higher | | X | | | X | | |
| Public Relations Specialists | 20 | 29% | \$36,037 | B.A. or higher | | | | | X | | X |

High-Wage and High-Growth Occupations – Region 1 *(continued)*

| Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level | AG | BT | FC | HS | MK | TE | TI |
|--|----------------------|------------------|-------------|-------------------|----|----|----|----|----|----|----|
| Radiologic Technologists and Technicians | 110 | 28% | \$44,259 | Some college | | | | X | | | |
| Recreation and Fitness Studies Teachers, Postsecondary | 10 | 50% | \$44,738 | B.A. or higher | | | X | | | | |
| Registered Nurses | 1,420 | 35% | \$51,876 | B.A. or higher | | | | X | | | |
| Religious Workers | 170 | 18% | \$34,881 | B.A. or higher | | | X | | | | |
| Respiratory Therapists | 50 | 24% | \$42,333 | Some college | | | | X | | | |
| Sales Engineers | 20 | 67% | \$61,941 | B.A. or higher | | | | | X | | |
| Sawing Machine Setters, Operators, and Tenders, Wood | 10 | 25% | \$33,324 | High school | | | | | | | X |
| Social and Community Service Managers | 30 | 27% | \$39,360 | B.A. or higher | | X | X | | | | |
| Special Education Teachers, Preschool, Kindergarten, and Elementary School | 40 | 19% | \$42,403 | B.A. or higher | | | X | | | | |
| Substance Abuse and Behavioral Disorder Counselors | 30 | 100% | \$35,233 | B.A. or higher | | | X | X | | | |
| Surgeons | 10 | 25% | \$46,460 | B.A. or higher | | | | X | | | |
| Surgical Technologists | 60 | 32% | \$35,081 | Some college | | | | X | | | |
| Telecommunications Equipment Installers and Repairers | 240 | 26% | \$47,608 | Some college | | | | | | | X |
| Telecommunications Line Installers and Repairers | 170 | 35% | \$32,431 | Some college | | | | | | | X |

High-Wage and High-Growth Occupations – Region 1 *(continued)*

| Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level | AG | BT | FC | HS | MK | TE | TI |
|---|----------------------|------------------|-------------|-------------------|----|----|----|----|----|----|----|
| Tool and Die Makers | 50 | 28% | \$35,578 | Some college | | | | | | | X |
| Urban and Regional Planners | 10 | 50% | \$44,304 | B.A. or higher | | | | | | X | X |
| Vehicle and Mobile Equipment Mechanics, Installers, and Repairers | 50 | 36% | \$32,301 | High school | | | | | | | X |

Source: (Mokher, 2011). Tennessee Occupational Outlook Tool.

Region 2

The Tennessee Occupational Outlook Tool includes 98 unique occupations that are both high-wage and high-growth in Region 2 [9]. Table A-2 lists these occupations.

Appendix Table A-2: The 98 high-wage, high-growth occupations in Region 2

High-Wage and High-Growth Occupations – Region 2

| Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level | CTE Program Area | | | | | | |
|---|----------------------|------------------|-------------|-------------------|------------------|----|----|----|----|----|----|
| | | | | | AG | BT | FC | HS | MK | TE | TI |
| Agricultural Inspectors | 20 | 100% | \$35,201 | Some college | X | | | | | | |
| Architects, Surveyors, and Cartographers | 10 | 100% | \$51,043 | B.A. or higher | | | | | | X | |
| Architectural and Civil Drafters | 20 | 50% | \$43,195 | Some college | | | | | | X | X |
| Art, Drama, and Music Teachers, Postsecondary | 10 | 17% | \$45,476 | B.A. or higher | | | X | | | | X |
| Biological Technicians | 20 | 100% | \$33,214 | B.A. or higher | | | | X | | X | |
| Brickmasons and Blockmasons | 20 | 100% | \$35,149 | High school | | | | | | | X |
| Bus and Truck Mechanics and Diesel Engine Specialists | 190 | 40% | \$30,517 | High school | | | | | | | X |
| Business Operations Specialists | 70 | 22% | \$44,090 | B.A. or higher | | X | | | | | |
| Business Operations Specialists, All Other | 50 | 24% | \$34,303 | Some college | | X | | | | | |
| Cement Masons and Concrete Finishers | 210 | 48% | \$30,736 | High school | | | | | | | X |
| Civil Engineers | 20 | 29% | \$60,118 | B.A. or higher | | | | | | X | |
| Clinical, Counseling, and School Psychologists | 30 | 17% | \$49,150 | B.A. or higher | | | X | X | | | |
| Commercial Pilots | 20 | 100% | \$64,723 | B.A. or higher | | | | | | X | X |

High-Wage and High-Growth Occupations – Region 2 *(continued)*

| Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level | CTE Program Area | | | | | | |
|--|----------------------|------------------|-------------|-------------------|------------------|----|----|----|----|----|----|
| | | | | | AG | BT | FC | HS | MK | TE | TI |
| Community and Social Service Occupations, All Other | 100 | 48% | \$33,433 | B.A. or higher | | | X | | | | |
| Community and Social Services Occupations | 120 | 21% | \$33,433 | B.A. or higher | | | X | | | | |
| Compliance Officers, Except Agriculture, Construction, Health and Safety, and Transportation | 20 | 29% | \$47,945 | B.A. or higher | | X | | | | | |
| Computer and Mathematical Occupations | 20 | 40% | \$45,433 | B.A. or higher | | X | | | | X | |
| Computer Software Engineers, Applications | 40 | 57% | \$56,747 | B.A. or higher | | X | | | | X | |
| Computer Systems Analysts | 40 | 36% | \$53,383 | B.A. or higher | | X | | | | X | |
| Construction and Building Inspectors | 20 | 33% | \$37,830 | Some college | | | | | | X | X |
| Construction Managers | 70 | 29% | \$49,070 | Some college | | X | | | | | X |
| Counselors, Social Workers, and Other Community and Social Service Specialists | 160 | 33% | \$33,433 | B.A. or higher | | | X | | | | |
| Database Administrators | 10 | 33% | \$38,659 | B.A. or higher | | X | | | | X | |
| Detectives and Criminal Investigators | 50 | 63% | \$40,697 | B.A. or higher | | | | | | | X |
| Drafters, Engineering, and Mapping Technicians, Other | 20 | 40% | \$51,043 | B.A. or higher | | | | | | X | X |
| Electrical and Electronics Repairers, Powerhouse, Substation, and Relay | 70 | 117% | \$53,396 | Some college | | | | | | | X |

High-Wage and High-Growth Occupations – Region 2 *(continued)*

| Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level | CTE Program Area | | | | | | | |
|--|----------------------|------------------|-------------|-------------------|------------------|----|----|----|----|----|----|---|
| | | | | | AG | BT | FC | HS | MK | TE | TI | |
| Electrical Power-Line Installers and Repairers | 40 | 27% | \$55,505 | High school | | | | | | | | X |
| Engineers | 20 | 50% | \$51,043 | B.A. or higher | | | | | | X | | |
| Financial Analysts | 30 | 50% | \$68,586 | B.A. or higher | | X | | | | | | |
| Financial Managers | 110 | 19% | \$63,681 | B.A. or higher | | X | | | | | | |
| Fire Inspectors and Investigators | 10 | 50% | \$38,299 | Some college | | | | | | | | X |
| First-Line Supervisors/Managers of Construction Trades and Extraction Workers | 380 | 54% | \$42,189 | High school | | | | | | | | X |
| First-Line Supervisors/Managers of Fire Fighting and Prevention Workers | 20 | 40% | \$54,281 | Some college | | | | | | | | X |
| First-Line Supervisors/Managers of Landscaping, Lawn Service, and Groundskeeping Workers | 70 | 25% | \$32,330 | High school | | | | | | | | X |
| First-Line Supervisors/Managers of Mechanics, Installers, and Repairers | 110 | 20% | \$43,533 | Some college | | | | | | | | X |
| First-Line Supervisors/Managers of Police and Detectives | 30 | 33% | \$52,587 | Some college | | | | | | | | X |
| Forest and Conservation Technicians | 30 | 60% | \$31,017 | Some college | X | | | | | | | |
| Graphic Designers | 50 | 33% | \$31,047 | B.A. or higher | | | X | | | | | X |
| Health Technologists and Technicians | 30 | 150% | \$41,585 | Some college | | | | X | | | | |

High-Wage and High-Growth Occupations – Region 2 *(continued)*

| Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level | CTE Program Area | | | | | | |
|--|----------------------|------------------|-------------|-------------------|------------------|----|----|----|----|----|----|
| | | | | | AG | BT | FC | HS | MK | TE | TI |
| Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic | 40 | 44% | \$31,992 | High school | | | | | | | X |
| Industrial Engineers | 40 | 18% | \$56,575 | B.A. or higher | | | | | | X | |
| Industrial Machinery Mechanics | 170 | 55% | \$35,581 | High school | | | | | | | X |
| Instructional Coordinators | 20 | 40% | \$70,362 | B.A. or higher | | | X | | | | |
| Judges, Magistrate Judges, and Magistrates | 10 | 50% | \$70,884 | B.A. or higher | | X | | | | | |
| Life Scientists | 30 | 150% | \$45,940 | B.A. or higher | X | | | | | | |
| Life, Physical, and Social Science Technicians, All Other | 20 | 200% | \$39,601 | Some college | | | | | | X | X |
| Loan Officers | 90 | 22% | \$44,556 | Some college | | X | | | | | |
| Lodging Managers | 50 | 17% | \$40,763 | Some college | | X | | | X | | |
| Machinists | 770 | 35% | \$33,789 | High school | | | | | | | X |
| Maintenance and Repair Workers, General | 340 | 17% | \$29,903 | High school | | | | | | | X |
| Massage Therapists | 10 | 17% | \$34,362 | Some college | | | | X | | | |
| Medical and Health Services Managers | 50 | 28% | \$61,171 | B.A. or higher | | X | | X | | | |
| Medical and Public Health Social Workers | 10 | 17% | \$42,559 | B.A. or higher | | | X | X | | | |
| Meeting and Convention Planners | 10 | 33% | \$35,131 | B.A. or higher | | X | | | | | |
| Mental Health and Substance Abuse Social Workers | 30 | 25% | \$41,070 | B.A. or higher | | | X | X | | | |
| Mobile Heavy Equipment Mechanics, Except Engines | 30 | 43% | \$32,138 | High school | | | | | | | X |

High-Wage and High-Growth Occupations – Region 2 *(continued)*

| Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level | CTE Program Area | | | | | | |
|---|----------------------|------------------|-------------|-------------------|------------------|----|----|----|----|----|----|
| | | | | | AG | BT | FC | HS | MK | TE | TI |
| Music Directors and Composers | 10 | 20% | \$33,609 | B.A. or higher | | | | | | | |
| Network and Computer Systems Administrators | 20 | 20% | \$48,969 | B.A. or higher | | X | | | | X | |
| Occupational Therapists | 30 | 23% | \$69,092 | B.A. or higher | | | | X | | | |
| Operating Engineers and Other Construction Equipment Operators | 380 | 40% | \$31,131 | High school | | | | | | | X |
| Opticians, Dispensing | 10 | 17% | \$32,170 | Some college | | | | X | | | |
| Optometrists | 10 | 20% | \$81,255 | B.A. or higher | | | | X | | | |
| Other Healthcare Practitioners and Technical Workers, All Other | 10 | 17% | \$41,585 | B.A. or higher | | | | X | | | |
| Other Installation, Maintenance, and Repair Occupations | 110 | 27% | \$31,516 | High school | | | | | | | X |
| Other Management Occupations | 130 | 72% | \$54,318 | Some college | | X | | | | | |
| Painters, Construction and Maintenance | 140 | 39% | \$30,099 | High school | | | | | | | X |
| Painters, Transportation Equipment | 20 | 67% | \$55,036 | High school | | | | | | | X |
| Paralegals and Legal Assistants | 20 | 29% | \$32,257 | Some college | | X | | | | | X |
| Pharmacists | 190 | 49% | \$117,160 | B.A. or higher | | | | X | | | |
| Physical Scientists | 10 | 17% | \$45,940 | B.A. or higher | | | | | | X | |
| Physical Therapist Assistants | 20 | 20% | \$50,261 | Some college | | | | X | | | |
| Physical Therapists | 100 | 33% | \$74,614 | B.A. or higher | | | | X | | | |
| Police and Sheriff's Patrol Officers | 320 | 42% | \$31,419 | Some college | | | | | | | X |
| Postal Service Clerks | 70 | 78% | \$55,156 | Some college | | X | | | | | |
| Postal Service Mail Carriers | 400 | 78% | \$42,680 | Some college | | X | | | | | |

High-Wage and High-Growth Occupations – Region 2 *(continued)*

| Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level | CTE Program Area | | | | | | |
|---|----------------------|------------------|-------------|-------------------|------------------|----|----|----|----|----|----|
| | | | | | AG | BT | FC | HS | MK | TE | TI |
| Postal Service Mail Sorters, Processors, and Processing Machine Operators | 10 | 33% | \$30,368 | Some college | | X | | | | | |
| Postmasters and Mail Superintendents | 30 | 60% | \$66,718 | B.A. or higher | | X | | | | | |
| Primary, Secondary, and Special Education School Teachers | 40 | 33% | \$37,645 | B.A. or higher | | | X | | | | |
| Probation Officers and Correctional Treatment Specialists | 80 | 80% | \$33,015 | B.A. or higher | | | X | | | | X |
| Protective Service Workers, All Other | 100 | 50% | \$31,871 | Some college | | | | | | | X |
| Public Relations Managers | 10 | 50% | \$41,946 | B.A. or higher | | X | | | X | | |
| Public Relations Specialists | 20 | 25% | \$37,942 | B.A. or higher | | | | | X | | X |
| Radiologic Technologists and Technicians | 30 | 20% | \$40,561 | Some college | | | | X | | | |
| Registered Nurses | 510 | 30% | \$51,688 | B.A. or higher | | | | X | | | |
| Respiratory Therapists | 30 | 27% | \$38,732 | Some college | | | | X | | | |
| Sales Managers | 90 | 24% | \$69,383 | B.A. or higher | | X | | | X | | |
| Sales Representatives, Wholesale and Manufacturing | 110 | 41% | \$68,157 | B.A. or higher | | | | | X | | |
| Self-Enrichment Education Teachers | 110 | 79% | \$35,738 | B.A. or higher | | | X | | | | |
| Social and Community Service Managers | 50 | 29% | \$45,460 | B.A. or higher | | X | X | | | | |
| Social Scientists and Related Workers | 10 | 100% | \$45,940 | B.A. or higher | | | X | | | | |
| Special Education Teachers, Middle School | 10 | 17% | \$40,005 | B.A. or higher | | | X | | | | |

High-Wage and High-Growth Occupations – Region 2 *(continued)*

| Occupations | # Projected Openings | Projected Growth | Median Wage | Educational Level | CTE Program Area | | | | | | |
|---|----------------------|------------------|-------------|-------------------|------------------|----|----|----|----|----|----|
| | | | | | AG | BT | FC | HS | MK | TE | TI |
| Sheet Metal Workers | 40 | 17% | \$30,906 | High school | | | | | | | X |
| Speech-Language Pathologists | 20 | 18% | \$53,612 | B.A. or higher | | | | X | | | |
| Traffic Technicians | 10 | 20% | \$34,436 | Some college | | | | | | | X |
| Transportation, Storage, and Distribution Managers | 30 | 23% | \$52,339 | Some college | | X | | | | | X |
| Truck Drivers, Heavy and Tractor-Trailer | 1,150 | 31% | \$34,527 | High school | | | | | | | X |
| Vehicle and Mobile Equipment Mechanics, Installers, and Repairers | 450 | 37% | \$31,516 | High school | | | | | | | X |
| Veterinarians | 20 | 67% | \$73,309 | B.A. or higher | X | | | X | | | |

Source: (Mokher, 2011). Tennessee Occupational Outlook Tool.

References and Endnotes

[1] Regional Educational Laboratory Appalachia (2011). *Tennessee Occupational Outlook Tool*. Excel data file.

[2] Mokher, C. (2011). Aligning career and technical education with high-wage and high-demand occupations in Tennessee. (Issues & Answers Report, REL 2011–No. 111). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Appalachia. Retrieved from <http://ies.ed.gov/ncee/edlabs>.

[3] Title I of The Workforce Investment Act of 1998 (P.L. 105-220) provides for states to designate Local Workforce Investment Areas (LWIAs). (Summary of Workforce Development Provisions of the Workforce Investment Act of 1998, Employment and Training Administration, U.S. Department of Labor. Retrieved Jan. 3, 2012, from <http://www.doleta.gov/usworkforce/wia/summarywia.cfm>). In Tennessee, LWIAs are defined as 13 clusters of neighboring counties with similar labor market characteristics.

[4] Tables 3 and 6 present the 10 occupations that the Tennessee Department of Labor and Workforce Development projects to have the greatest number of new job openings in Regions 1 and 2, respectively, between 2006 and 2016. This category refers to the total number of new job openings expected in the 10-year interval, *not* to the total number of workers expected to be employed in an occupation in 2016. Tables 4 and 7 present the 10 occupations that the Tennessee Department of Labor and Workforce Development projects to have the greatest percentage increase in new job openings in Regions 1 and 2, respectively, between 2006 and 2016. We refer to these occupations as “high-growth.”

[5] The estimated median wage is \$32,301 for the region and \$33,657 for the state, based on the Tennessee Department of Labor and Workforce Development's data for 2006. In Region 1, occupations are classified as high-wage if their median wages are at least 20% greater than \$32,301 (that is, if workers earn at least \$38,761).

[6] The Tennessee Department of Labor and Workforce Development “calculates statistical projections for each occupation, based on change factors developed by the Bureau of Labor Statistics. These factors consider anticipated workforce changes, such as expected openings from people permanently leaving the workforce because of such factors as death, retirement, and net transfers of workers among jobs” (Mokher, 2011, p. 19).

[7] The estimated median wage is \$31,516 for the region and \$33,657 for the state, based on the Tennessee Department of Labor and Workforce Development's data for 2006. In Region 2, occupations are classified as high-wage if their median wages are at least 20% greater than \$31,516 (that is, if workers earn at least \$37,819).

[8] There are a total of 98 records for high-wage and high-growth occupations in the data tool, but 19 records are duplicates. Duplicates appear because some occupations have more than one primary CTE Program Area classification. For example, “Advertising and Promotions Managers” appears twice in the tool because this occupation is classified as both Business Technology and Marketing. Table A-1 lists occupations once, but shows all CTE Program Areas to which they map.

[9] There are a total of 125 records for high-wage and high-growth occupations in the data tool, but 27 records are duplicates. Duplicates appear because some occupations have more than one primary CTE Program Area classification. For example, “Architectural and Civil Drafters” appears twice in the tool because this occupation is classified as both Technology & Engineering and Trade & Industrial. Table A-2 lists occupations once, but shows all CTE Program Areas to which they map.