

**Research Report**

**Occupational Projections and Educational Program Opportunities in  
the Greensboro/High Point MSA, 2009-2018**



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## Executive Summary

### Occupational Projections and Educational Program Opportunities in the Greensboro/High Point MSA, 2009-2018

- This research, undertaken for Guilford Technical Community College (GTCC), provides detailed occupational employment projections for the Greensboro/High Point MSA, 2009-2018. Employment projections are constructed for over 450 discrete occupations using the US Bureau of Labor Statistics Occupational Employment Statistics (OES) classification system.
- The Greensboro/High Point MSA, with an estimated population of 714,765 in 2009, ranks 71<sup>st</sup> among metro areas across the country. Since 2000, the population has grown 1.2 percent annually, slightly faster than the 1.1 percent recorded for all metro areas.
- The economy of the Greensboro/High Point MSA has suffered because of the decline in the region's manufacturing base. Total employment in the region is now at the same level it was in 1996, with the region losing some 28,000 jobs since 2000. About 39,000 jobs have been lost in the goods-producing sector of the economy.
- Projected employment changes across occupational groups point to the continuation of broad trends in the economy of the Greensboro/High Point MSA. Employment in production occupations are projected to decline by 8.3 percent (3,357 workers) the largest projected drop in any occupational category.
- At the opposite end of the ledger, employment in office and administrative support occupations is projected to grow by 8,536 workers, or 13.7 percent. Employment in healthcare practitioners and technical occupations is forecast to expand by 4,769 workers, or 27.1 percent, and employment in healthcare support occupations is projected to grow by 3,998, or 34.9 percent.
- In 2009, office and administrative support occupations comprised the biggest occupational category (17.9%). By 2018, this group is projected to be 18.5 percent. Production occupations accounted for 11.2 percent of regional employment in 2009, but by 2018, this grouping is expected to shrink to 9.6 percent.
- The average wage in the Greensboro/High Point MSA in 2009 was \$38,012. Thirty percent of all jobs in the region were in occupations that earned higher than average wages. During 2009-2018, 36.0 percent of all net new jobs are projected to be in occupations that earn higher than average wages.
- Post-secondary schooling was needed by 53.6 percent of workers in the Greensboro/High Point area in 2009. By 2018, this percentage is expected to rise to 54.9 percent. It is expected that a total of 24,169 (67%) of the 36,059 net new jobs forecast to be created in the region from 2009 through 2018 will require some post-secondary schooling.
- Examining the relationship between program offerings at GTCC and projected employment demand reveals that GTCC program completers represent less than 20% of the expected number of new and replacement jobs in nine occupational groupings. These areas are: 1) life, physical, and social science, 2) community and social services, 3) education, training, and library, 4) food preparation and serving, 5) building and grounds cleaning and maintenance, 6) personal care and service occupations, 7) sales, 8) office and administrative support, and 9) production occupations. It is likely that the number of trained graduates may fall short of labor demand in these areas, and more schooling and training programs may usefully be undertaken.

- GTCC graduates are more than 80% of the expected labor demand in 2 areas: 1) architecture and engineering and 2) arts, design, entertainment, sports, and media. These are areas where the number of program completers may run ahead of area labor demand, and GTCC may want to closely monitor graduate placements and possibly scale back program offerings in these areas.

## Introduction

This research, undertaken for Guilford Technical Community College (GTCC), provides detailed occupational employment projections for the Greensboro/High Point MSA, 2009-2018. Employment projections are constructed for over 450 discrete occupations using the US Bureau of Labor Statistics Occupational Employment Statistics (OES) classification system. The projections show the expected number of job openings by detailed occupational category from 2009 through 2018. Projections also show the expected education and training requirements for each occupation.

The analysis compares projected worker demand by occupation in the Greensboro/High Point MSA with data showing GTCC's program completers over the 2009-10 academic year. By balancing the annual number of expected job openings and the number of completers in each associated program, the analysis identifies those areas with the largest gaps between program demand and supply. In so doing, it highlights areas where educational resources can best be employed to meet the region's future manpower needs.

## Methodology

Figure 1 sketches the overall research plan. Employment projections are developed for the Greensboro/High Point MSA (Guilford, Randolph, and Rockingham Counties) using national employment projections obtained from the Bureau of Labor Statistics (BLS) and current local and national employment trends.<sup>1</sup> Projections are undertaken for more than 450 specific occupational categories. For each occupation, future demand is assumed to grow at a rate determined by the U.S. Bureau of Labor Statistics national occupational forecast and the past relationship between local and national growth in the specific occupation.

Local occupational projections are combined with BLS data showing average local wages and the education and training requirements for each occupation. The projections are merged with data from GTCC showing the number of degree, certificate, and other training program completers. By matching the occupational employment projections with GTCC program completers, the research strives to assist GTCC in assessing how best to allocate its resources to meet the future education and training needs of the Greensboro/High Point community.

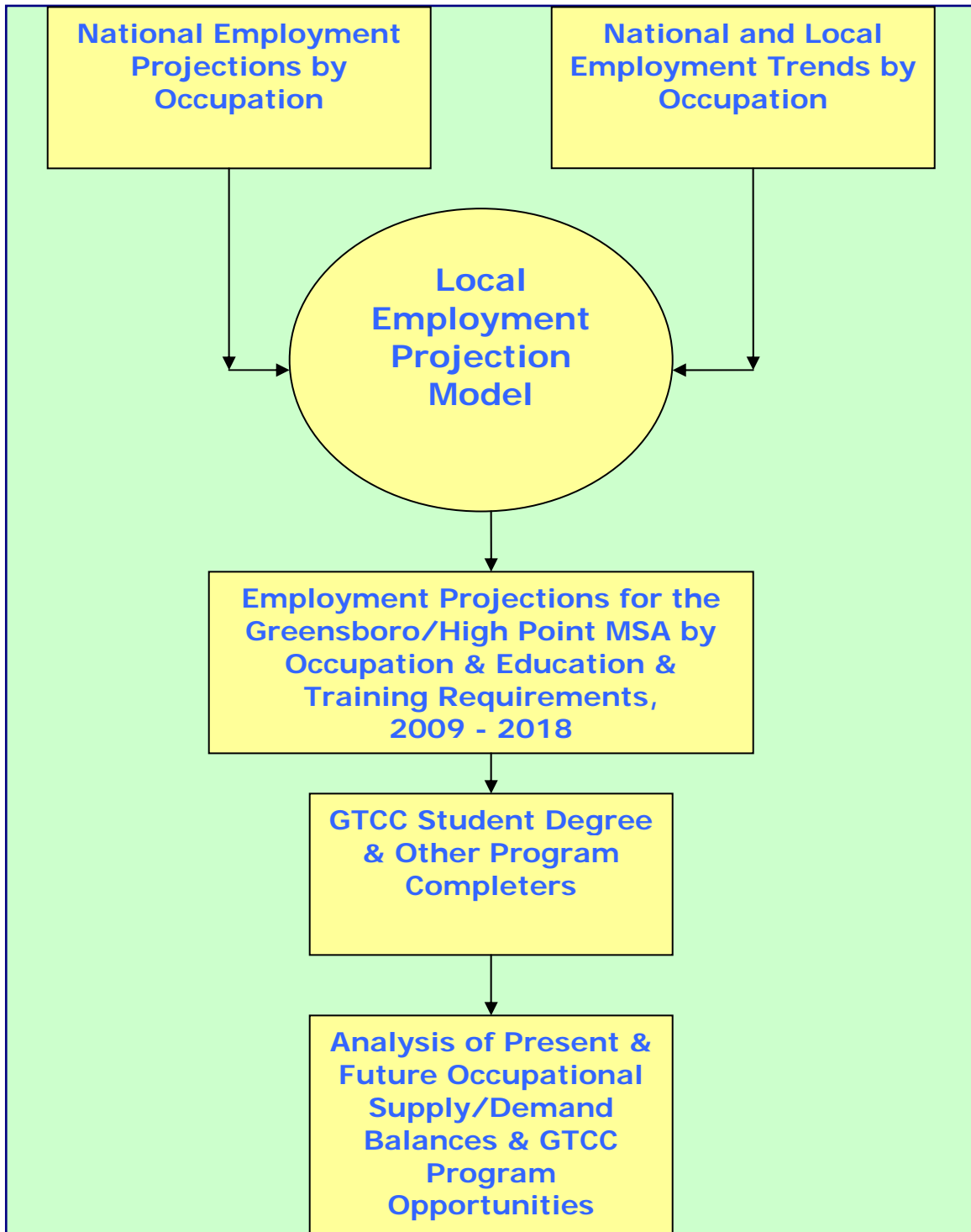
The occupational employment projections developed in this analysis can be analyzed in several ways. Here projections are discussed in terms of both percent and numeric changes. Both perspectives are important. In some cases, occupations with only a small number of employees may be projected to grow very rapidly but still generate few new jobs. In other cases, occupations with large numbers of workers may grow very slowly but still generate large numbers of new jobs over the projection period.

Changes in the number of workers employed in specific occupations over time indicate the number of net new jobs created or lost. But such changes do not indicate all of the new workers that will be needed to meet future demand. This is because job openings arise both when new jobs are created by economic growth as well as when workers who leave an occupation have to be replaced. This analysis estimates both the numbers of net new jobs created in occupations over time as well as the total number of job openings arising from both growth and replacement needs. In some cases, occupations where the numbers of net new jobs are projected to decline will still generate substantial numbers of future job openings because of the need to replace existing workers.

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<sup>1</sup> National projections are taken from: T. Alan Lacey and Benjamin Wright, "Occupational Employment Projections to 2018," *Monthly Labor Review*, November 2009, pp. 82-115. Occupational employment data for the Greensboro/High Point MSA are from the BLS website: <http://data.bls.gov/oes/areatype.do>

**Figure 1: Occupational Employment Projections and Analysis**

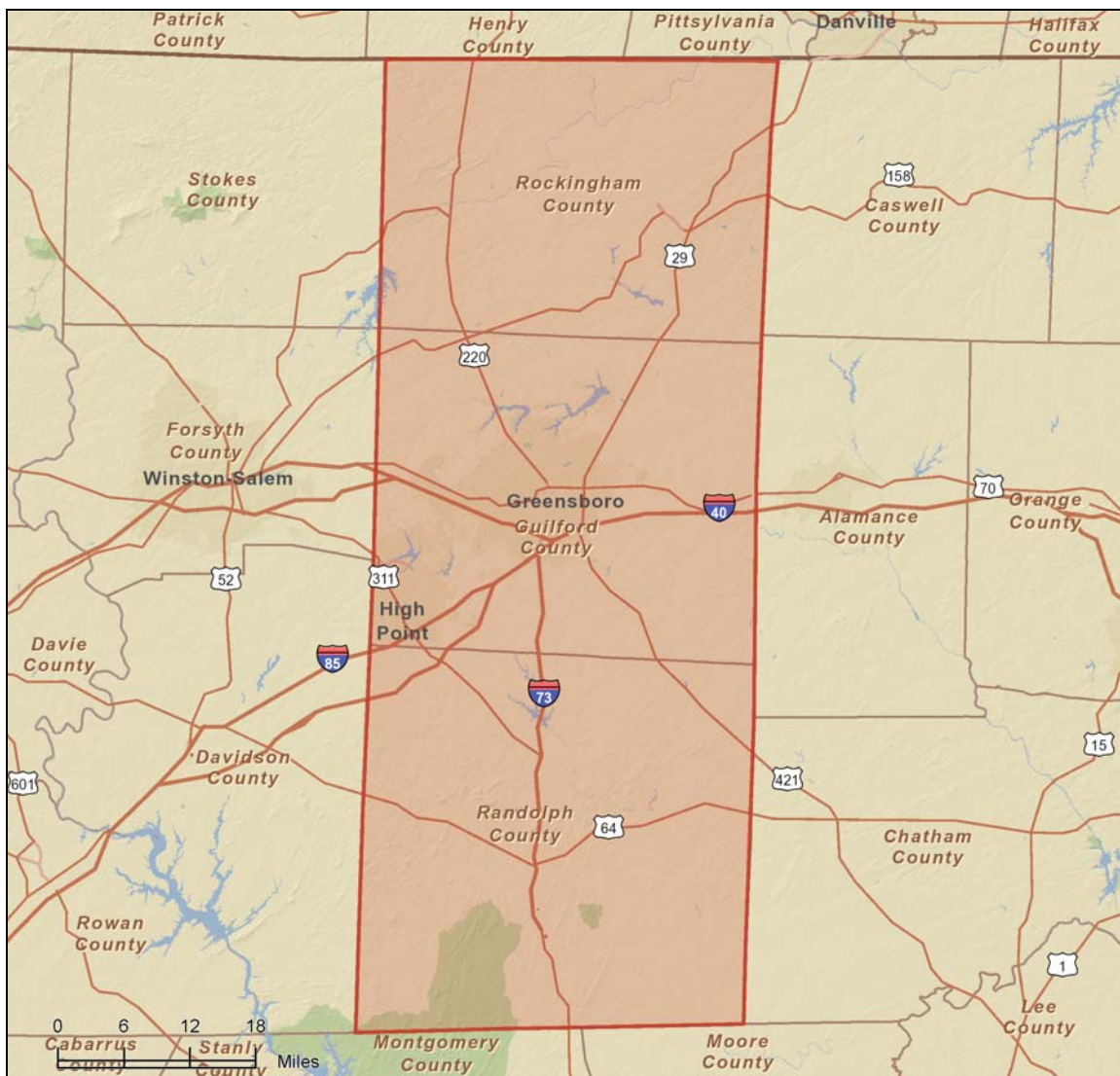


## The Greensboro/High Point MSA

The Greensboro/High Point MSA (Figure 2) ranks 71<sup>st</sup> among metro areas across the country, with an estimated population of 714,765 in 2009.<sup>2</sup> Since 2000, population has grown 1.2 percent annually, slightly faster than the 1.1 percent recorded for all metro areas. Guilford County (with a population of 480,362), encompassing the cities of Greensboro and High Point, is the region's largest county. It is followed by Randolph County with 142,151 and Rockingham County with 92,252.

Average household income in the region is \$64,157, or 91 percent of the US average of \$70,173. Median household income is \$51,860, compared to a national median of \$54,442. Some 14.1 percent of area households earned more than \$100,000 in 2010, compared to 18.8 percent nationwide.

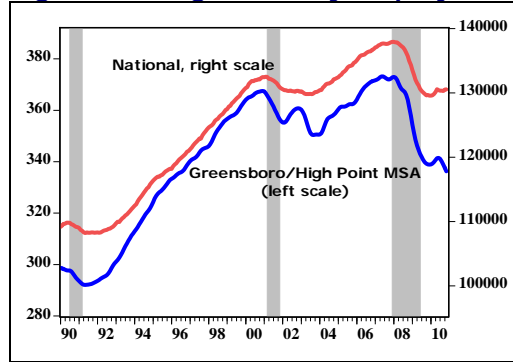
Figure 2: Greensboro/High Point MSA



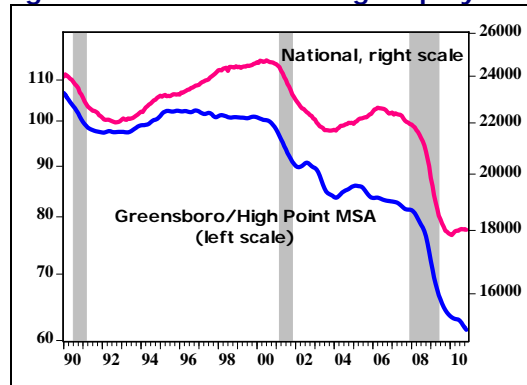
<sup>2</sup> Demographic statistics in this section are from ESRI: <http://www.esri.com/software/bao/index.html>

Since 2000, the economy of the Greensboro/High Point MSA has suffered because of the decline in the region's manufacturing base. Total employment in the region is now at the same level it was in 1996, with the region losing some 28,000 jobs since 2000 (Figure 3).<sup>3</sup> About 39,000 jobs have been lost in the goods-producing sector of the economy since 2000 (Figure 4). The unemployment rate in the area was 10.8 percent in November 2010, a full percentage point above the national rate of 9.8 percent (Figure 5).

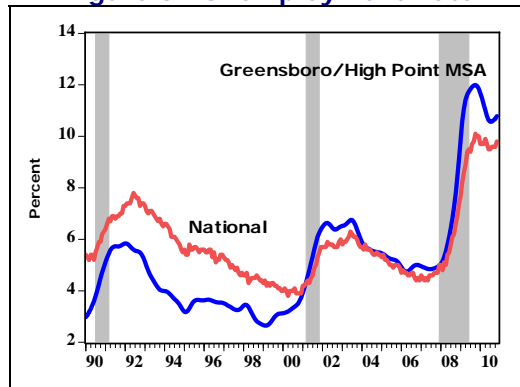
**Figure 3: Wage & Salary Employment**



**Figure 4: Goods-Producing Employment**



**Figure 5: Unemployment Rate**



<sup>3</sup> Employment statistics are taken from the Dixon Hughes Triad Business Index data base maintained by the UNCG, Bryan School of Business & Economics: <http://www.triadbizindex.com/>

## Employment Projections

Table 1 shows employment projections for the Greensboro/High Point MSA for 22 broad occupational groupings, 2009-2018. The Appendix I shows projections for 451 specific occupations, each grouped into one of the 22 broad occupational groupings shown in Table 1.

Projected employment changes across occupational groups point to broad trends in the economy of the Greensboro/High Point MSA. Because of ongoing changes in the international economy, employment in production occupations are projected to decline by 8.3 percent, or 3,357 workers, the largest projected drop in any occupational category. At the opposite end of the ledger, employment in office and administrative support occupations is projected to grow by 8,536 workers, or 13.7 percent. Employment in healthcare practitioners and technical occupations is forecast to expand by 4,769 workers, or 27.1 percent, and employment in healthcare support occupations is projected to grow by 3,998, or 34.9 percent. In 2009, office and administrative support occupations comprised the biggest occupational category (17.9%). By 2018, this group is projected to be 18.5 percent. Production occupations accounted for 11.2 percent of regional employment in 2009, but by 2018, this grouping is expected to shrink to 9.6 percent.

*Management Occupations.* The employment of management occupations is expected to decline by 3.1 percent, resulting in a net loss of 488 positions. This decline is mainly the result in the drop in two occupations: general and operations managers (the largest management category) and industrial production managers. The loss of workers in these two categories amounts to a decline of 497 positions, more than all of the other occupations in this grouping combined.

*Business and Financial Operations Occupations.* Employment in business and financial operations is projected to rise by 2,655, or 20.8 percent. The biggest job gains are forecast in the number of accountants and auditors (578) and business operations specialist (306). The only occupation in this category expected to decline is insurance underwriters, where a net loss of 2 positions is projected.

*Computer and Mathematical Occupations.* The employment of computer and mathematical occupations is expected to grow by 1,577, or 24.0 percent. The largest gains are expected in application software engineers (374) and database administrators (267). The number of computer programmers is expected to slip by 11 positions, or 1.4 percent.

*Architecture and Engineering Occupations.* The number of people employed in architecture and engineering occupations is projected to grow by just 18, or 0.4 percent. The biggest net change is expected in the number of civil engineers (38). The biggest decline is projected in the number of electronics engineers, except computer, where the number of jobs is expected to fall by 47, or 8.7 percent.

*Life, Physical, and Social Science Occupations.* Employment in life, physical, and social science occupations is forecast to rise by 424, or 17.2 percent. The biggest gains are expected in the number of market research analysts (159) followed by environmental scientists and specialists (57).

*Community and Social Service Occupations.* The employment of community and social service occupations is anticipated to grow by 895, 24.4 percent. The largest growth is projected in the number of social and human service assistants (244) and child, family, and school social workers (166).

*Legal Occupations.* The number of persons working in legal occupations is estimated to grow by 477, or 34.3 percent. Gains are anticipated in the number of paralegals and legal assistants (263) and lawyers (217).

**Table 1: Projections of Employment by Occupation, 2009-18**

| Code    | Name   | 2009    | 2018    | Percent      |         |                |         | Total Job Openings            |         |
|---------|--|---------|---------|--------------|---------|----------------|---------|-------------------------------|---------|
|         |  |         |         | Distribution |         | Change 2009-18 |         | Due to Growth and Replacement |         |
|         |  |         |         | 2009         | 2018    | Number         | Percent | Number                        | Percent |
| 11-0000 | Management Occupations                             | 15,910  | 15,422  | 4.56%        | 4.00%   | -488           | -3.06%  | 3,092                         | 2.59%   |
| 13-0000 | Business and Financial Operations Occupations      | 12,840  | 15,505  | 3.68%        | 4.03%   | 2,665          | 20.75%  | 5,230                         | 4.39%   |
| 15-0000 | Computer and Mathematical Occupations              | 6,570   | 8,147   | 1.88%        | 2.12%   | 1,577          | 24.01%  | 2,793                         | 2.34%   |
| 17-0000 | Architecture and Engineering Occupations           | 4,070   | 4,088   | 1.17%        | 1.06%   | 18             | 0.43%   | 893                           | 0.75%   |
| 19-0000 | Life, Physical, and Social Science Occupations     | 2,470   | 2,894   | 0.71%        | 0.75%   | 424            | 17.16%  | 1,164                         | 0.98%   |
| 21-0000 | Community and Social Services Occupations          | 3,670   | 4,565   | 1.05%        | 1.19%   | 895            | 24.39%  | 1,682                         | 1.41%   |
| 23-0000 | Legal Occupations                                  | 1,390   | 1,867   | 0.40%        | 0.48%   | 477            | 34.34%  | 709                           | 0.59%   |
| 25-0000 | Education, Training, and Library Occupations       | 20,780  | 23,552  | 5.95%        | 6.11%   | 2,772          | 13.34%  | 7,302                         | 6.12%   |
| 27-0000 | Arts, Design, Entertainment, Sports, and Media Occ | 3,430   | 3,606   | 0.98%        | 0.94%   | 176            | 5.12%   | 1,049                         | 0.88%   |
| 29-0000 | Healthcare Practitioners and Technical Occupations | 17,570  | 22,339  | 5.03%        | 5.80%   | 4,769          | 27.14%  | 8,380                         | 7.03%   |
| 31-0000 | Healthcare Support Occupations                     | 11,450  | 15,448  | 3.28%        | 4.01%   | 3,998          | 34.92%  | 5,287                         | 4.43%   |
| 33-0000 | Protective Service Occupations                     | 6,820   | 8,102   | 1.95%        | 2.10%   | 1,282          | 18.79%  | 3,166                         | 2.66%   |
| 35-0000 | Food Preparation and Serving Related Occupations   | 28,910  | 32,668  | 8.28%        | 8.48%   | 3,758          | 13.00%  | 14,001                        | 11.74%  |
| 37-0000 | Building & Grounds Cleaning & Maintenance Occup.   | 10,160  | 11,186  | 2.91%        | 2.90%   | 1,026          | 10.09%  | 2,712                         | 2.27%   |
| 39-0000 | Personal Care and Service Occupations              | 6,630   | 8,045   | 1.90%        | 2.09%   | 1,415          | 21.34%  | 3,062                         | 2.57%   |
| 41-0000 | Sales and Related Occupations                      | 35,500  | 38,789  | 10.17%       | 10.07%  | 3,289          | 9.26%   | 13,853                        | 11.62%  |
| 43-0000 | Office and Administrative Support Occupations      | 62,550  | 71,086  | 17.92%       | 18.46%  | 8,536          | 13.65%  | 22,583                        | 18.94%  |
| 45-0000 | Farming, Fishing, and Forestry Occupations         | 180     | 178     | 0.05%        | 0.05%   | -2             | -0.88%  | 51                            | 0.04%   |
| 47-0000 | Construction and Extraction Occupations            | 12,840  | 14,986  | 3.68%        | 3.89%   | 2,146          | 16.71%  | 4,410                         | 3.70%   |
| 49-0000 | Installation, Maintenance, and Repair Occupations  | 15,570  | 15,277  | 4.46%        | 3.97%   | -293           | -1.88%  | 2,785                         | 2.34%   |
| 51-0000 | Production Occupations                             | 40,390  | 37,033  | 11.57%       | 9.62%   | -3,357         | -8.31%  | 6,677                         | 5.60%   |
| 53-0000 | Transportation and Material Moving Occupations     | 29,400  | 30,377  | 8.42%        | 7.89%   | 977            | 3.32%   | 8,354                         | 7.01%   |
| 00-0000 | Total all occupations                              | 349,100 | 385,159 | 100.00%      | 100.00% | 36,059         | 10.33%  | 119,234                       | 100.00% |

*Education, Training, and Library Occupations.* Employment in education, training, and library occupations is forecast to grow by 2,772, or 13.3 percent. Growth is expected in the number of elementary school teachers, except special education (349) and middle school teachers, except special and vocational education (317).

*Arts, Design, Entertainment, Sports, and Media Occupations.* The number of persons working in arts, design, entertainment, sports, and media occupations is anticipated to rise by 176, or 5.1 percent. Persons employed as coaches and scouts are expected to grow by 53 and public relations specialists by 42. Losses are projected in the number of reporters and correspondents (15) and floral designers (13).

*Healthcare Practitioners and Technical Occupations.* The employment of healthcare practitioners and technical occupations is forecast to grow by 4,769, or 27.1 percent. The need for registered nurses is expected to grow by 1,845, or 28 percent, and pharmacy technicians by 360, or 38.8 percent.

*Healthcare Support Occupations.* Health care support occupations are anticipated to add 3,998 jobs, or 34.9 percent. A total of 3,250 of the new jobs are expected to be home health aides. An additional 481 will be nurses aides, orderlies, and attendants.

*Protective Service Occupations.* Persons employed in protective service occupations are projected to grow by 1,282, or 18.8 percent. The biggest need will be for security guards (504) and fire fighters (252).

*Food Preparation and Serving Related Occupations.* Employment in this category will likely increase by 3,758, or 13.0 percent, with the largest jump being persons working as combined food preparation and serving workers (1,771). Waiters and waitresses will grow by an expected 616.

*Building & Grounds Cleaning & Maintenance Occupations.* The employment of building and grounds cleaning and maintenance occupations will expand by 1,026, or 10.1 percent. The largest gains will be in landscaping and grounds keeping workers (335) and janitors and cleaners, except maids and housekeepers (331).

*Personal Care and Service Occupations.* Persons working in personal care and service occupations are forecast to grow by 1,415, or 21.3 percent. The biggest needs will be for personal and home care aides (659) and fitness trainers and aerobics instructors (210).

*Sales and Related Occupations.* Employment in sales and related occupations is projected to grow by 3,289, or 9.3 percent. The biggest net change will be in the number of retail salespersons (1,200) and cashiers (490).

*Office and Administrative Support Occupations.* The number of people working in this occupational group is expected to grow by 8,536, or 13.6 percent. The biggest needs will be for customer service representatives (2,736) and general office clerks (1,010).

*Farming, Fishing, and Forestry Occupations.* Employment in this category is projected to fall from 180 in 2009 to 178 in 2018.

*Construction and Extraction Occupations.* The number of jobs in construction and extraction occupations will likely grow by 2,146, or 16.7 percent. The largest needs will be for construction laborers (522) and first-line supervisors of construction (329).

*Installation, Maintenance, and Repair Occupations.* Workers in installation, maintenance, and repair occupations are forecast to fall by 293, or 1.9 percent. Declines are likely in first-line supervisors of mechanics (82) and automotive service technicians and mechanics (79). At the same time, growth is expected in the number of heating, air conditioning, and refrigeration mechanics (106, or a rise of 16.8 percent).

*Production Occupations.* The employment of production occupations is anticipated to decline by 3,357, or 8.3 percent. Large losses of sewing machine operators (847), textile knitting and weaving machine setters (518), and textile winding, twisting, and drawing out machine operators (498) are expected.

*Transportation and Material Moving Occupations.* The number of persons employed in transportation and material moving occupations is anticipated to expand by 977, or 3.3 percent. The greatest increase will be in the employment of truck drivers, which will grow by 764, or 12.2 percent. At the same time, persons employed as machine feeders and off-bearers will drop by 665, or 22.6 percent.

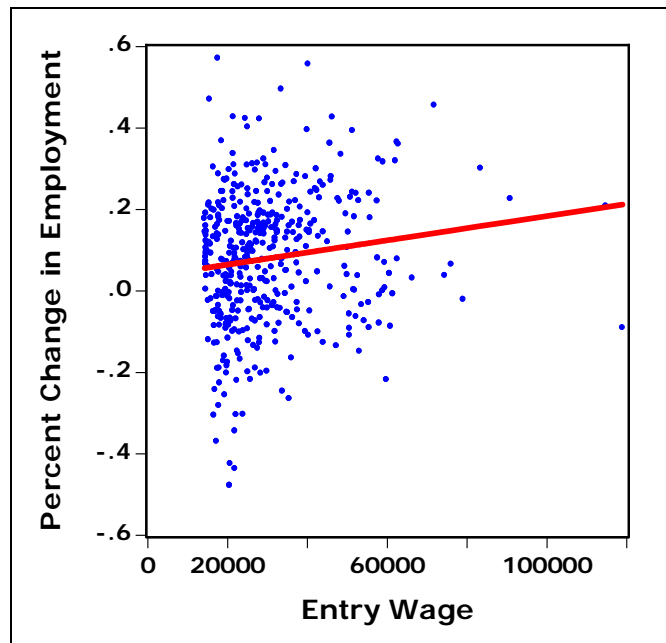
**Wages and Occupational Change**

Table 2 shows the entry-level wage and average wage paid to workers in 2009 in each of the 22 occupational categories along with projected occupational changes 2009-2018. The highest entry-level and average wages are paid to persons in management occupations. In 2009, the entry-level wage reported for management occupations was \$53,360, and the average wage across all management occupations was \$99,770. The second highest entry-level wage was for people in computer and mathematical occupations (\$40,180). The second highest occupational average wage was for legal occupations (\$73,370). The lowest entry-level and average wage was paid to those in food preparation and serving related occupations.

The average wage in the Greensboro/High Point MSA in 2009 was \$38,012. Thirty percent of all jobs in the region were in occupations that earned higher than average wages. During 2009-2018, 36.0 percent of all net new jobs are projected to be in occupations that earn higher than average wages.

In general, across the 451 discrete occupations shown in the Appendix I, the occupations projected to grow most rapidly tend to be paid above average entry-level wages, although the variation across occupations is quite high (Figure 6).

**Figure 6: Projected Employment Growth and Entry-Level Wages**



**Table 2: Employment and Wages, 2009**

| Code    | Name   | 2009    | 2018    | Change 2009-18 |         | Entry Wage 2009 | Average Wage 2009 |
|---------|--|---------|---------|----------------|---------|-----------------|-------------------|
|         |  |         |         | Number         | Percent |                 |                   |
| 11-0000 | Management Occupations                             | 15,910  | 15,422  | -488           | -3.06%  | \$52,360        | \$99,770          |
| 13-0000 | Business and Financial Operations Occupations      | 12,840  | 15,505  | 2,665          | 20.75%  | \$35,150        | \$57,620          |
| 15-0000 | Computer and Mathematical Occupations              | 6,570   | 8,147   | 1,577          | 24.01%  | \$40,180        | \$69,330          |
| 17-0000 | Architecture and Engineering Occupations           | 4,070   | 4,088   | 18             | 0.43%   | \$39,350        | \$63,830          |
| 19-0000 | Life, Physical, and Social Science Occupations     | 2,470   | 2,894   | 424            | 17.16%  | \$33,630        | \$55,550          |
| 21-0000 | Community and Social Services Occupations          | 3,670   | 4,565   | 895            | 24.39%  | \$26,260        | \$38,750          |
| 23-0000 | Legal Occupations                                  | 1,390   | 1,867   | 477            | 34.34%  | \$34,590        | \$73,370          |
| 25-0000 | Education, Training, and Library Occupations       | 20,780  | 23,552  | 2,772          | 13.34%  | \$21,140        | \$39,030          |
| 27-0000 | Arts, Design, Entertainment, Sports, and Media Occ | 3,430   | 3,606   | 176            | 5.12%   | \$22,620        | \$42,060          |
| 29-0000 | Healthcare Practitioners and Technical Occupations | 17,570  | 22,339  | 4,769          | 27.14%  | \$36,650        | \$71,520          |
| 31-0000 | Healthcare Support Occupations                     | 11,450  | 15,448  | 3,998          | 34.92%  | \$17,930        | \$24,410          |
| 33-0000 | Protective Service Occupations                     | 6,820   | 8,102   | 1,282          | 18.79%  | \$18,540        | \$33,540          |
| 35-0000 | Food Preparation and Serving Related Occupations   | 28,910  | 32,668  | 3,758          | 13.00%  | \$14,560        | \$18,280          |
| 37-0000 | Building & Grounds Cleaning & Maintenance Occup.   | 10,160  | 11,186  | 1,026          | 10.09%  | \$15,200        | \$21,200          |
| 39-0000 | Personal Care and Service Occupations              | 6,630   | 8,045   | 1,415          | 21.34%  | \$14,940        | \$20,980          |
| 41-0000 | Sales and Related Occupations                      | 35,500  | 38,789  | 3,289          | 9.26%   | \$15,950        | \$34,670          |
| 43-0000 | Office and Administrative Support Occupations      | 62,550  | 71,086  | 8,536          | 13.65%  | \$20,570        | \$30,960          |
| 45-0000 | Farming, Fishing, and Forestry Occupations         | 180     | 178     | -2             | -0.88%  | \$17,350        | \$27,520          |
| 47-0000 | Construction and Extraction Occupations            | 12,840  | 14,986  | 2,146          | 16.71%  | \$22,710        | \$33,470          |
| 49-0000 | Installation, Maintenance, and Repair Occupations  | 15,570  | 15,277  | -293           | -1.88%  | \$26,280        | \$40,120          |
| 51-0000 | Production Occupations                             | 40,390  | 37,033  | -3,357         | -8.31%  | \$19,440        | \$30,190          |
| 53-0000 | Transportation and Material Moving Occupations     | 29,400  | 30,377  | 977            | 3.32%   | \$18,070        | \$29,030          |
| 00-0000 | Total all occupations                              | 349,100 | 385,159 | 36,059         | 10.33%  | n.a.            | \$38,012          |

### Growth by Level of Schooling

BLS data show the number of years of formal schooling completed by workers in each occupational category. Using these data, the average schooling level was tabulated for each occupation. In general, occupations that require higher levels of schooling are forecast to record higher rates of job growth during 2009-2018 (Figure 7).

Figure 7: Projected Employment Growth and Schooling

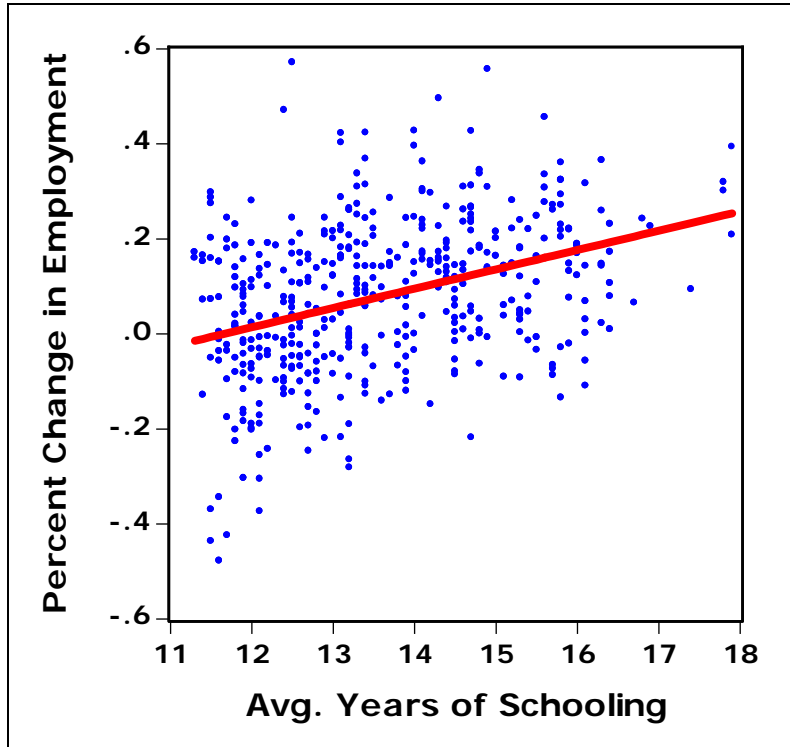


Table 3 shows projections of employment growth along with the number of workers in each occupation that have completed at least some post-secondary schooling or training. Post-secondary schooling was needed by 53.6 percent of workers in the Greensboro/High Point area in 2009. By 2018, this percentage is expected to rise to 54.9 percent. It is expected that a total of 24,169 (67%) of the 36,059 net new jobs forecast to be created in the region from 2009 through 2018 will require some post-secondary schooling.

**Table 3: Employment Change and Schooling, 2009-18**

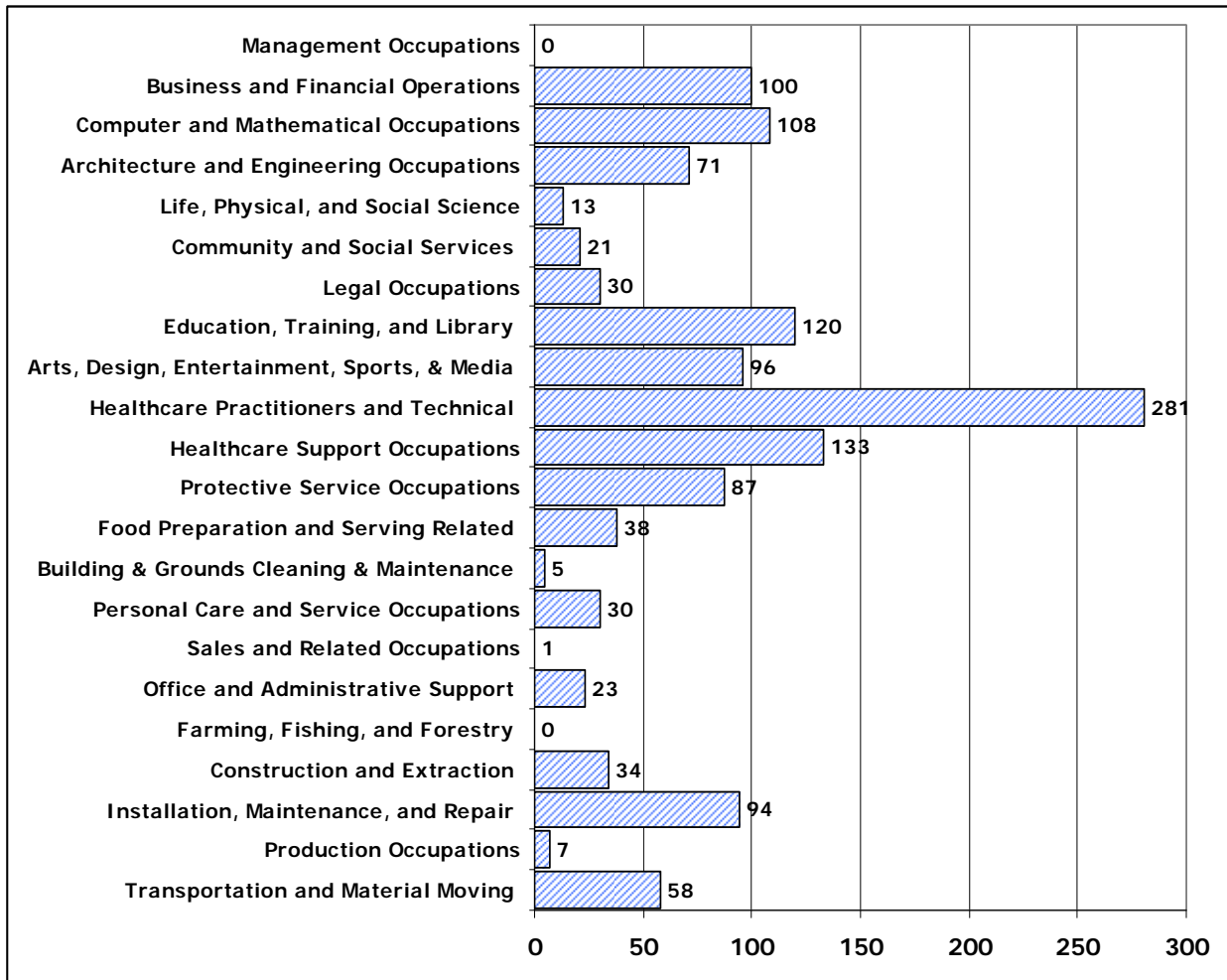
| Code    | Name   | 2009    | 2018    | Change<br>2009-18 | Require Post-Secondary<br>Training |         |                   |
|---------|--|---------|---------|-------------------|------------------------------------|---------|-------------------|
|         |  |         |         |                   | 2009                               | 2018    | Change<br>2009-18 |
| 11-0000 | Management Occupations                             | 15,910  | 15,422  | -488              | 13,203                             | 12,927  | -276              |
| 13-0000 | Business and Financial Operations Occupations      | 12,840  | 15,505  | 2,665             | 10,918                             | 13,185  | 2,267             |
| 15-0000 | Computer and Mathematical Occupations              | 6,570   | 8,147   | 1,577             | 6,071                              | 7,510   | 1,438             |
| 17-0000 | Architecture and Engineering Occupations           | 4,070   | 4,088   | 18                | 3,258                              | 3,272   | 14                |
| 19-0000 | Life, Physical, and Social Science Occupations     | 2,470   | 2,894   | 424               | 1,923                              | 2,187   | 263               |
| 21-0000 | Community and Social Services Occupations          | 3,670   | 4,565   | 895               | 3,033                              | 3,815   | 782               |
| 23-0000 | Legal Occupations                                  | 1,390   | 1,867   | 477               | 1,175                              | 1,628   | 453               |
| 25-0000 | Education, Training, and Library Occupations       | 20,780  | 23,552  | 2,772             | 14,573                             | 16,548  | 1,975             |
| 27-0000 | Arts, Design, Entertainment, Sports, and Media Occ | 3,430   | 3,606   | 176               | 2,760                              | 2,901   | 141               |
| 29-0000 | Healthcare Practitioners and Technical Occupations | 17,570  | 22,339  | 4,769             | 14,269                             | 18,255  | 3,986             |
| 31-0000 | Healthcare Support Occupations                     | 11,450  | 15,448  | 3,998             | 5,882                              | 8,316   | 2,435             |
| 33-0000 | Protective Service Occupations                     | 6,820   | 8,102   | 1,282             | 4,637                              | 5,527   | 890               |
| 35-0000 | Food Preparation and Serving Related Occupations   | 28,910  | 32,668  | 3,758             | 9,510                              | 10,757  | 1,246             |
| 37-0000 | Building & Grounds Cleaning & Maintenance Occup.   | 10,160  | 11,186  | 1,026             | 2,641                              | 2,883   | 243               |
| 39-0000 | Personal Care and Service Occupations              | 6,630   | 8,045   | 1,415             | 3,656                              | 4,490   | 835               |
| 41-0000 | Sales and Related Occupations                      | 35,500  | 38,789  | 3,289             | 21,576                             | 23,810  | 2,234             |
| 43-0000 | Office and Administrative Support Occupations      | 62,550  | 71,086  | 8,536             | 37,703                             | 43,320  | 5,618             |
| 45-0000 | Farming, Fishing, and Forestry Occupations         | 180     | 178     | -2                | 9                                  | 10      | 1                 |
| 47-0000 | Construction and Extraction Occupations            | 12,840  | 14,986  | 2,146             | 3,861                              | 4,581   | 720               |
| 49-0000 | Installation, Maintenance, and Repair Occupations  | 15,570  | 15,277  | -293              | 6,584                              | 6,428   | -156              |
| 51-0000 | Production Occupations                             | 40,390  | 37,033  | -3,357            | 11,386                             | 10,200  | -1,187            |
| 53-0000 | Transportation and Material Moving Occupations     | 29,400  | 30,377  | 977               | 8,628                              | 8,874   | 246               |
| 00-0000 | Total all occupations                              | 349,100 | 385,159 | 36,059            | 187,256                            | 211,425 | 24,169            |

## Market Needs and Occupational Training Opportunities

This section explores the intersection of labor market needs and the occupational training currently provided by GTCC. Appendix II lists the academic and training programs offered by GTCC and the number of program completers in each program during the 2009-10 academic year. Each program is classified into an occupational grouping in which its graduates are most likely to find employment. No program completers are classified into the management grouping, although it is recognized that some number of completers from any program may find a career path into management.

Figure 8 shows GTCC program completers during the 2009-10 academic year classified into the occupation grouping representing their most likely employment. The largest number of program completers is in healthcare and healthcare support occupations. No completers are in the occupational grouping of farming, fishing, and forestry. Only 1 is the sales occupational group.

**Figure 8: GTCC Program Completers by Occupational Grouping**



**Table 4: GTCC Program Completers and Labor Market Demand**

| Code    | Name   | (1)  | (2)  | (3)                                      | (4)                          | (5)   |
|---------|--|--|--|--|------------------------------|---|
|         |  | Expected Annual No. of Growth & Replacement Jobs | Percent of Jobs Needing Post-Sec. Training | Expected Jobs Needing Post-Sec. Training | GTCC Program Completers 2010 | GTCC Program Completers as a % of Expected Jobs |
| 00-0000 | Total all Occupations                        | 13,248   | n.a.                                       | 3,560                                    | n.a.                         | n.a.  |
| 11-0000 | Management Occupations                       | 344  | 83.2%                                      | 286                                      | 0                            | 0.0%  |
| 13-0000 | Business and Financial Operations            | 581  | 85.8%                                      | 499                                      | 100                          | 20.0%   |
| 15-0000 | Computer and Mathematical Occupations        | 310  | 92.9%                                      | 288                                      | 108                          | 37.5%   |
| 17-0000 | Architecture and Engineering Occupations     | 99   | 86.8%                                      | 86                                       | 71                           | 82.6%   |
| 19-0000 | Life, Physical, and Social Science           | 129  | 96.5%                                      | 124                                      | 13                           | 10.4%   |
| 21-0000 | Community and Social Services                | 187  | 88.9%                                      | 166                                      | 21                           | 12.6%   |
| 23-0000 | Legal Occupations                            | 79   | 92.1%                                      | 73                                       | 30                           | 41.2%   |
| 25-0000 | Education, Training, and Library             | 811  | 88.3%                                      | 716                                      | 120                          | 16.7%   |
| 27-0000 | Arts, Design, Entertainment, Sports, & Media | 117  | 86.3%                                      | 101                                      | 96                           | 95.1%   |
| 29-0000 | Healthcare Practitioners and Technical       | 931  | 90.8%                                      | 846                                      | 281                          | 33.2%   |
| 31-0000 | Healthcare Support Occupations               | 587  | 50.9%                                      | 299                                      | 133                          | 44.5%   |
| 33-0000 | Protective Service Occupations               | 352  | 68.5%                                      | 241                                      | 87                           | 36.1%   |
| 35-0000 | Food Preparation and Serving Related         | 1,556  | 33.5%                                      | 521                                      | 38                           | 7.3%  |
| 37-0000 | Building & Grounds Cleaning & Maintenance    | 301  | 26.3%                                      | 79                                       | 5                            | 6.3%  |
| 39-0000 | Personal Care and Service Occupations        | 340  | 57.8%                                      | 197                                      | 30                           | 15.3%   |
| 41-0000 | Sales and Related Occupations                | 1,539  | 61.5%                                      | 947                                      | 1                            | 0.1%  |
| 43-0000 | Office and Administrative Support            | 2,509  | 60.7%                                      | 1,524                                    | 23                           | 1.5%  |
| 45-0000 | Farming, Fishing, and Forestry               | 6  | 18.3%                                      | 1  | 0                            | 0.0%  |
| 47-0000 | Construction and Extraction                  | 490  | 31.2%                                      | 153                                      | 34                           | 22.2%   |
| 49-0000 | Installation, Maintenance, and Repair        | 309  | 44.2%                                      | 137                                      | 94                           | 68.8%   |
| 51-0000 | Production Occupations                       | 742  | 30.0%                                      | 223                                      | 7                            | 3.1%  |
| 53-0000 | Transportation and Material Moving           | 928  | 30.3%                                      | 282                                      | 58                           | 20.6%   |

Table 4 shows the relationship between projected annual labor market demand by occupation and the number GTCC program completers by most likely occupation of future employment. Column (1) of Table 4 shows the expected annual number of jobs from growth and replacement. It is calculated by taking the number of growth and replacement jobs shown in Table 1 and dividing the number by 9 to reflect the annual number of new and replacement positions projected for each occupational group. Column (2) of Table 4 shows the percentage of jobs in each occupational group that need some level of post-secondary training. Data in this column are taken from Table 3. Column (3) shows the expected number of new and replacement jobs in each occupational group requiring post-secondary training. It is calculated by multiplying Column (1) times Column (2).

Column (4) shows the number of GTCC program completers by their most likely occupation of future employment. These numbers are the same as those shown in Figure 8.

Column (5) of Table 4 shows GTCC program completers as a percentage of the expected number of jobs needing post-secondary training. This column shows how closely GTCC programs align with expected labor market needs. If the calculated percentages in this column are more than 100%, the number of trained labor market entrants is likely to outstrip expected demand, resulting in placement difficulties. If the percentages are very low, GTCC is likely not supplying an adequate number of trained graduates, and labor market shortages may develop.

By scanning the percentages in Column (5), it is apparent that none of the percentages are greater than 100% and only two are 0.0%. The percentage for management occupations is expected to be 0.0%, since no program completers were assigned to this occupational grouping. In addition to the management area, the percentage tabulated in Column (5) is 0.0% for farming, fishing and forestry occupations, but expected job growth in this area is very small.

In nine occupational areas, GTCC program completers represent less than 20% of the expected number of new and replacement jobs. These areas are: 1) life, physical, and social science, 2) community and social services, 3) education, training, and library, 4) food preparation and serving, 5) building and grounds cleaning and maintenance, 6) personal care and service occupations, 7) sales, 8) office and administrative support, and 9) production occupations. It is likely that the number of trained graduates may fall short of labor demand in these areas, and more schooling and training programs may usefully be undertaken.

GTCC graduates are more than 80% of the expected labor demand in 2 areas: 1) architecture and engineering and 2) arts, design, entertainment, sports, and media. These are areas where the number of program completers may run ahead of area labor demand, and GTCC may want to closely monitor graduate placements and possibly scale back program offerings in these areas.

**Appendix I: Employment Projections by Detailed Occupational Category, 2009-18**

| Code    | Name   | 2009    | 2018    | Percent Distribution |        | Change 2009-18 |         | Total Job Openings Due to Growth and Replacement Needs 2009-18 |         |
|---------|--|---------|---------|----------------------|--------|----------------|---------|--|---------|
|         |  |         |         | 2009                 | 2018   | Number         | Percent | Number   | Percent |
| 00-0000 | Total all occupations                            | 349,100 | 385,159 | 100.0%               | 100.0% | 36,059         | 10.3%   | 119,234  | 100.0%  |
| 11-0000 | Management Occupations                           | 15,910  | 15,422  | 4.6%                 | 4.0%   | -488           | -3.1%   | 3,092  | 2.6%    |
| 11-1011 | Chief Executives                                 | 430     | 391     | 0.1%                 | 0.1%   | -39            | -9.0%   | 88   | 0.1%    |
| 11-1021 | General and Operations Managers                  | 4,970   | 4,578   | 1.4%                 | 1.2%   | -392           | -7.9%   | 1,055  | 0.9%    |
| 11-2011 | Advertising and Promotions Managers              | 30      | 27      | 0.0%                 | 0.0%   | -3             | -9.2%   | 5  | 0.0%    |
| 11-2021 | Marketing Managers                               | 510     | 529     | 0.1%                 | 0.1%   | 19             | 3.7%    | 129  | 0.1%    |
| 11-2022 | Sales Managers                                   | 1,120   | 1,187   | 0.3%                 | 0.3%   | 67             | 6.0%    | 309  | 0.3%    |
| 11-2031 | Public Relations Managers                        | 130     | 136     | 0.0%                 | 0.0%   | 6              | 4.3%    | 36   | 0.0%    |
| 11-3011 | Administrative Services Managers                 | 380     | 394     | 0.1%                 | 0.1%   | 14             | 3.7%    | 94   | 0.1%    |
| 11-3021 | Computer and Information Systems Managers        | 620     | 668     | 0.2%                 | 0.2%   | 48             | 7.8%    | 149  | 0.1%    |
| 11-3031 | Financial Managers                               | 1,590   | 1,579   | 0.5%                 | 0.4%   | -11            | -0.7%   | 275  | 0.2%    |
| 11-3041 | Compensation and Benefits Managers               | 80      | 80      | 0.0%                 | 0.0%   | 0              | 0.0%    | 17   | 0.0%    |
| 11-3042 | Training and Development Managers                | 70      | 72      | 0.0%                 | 0.0%   | 2              | 3.2%    | 17   | 0.0%    |
| 11-3049 | Human Resources Managers, All Other              | 100     | 101     | 0.0%                 | 0.0%   | 1              | 0.7%    | 22   | 0.0%    |
| 11-3051 | Industrial Production Managers                   | 710     | 605     | 0.2%                 | 0.2%   | -105           | -14.9%  | 198  | 0.2%    |
| 11-3061 | Purchasing Managers                              | 180     | 169     | 0.1%                 | 0.0%   | -11            | -6.3%   | 40   | 0.0%    |
| 11-3071 | Transportation, Storage & Distribution Managers  | 310     | 271     | 0.1%                 | 0.1%   | -39            | -12.7%  | 62   | 0.1%    |
| 11-9021 | Construction Managers                            | 720     | 778     | 0.2%                 | 0.2%   | 58             | 8.1%    | 114  | 0.1%    |
| 11-9031 | Education Administrators, Preschool & Child Care | 120     | 124     | 0.0%                 | 0.0%   | 4              | 3.0%    | 40   | 0.0%    |
| 11-9032 | Education Administrators, Elementary & Secondary | 630     | 631     | 0.2%                 | 0.2%   | 1              | 0.2%    | 189  | 0.2%    |
| 11-9033 | Education Administrators, Postsecondary          | 460     | 434     | 0.1%                 | 0.1%   | -26            | -5.7%   | 112  | 0.1%    |
| 11-9039 | Education Administrators, All Other              | 40      | 46      | 0.0%                 | 0.0%   | 6              | 14.3%   | 18   | 0.0%    |
| 11-9041 | Engineering Managers                             | 270     | 264     | 0.1%                 | 0.1%   | -6             | -2.1%   | 49   | 0.0%    |
| 11-9051 | Food Service Managers                            | 380     | 369     | 0.1%                 | 0.1%   | -11            | -2.9%   | 63   | 0.1%    |
| 11-9061 | Funeral Directors                                | 150     | 155     | 0.0%                 | 0.0%   | 5              | 3.3%    | 35   | 0.0%    |
| 11-9081 | Lodging Managers                                 | 100     | 97      | 0.0%                 | 0.0%   | -3             | -3.4%   | 18   | 0.0%    |
| 11-9111 | Medical and Health Services Managers             | 610     | 653     | 0.2%                 | 0.2%   | 43             | 7.0%    | 159  | 0.1%    |

|         |  |        |        |      |      |       |        |       |      |
|---------|--|--------|--------|------|------|-------|--------|-------|------|
| 11-9121 | Natural Sciences Managers                          | 210    | 224    | 0.1% | 0.1% | 14    | 6.5%   | 76    | 0.1% |
| 11-9131 | Postmasters and Mail Superintendents               | 30     | 23     | 0.0% | 0.0% | -7    | -21.8% | 4     | 0.0% |
| 11-9141 | Property, Real Estate & Community Association Mgr  | 200    | 200    | 0.1% | 0.1% | 0     | 0.0%   | 34    | 0.0% |
| 11-9151 | Social and Community Service Managers              | 130    | 136    | 0.0% | 0.0% | 6     | 4.9%   | 36    | 0.0% |
| 11-9199 | Managers, All Other                                | 620    | 614    | 0.2% | 0.2% | -6    | -1.0%  | 154   | 0.1% |
| 13-0000 | Business and Financial Operations Occupations      | 12,840 | 15,505 | 3.7% | 4.0% | 2,665 | 20.8%  | 5,230 | 4.4% |
| 13-1022 | Wholesale and Retail Buyers, Except Farm Products  | 220    | 221    | 0.1% | 0.1% | 1     | 0.3%   | 61    | 0.1% |
| 13-1023 | Purchasing Agents, Exc Wholesale, Retail & Farm    | 870    | 1,016  | 0.2% | 0.3% | 146   | 16.8%  | 375   | 0.3% |
| 13-1031 | Claims Adjusters, Examiners, and Investigators     | 690    | 758    | 0.2% | 0.2% | 68    | 9.9%   | 243   | 0.2% |
| 13-1041 | Compliance Officers, Except Agriculture, Construct | 420    | 565    | 0.1% | 0.1% | 145   | 34.5%  | 189   | 0.2% |
| 13-1051 | Cost Estimators                                    | 470    | 604    | 0.1% | 0.2% | 134   | 28.5%  | 239   | 0.2% |
| 13-1071 | Employment, Recruitment & Placement Specialists    | 430    | 564    | 0.1% | 0.1% | 134   | 31.2%  | 247   | 0.2% |
| 13-1072 | Compensation, Benefits, Job Analysis Specialists   | 240    | 304    | 0.1% | 0.1% | 64    | 26.7%  | 127   | 0.1% |
| 13-1073 | Training and Development Specialists               | 480    | 607    | 0.1% | 0.2% | 127   | 26.5%  | 253   | 0.2% |
| 13-1079 | Human Resources, Training, & Labor Relations Spe   | 840    | 1,043  | 0.2% | 0.3% | 203   | 24.2%  | 422   | 0.4% |
| 13-1081 | Logisticians                                       | 160    | 196    | 0.0% | 0.1% | 36    | 22.6%  | 72    | 0.1% |
| 13-1111 | Management Analysts                                | 830    | 1,055  | 0.2% | 0.3% | 225   | 27.1%  | 367   | 0.3% |
| 13-1121 | Meeting and Convention Planners                    | 70     | 83     | 0.0% | 0.0% | 13    | 18.5%  | 29    | 0.0% |
| 13-1199 | Business Operations Specialists, All Other         | 2,120  | 2,426  | 0.6% | 0.6% | 306   | 14.4%  | 777   | 0.7% |
| 13-2011 | Accountants and Auditors                           | 2,330  | 2,908  | 0.7% | 0.8% | 578   | 24.8%  | 972   | 0.8% |
| 13-2021 | Appraisers and Assessors of Real Estate            | 160    | 172    | 0.0% | 0.0% | 12    | 7.3%   | 41    | 0.0% |
| 13-2031 | Budget Analysts                                    | 40     | 47     | 0.0% | 0.0% | 7     | 18.2%  | 14    | 0.0% |
| 13-2041 | Credit Analysts                                    | 70     | 83     | 0.0% | 0.0% | 13    | 18.0%  | 25    | 0.0% |
| 13-2051 | Financial Analysts                                 | 430    | 529    | 0.1% | 0.1% | 99    | 22.9%  | 177   | 0.1% |
| 13-2052 | Personal Financial Advisors                        | 330    | 441    | 0.1% | 0.1% | 111   | 33.5%  | 146   | 0.1% |
| 13-2053 | Insurance Underwriters                             | 150    | 148    | 0.0% | 0.0% | -2    | -1.6%  | 47    | 0.0% |
| 13-2071 | Loan Counselors                                    | 40     | 48     | 0.0% | 0.0% | 8     | 19.1%  | 12    | 0.0% |
| 13-2072 | Loan Officers                                      | 760    | 858    | 0.2% | 0.2% | 98    | 13.0%  | 181   | 0.2% |
| 13-2081 | Tax Examiners, Collectors, and Revenue Agents      | 160    | 186    | 0.0% | 0.0% | 26    | 16.0%  | 82    | 0.1% |
| 13-2099 | Financial Specialists, All Other                   | 440    | 499    | 0.1% | 0.1% | 59    | 13.4%  | 139   | 0.1% |
| 15-0000 | Computer and Mathematical Occupations              | 6,570  | 8,147  | 1.9% | 2.1% | 1,577 | 24.0%  | 2,793 | 2.3% |
| 15-1021 | Computer Programmers                               | 780    | 769    | 0.2% | 0.2% | -11   | -1.4%  | 158   | 0.1% |

|         |   |       |       |      |      |     |        |       |      |  |
|---------|---|-------|-------|------|------|-----|--------|-------|------|--|
| 15-1031 | Computer Software Engineers, Applications         | 1,040 | 1,414 | 0.3% | 0.4% | 374 | 36.0%  | 462   | 0.4% |  |
| 15-1032 | Computer Software Engineers, Systems Software     | 540   | 715   | 0.2% | 0.2% | 175 | 32.4%  | 220   | 0.2% |  |
| 15-1041 | Computer Support Specialists                      | 1,180 | 1,363 | 0.3% | 0.4% | 183 | 15.5%  | 509   | 0.4% |  |
| 15-1051 | Computer Systems Analysts                         | 1,210 | 1,477 | 0.3% | 0.4% | 267 | 22.1%  | 528   | 0.4% |  |
| 15-1061 | Database Administrators                           | 370   | 451   | 0.1% | 0.1% | 81  | 22.0%  | 143   | 0.1% |  |
| 15-1071 | Network and Computer Systems Administrators       | 710   | 888   | 0.2% | 0.2% | 178 | 25.1%  | 296   | 0.2% |  |
| 15-1081 | Network Systems & Data Communications Analysts    | 420   | 654   | 0.1% | 0.2% | 234 | 55.6%  | 309   | 0.3% |  |
| 15-1099 | Computer Specialists, All Other                   | 100   | 115   | 0.0% | 0.0% | 15  | 14.8%  | 36    | 0.0% |  |
| 15-2011 | Actuaries   | 70    | 86    | 0.0% | 0.0% | 16  | 23.1%  | 37    | 0.0% |  |
| 15-2031 | Operations Research Analysts                      | 120   | 149   | 0.0% | 0.0% | 29  | 23.9%  | 64    | 0.1% |  |
|         |   |       |       |      |      |     |        |       |      |  |
| 17-0000 | Architecture and Engineering Occupations          | 4,070 | 4,088 | 1.2% | 1.1% | 18  | 0.4%   | 893   | 0.7% |  |
| 17-1022 | Surveyors   | 80    | 84    | 0.0% | 0.0% | 4   | 4.7%   | 24    | 0.0% |  |
| 17-2041 | Chemical Engineers                                | 70    | 62    | 0.0% | 0.0% | -8  | -10.9% | 11    | 0.0% |  |
| 17-2051 | Civil Engineers                                   | 290   | 328   | 0.1% | 0.1% | 38  | 13.2%  | 87    | 0.1% |  |
| 17-2071 | Electrical Engineers                              | 150   | 139   | 0.0% | 0.0% | -11 | -7.4%  | 23    | 0.0% |  |
| 17-2072 | Electronics Engineers, Except Computer            | 540   | 493   | 0.2% | 0.1% | -47 | -8.7%  | 77    | 0.1% |  |
| 17-2081 | Environmental Engineers                           | 40    | 48    | 0.0% | 0.0% | 8   | 18.9%  | 16    | 0.0% |  |
| 17-2111 | Health and Safety Engineers, Except Mining Safety | 60    | 60    | 0.0% | 0.0% | 0   | 0.3%   | 16    | 0.0% |  |
| 17-2112 | Industrial Engineers                              | 580   | 603   | 0.2% | 0.2% | 23  | 4.0%   | 172   | 0.1% |  |
| 17-2131 | Materials Engineers                               | 30    | 30    | 0.0% | 0.0% | 0   | -0.7%  | 7     | 0.0% |  |
| 17-2141 | Mechanical Engineers                              | 420   | 406   | 0.1% | 0.1% | -14 | -3.4%  | 93    | 0.1% |  |
| 17-2199 | Engineers, All Other                              | 80    | 78    | 0.0% | 0.0% | -2  | -2.9%  | 14    | 0.0% |  |
| 17-3011 | Architectural and Civil Drafters                  | 160   | 159   | 0.0% | 0.0% | -1  | -0.7%  | 33    | 0.0% |  |
| 17-3012 | Electrical and Electronics Drafters               | 100   | 92    | 0.0% | 0.0% | -8  | -8.1%  | 13    | 0.0% |  |
| 17-3013 | Mechanical Drafters                               | 120   | 108   | 0.0% | 0.0% | -12 | -10.0% | 15    | 0.0% |  |
| 17-3022 | Civil Engineering Technicians                     | 230   | 245   | 0.1% | 0.1% | 15  | 6.5%   | 58    | 0.0% |  |
| 17-3023 | Electrical and Electronic Engineering Technicians | 330   | 294   | 0.1% | 0.1% | -36 | -10.9% | 34    | 0.0% |  |
| 17-3026 | Industrial Engineering Technicians                | 150   | 146   | 0.0% | 0.0% | -4  | -2.9%  | 24    | 0.0% |  |
| 17-3027 | Mechanical Engineering Technicians                | 130   | 117   | 0.0% | 0.0% | -13 | -10.1% | 13    | 0.0% |  |
| 17-3029 | Engineering Technicians, Exc. Drafters, All Other | 40    | 38    | 0.0% | 0.0% | -2  | -4.2%  | 6     | 0.0% |  |
| 17-3031 | Surveying and Mapping Technicians                 | 220   | 241   | 0.1% | 0.1% | 21  | 9.7%   | 60    | 0.1% |  |
|         |   |       |       |      |      |     |        |       |      |  |
| 19-0000 | Life, Physical, and Social Science Occupations    | 2,470 | 2,894 | 0.7% | 0.8% | 424 | 17.2%  | 1,164 | 1.0% |  |

|         |   |        |        |      |      |       |       |       |      |
|---------|---|--------|--------|------|------|-------|-------|-------|------|
| 19-2031 | Chemists  | 410    | 414    | 0.1% | 0.1% | 4     | 0.9%  | 140   | 0.1% |
| 19-2032 | Materials Scientists                                  | 160    | 177    | 0.0% | 0.0% | 17    | 10.7% | 70    | 0.1% |
| 19-2041 | Environmental Scientists and Specialists, Includin    | 220    | 277    | 0.1% | 0.1% | 57    | 25.9% | 120   | 0.1% |
| 19-3021 | Market Research Analysts                              | 610    | 769    | 0.2% | 0.2% | 159   | 26.1% | 323   | 0.3% |
| 19-3031 | Clinical, Counseling, and School Psychologists        | 170    | 186    | 0.0% | 0.0% | 16    | 9.4%  | 64    | 0.1% |
| 19-3051 | Urban and Regional Planners                           | 60     | 70     | 0.0% | 0.0% | 10    | 17.2% | 22    | 0.0% |
| 19-4031 | Chemical Technicians                                  | 230    | 224    | 0.1% | 0.1% | -6    | -2.4% | 43    | 0.0% |
| 19-4061 | Social Science Research Assistants                    | 80     | 93     | 0.0% | 0.0% | 13    | 15.8% | 47    | 0.0% |
| 19-4099 | Life, Physical & Social Science Technicians, Other    | 50     | 56     | 0.0% | 0.0% | 6     | 11.6% | 27    | 0.0% |
| 21-0000 | Community and Social Services Occupations             | 3,670  | 4,565  | 1.1% | 1.2% | 895   | 24.4% | 1,682 | 1.4% |
| 21-1011 | Substance Abuse & Behavioral Disorder Counselors      | 100    | 129    | 0.0% | 0.0% | 29    | 29.3% | 49    | 0.0% |
| 21-1012 | Educational, Vocational, and School Counselors        | 420    | 511    | 0.1% | 0.1% | 91    | 21.8% | 176   | 0.1% |
| 21-1014 | Mental Health Counselors                              | 140    | 185    | 0.0% | 0.0% | 45    | 32.4% | 74    | 0.1% |
| 21-1015 | Rehabilitation Counselors                             | 170    | 216    | 0.0% | 0.1% | 46    | 27.1% | 80    | 0.1% |
| 21-1021 | Child, Family, and School Social Workers              | 830    | 996    | 0.2% | 0.3% | 166   | 20.0% | 374   | 0.3% |
| 21-1022 | Medical and Public Health Social Workers              | 260    | 340    | 0.1% | 0.1% | 80    | 30.8% | 145   | 0.1% |
| 21-1023 | Mental Health and Substance Abuse Social Workers      | 350    | 447    | 0.1% | 0.1% | 97    | 27.7% | 185   | 0.2% |
| 21-1091 | Health Educators                                      | 130    | 164    | 0.0% | 0.0% | 34    | 26.2% | 62    | 0.1% |
| 21-1093 | Social and Human Service Assistants                   | 790    | 1,034  | 0.2% | 0.3% | 244   | 30.9% | 411   | 0.3% |
| 21-1099 | Community and Social Service Specialists, Other       | 180    | 222    | 0.1% | 0.1% | 42    | 23.6% | 81    | 0.1% |
| 21-2011 | Clergy  | 40     | 48     | 0.0% | 0.0% | 8     | 20.4% | 16    | 0.0% |
| 23-0000 | Legal Occupations                                     | 1,390  | 1,867  | 0.4% | 0.5% | 477   | 34.3% | 709   | 0.6% |
| 23-1011 | Lawyers   | 680    | 897    | 0.2% | 0.2% | 217   | 31.9% | 344   | 0.3% |
| 23-2011 | Paralegals and Legal Assistants                       | 530    | 793    | 0.2% | 0.2% | 263   | 49.6% | 323   | 0.3% |
| 23-2099 | Legal Support Workers, All Other                      | 60     | 78     | 0.0% | 0.0% | 18    | 29.6% | 27    | 0.0% |
| 25-0000 | Education, Training, and Library Occupations          | 20,780 | 23,552 | 6.0% | 6.1% | 2,772 | 13.3% | 7,302 | 6.1% |
| 25-2011 | Preschool Teachers, Except Special Education          | 1,130  | 1,332  | 0.3% | 0.3% | 202   | 17.9% | 428   | 0.4% |
| 25-2012 | Kindergarten Teachers, Except Special Education       | 340    | 388    | 0.1% | 0.1% | 48    | 14.0% | 116   | 0.1% |
| 25-2021 | Elementary School Teachers, Exc. Special Educ.        | 2,370  | 2,719  | 0.7% | 0.7% | 349   | 14.7% | 887   | 0.7% |
| 25-2022 | Middle School Teachers, Except Special and Vocational | 2,220  | 2,537  | 0.6% | 0.7% | 317   | 14.3% | 822   | 0.7% |
| 25-2023 | Vocational Education Teachers, Middle School          | 230    | 235    | 0.1% | 0.1% | 5     | 2.3%  | 58    | 0.0% |

|         |  |       |       |      |      |     |        |       |      |
|---------|--|-------|-------|------|------|-----|--------|-------|------|
| 25-2031 | Secondary Sch. Teachers, Except Special & Vocational | 1,420 | 1,532 | 0.4% | 0.4% | 112 | 7.9%   | 524   | 0.4% |
| 25-2041 | Special Education Teachers, Preschool, Kindergarten  | 900   | 1,067 | 0.3% | 0.3% | 167 | 18.5%  | 400   | 0.3% |
| 25-2042 | Special Education Teachers, Middle School            | 510   | 597   | 0.1% | 0.2% | 87  | 17.0%  | 219   | 0.2% |
| 25-2043 | Special Education Teachers, Secondary School         | 360   | 404   | 0.1% | 0.1% | 44  | 12.3%  | 137   | 0.1% |
| 25-3011 | Adult Literacy, Remedial Education, & GED Teachers   | 490   | 558   | 0.1% | 0.1% | 68  | 14.0%  | 144   | 0.1% |
| 25-3021 | Self-Enrichment Education Teachers                   | 220   | 288   | 0.1% | 0.1% | 68  | 30.9%  | 102   | 0.1% |
| 25-3099 | Teachers and Instructors, All Other                  | 2,170 | 2,467 | 0.6% | 0.6% | 297 | 13.7%  | 631   | 0.5% |
| 25-4012 | Curators   | 60    | 73    | 0.0% | 0.0% | 13  | 22.0%  | 31    | 0.0% |
| 25-4021 | Librarians   | 420   | 449   | 0.1% | 0.1% | 29  | 6.8%   | 139   | 0.1% |
| 25-4031 | Library Technicians                                  | 160   | 172   | 0.0% | 0.0% | 12  | 7.8%   | 84    | 0.1% |
| 25-9031 | Instructional Coordinators                           | 380   | 464   | 0.1% | 0.1% | 84  | 22.1%  | 168   | 0.1% |
| 25-9041 | Teacher Assistants                                   | 2,770 | 3,027 | 0.8% | 0.8% | 257 | 9.3%   | 843   | 0.7% |
| 25-9099 | Education, Training, & Library Workers, All Other    | 370   | 425   | 0.1% | 0.1% | 55  | 14.7%  | 136   | 0.1% |
| 27-0000 | Arts, Design, Entertainment, Sports, and Media Occs. | 3,430 | 3,606 | 1.0% | 0.9% | 176 | 5.1%   | 1,049 | 0.9% |
| 27-1011 | Art Directors  | 60    | 63    | 0.0% | 0.0% | 3   | 4.7%   | 16    | 0.0% |
| 27-1021 | Commercial and Industrial Designers                  | 160   | 164   | 0.0% | 0.0% | 4   | 2.2%   | 53    | 0.0% |
| 27-1022 | Fashion designers                                    | 60    | 57    | 0.0% | 0.0% | -3  | -5.4%  | 15    | 0.0% |
| 27-1023 | Floral Designers                                     | 150   | 137   | 0.0% | 0.0% | -13 | -8.6%  | 37    | 0.0% |
| 27-1024 | Graphic Designers                                    | 600   | 635   | 0.2% | 0.2% | 35  | 5.9%   | 219   | 0.2% |
| 27-1025 | Interior Designers                                   | 180   | 201   | 0.1% | 0.1% | 21  | 11.9%  | 77    | 0.1% |
| 27-1026 | Merchandise Displayers and Window Trimmers           | 70    | 70    | 0.0% | 0.0% | 0   | 0.4%   | 22    | 0.0% |
| 27-1027 | Set and Exhibit Designers                            | 50    | 55    | 0.0% | 0.0% | 5   | 9.2%   | 20    | 0.0% |
| 27-2011 | Actors   | 50    | 53    | 0.0% | 0.0% | 3   | 5.7%   | 15    | 0.0% |
| 27-2012 | Producers and Directors                              | 100   | 103   | 0.0% | 0.0% | 3   | 3.0%   | 34    | 0.0% |
| 27-2022 | Coaches and Scouts                                   | 310   | 363   | 0.1% | 0.1% | 53  | 17.0%  | 112   | 0.1% |
| 27-2042 | Musicians and Singers                                | 90    | 91    | 0.0% | 0.0% | 1   | 0.9%   | 19    | 0.0% |
| 27-3011 | Radio and Television Announcers                      | 80    | 70    | 0.0% | 0.0% | -10 | -12.0% | 18    | 0.0% |
| 27-3022 | Reporters and Correspondents                         | 110   | 95    | 0.0% | 0.0% | -15 | -13.4% | 24    | 0.0% |
| 27-3031 | Public Relations Specialists                         | 260   | 302   | 0.1% | 0.1% | 42  | 16.3%  | 104   | 0.1% |
| 27-3041 | Editors  | 150   | 140   | 0.0% | 0.0% | -10 | -6.5%  | 30    | 0.0% |
| 27-3042 | Technical Writers                                    | 40    | 44    | 0.0% | 0.0% | 4   | 10.8%  | 11    | 0.0% |
| 27-3043 | Writers and Authors                                  | 100   | 108   | 0.0% | 0.0% | 8   | 7.6%   | 29    | 0.0% |
| 27-3091 | Interpreters and Translators                         | 120   | 137   | 0.0% | 0.0% | 17  | 14.6%  | 46    | 0.0% |

|         |  |        |        |      |      |       |       |       |      |
|---------|--|--------|--------|------|------|-------|-------|-------|------|
| 27-3099 | Media and Communication Workers, All Other         | 50     | 52     | 0.0% | 0.0% | 2     | 3.6%  | 14    | 0.0% |
| 27-4011 | Audio and Video Equipment Technicians              | 100    | 106    | 0.0% | 0.0% | 6     | 5.6%  | 36    | 0.0% |
| 27-4012 | Broadcast Technicians                              | 80     | 76     | 0.0% | 0.0% | -4    | -4.8% | 20    | 0.0% |
| 27-4021 | Photographers                                      | 230    | 240    | 0.1% | 0.1% | 10    | 4.5%  | 57    | 0.0% |
| 29-0000 | Healthcare Practitioners and Technical Occupations | 17,570 | 22,339 | 5.0% | 5.8% | 4,769 | 27.1% | 8,380 | 7.0% |
| 29-1021 | Dentists, General                                  | 180    | 217    | 0.1% | 0.1% | 37    | 20.8% | 87    | 0.1% |
| 29-1031 | Dietitians and Nutritionists                       | 100    | 114    | 0.0% | 0.0% | 14    | 14.3% | 48    | 0.0% |
| 29-1041 | Optometrists                                       | 50     | 65     | 0.0% | 0.0% | 15    | 30.1% | 32    | 0.0% |
| 29-1051 | Pharmacists  | 610    | 748    | 0.2% | 0.2% | 138   | 22.6% | 273   | 0.2% |
| 29-1071 | Physician Assistants                               | 330    | 480    | 0.1% | 0.1% | 150   | 45.5% | 211   | 0.2% |
| 29-1111 | Registered Nurses                                  | 6,580  | 8,425  | 1.9% | 2.2% | 1,845 | 28.0% | 2,994 | 2.5% |
| 29-1122 | Occupational Therapists                            | 170    | 224    | 0.0% | 0.1% | 54    | 31.6% | 85    | 0.1% |
| 29-1123 | Physical Therapists                                | 330    | 450    | 0.1% | 0.1% | 120   | 36.5% | 160   | 0.1% |
| 29-1124 | Radiation therapists                               | 40     | 53     | 0.0% | 0.0% | 13    | 33.7% | 21    | 0.0% |
| 29-1125 | Recreational Therapists                            | 30     | 36     | 0.0% | 0.0% | 6     | 20.1% | 17    | 0.0% |
| 29-1126 | Respiratory Therapists                             | 310    | 393    | 0.1% | 0.1% | 83    | 26.7% | 139   | 0.1% |
| 29-1127 | Speech-Language Pathologists                       | 380    | 472    | 0.1% | 0.1% | 92    | 24.2% | 161   | 0.1% |
| 29-1131 | Veterinarians                                      | 190    | 265    | 0.1% | 0.1% | 75    | 39.3% | 108   | 0.1% |
| 29-2011 | Medical and Clinical Laboratory Technologists      | 240    | 281    | 0.1% | 0.1% | 41    | 17.3% | 87    | 0.1% |
| 29-2012 | Medical and Clinical Laboratory Technicians        | 470    | 572    | 0.1% | 0.1% | 102   | 21.7% | 191   | 0.2% |
| 29-2021 | Dental Hygienists                                  | 510    | 727    | 0.1% | 0.2% | 217   | 42.6% | 321   | 0.3% |
| 29-2031 | Cardiovascular Technologists and Technicians       | 180    | 234    | 0.1% | 0.1% | 54    | 30.0% | 80    | 0.1% |
| 29-2032 | Diagnostic Medical Sonographers                    | 140    | 174    | 0.0% | 0.0% | 34    | 23.9% | 54    | 0.0% |
| 29-2033 | Nuclear Medicine Technologists                     | 40     | 49     | 0.0% | 0.0% | 9     | 22.1% | 15    | 0.0% |
| 29-2034 | Radiologic Technologists and Technicians           | 690    | 847    | 0.2% | 0.2% | 157   | 22.8% | 257   | 0.2% |
| 29-2041 | Emergency Medical Technicians and Paramedics       | 540    | 617    | 0.2% | 0.2% | 77    | 14.2% | 187   | 0.2% |
| 29-2052 | Pharmacy Technicians                               | 980    | 1,340  | 0.3% | 0.3% | 360   | 36.8% | 608   | 0.5% |
| 29-2053 | Psychiatric Technicians                            | 30     | 33     | 0.0% | 0.0% | 3     | 9.2%  | 10    | 0.0% |
| 29-2055 | Surgical Technologists                             | 280    | 368    | 0.1% | 0.1% | 88    | 31.3% | 158   | 0.1% |
| 29-2056 | Veterinary Technologists and Technicians           | 190    | 270    | 0.1% | 0.1% | 80    | 42.3% | 128   | 0.1% |
| 29-2061 | Licensed Practical and Licensed Vocational Nurses  | 1,200  | 1,517  | 0.3% | 0.4% | 317   | 26.4% | 692   | 0.6% |
| 29-2071 | Medical Records and Health Information Technicians | 290    | 366    | 0.1% | 0.1% | 76    | 26.1% | 135   | 0.1% |
| 29-2081 | Opticians, Dispensing                              | 240    | 285    | 0.1% | 0.1% | 45    | 18.8% | 94    | 0.1% |

|         |  |        |        |      |      |       |       |       |      |
|---------|--|--------|--------|------|------|-------|-------|-------|------|
| 29-2099 | Health Technologists and Technicians, All Other    | 150    | 187    | 0.0% | 0.0% | 37    | 24.4% | 67    | 0.1% |
| 29-9011 | Occupational Health and Safety Specialists         | 80     | 93     | 0.0% | 0.0% | 13    | 16.4% | 40    | 0.0% |
| 29-9099 | Healthcare Practitioners & Tech. Workers, Other    | 160    | 194    | 0.0% | 0.1% | 34    | 21.5% | 88    | 0.1% |
| 31-0000 | Healthcare Support Occupations                     | 11,450 | 15,448 | 3.3% | 4.0% | 3,998 | 34.9% | 5,287 | 4.4% |
| 31-1011 | Home Health Aides                                  | 5,690  | 8,940  | 1.6% | 2.3% | 3,250 | 57.1% | 3,817 | 3.2% |
| 31-1012 | Nursing Aides, Orderlies, and Attendants           | 1,970  | 2,451  | 0.6% | 0.6% | 481   | 24.4% | 677   | 0.6% |
| 31-1013 | Psychiatric aides                                  | 100    | 111    | 0.0% | 0.0% | 11    | 10.8% | 21    | 0.0% |
| 31-2011 | Occupational Therapist Assistants                  | 100    | 136    | 0.0% | 0.0% | 36    | 36.2% | 51    | 0.0% |
| 31-2021 | Physical Therapist Assistants                      | 180    | 251    | 0.1% | 0.1% | 71    | 39.6% | 97    | 0.1% |
| 31-2022 | Physical Therapist Aides                           | 70     | 100    | 0.0% | 0.0% | 30    | 42.7% | 40    | 0.0% |
| 31-9011 | Massage Therapists                                 | 100    | 125    | 0.0% | 0.0% | 25    | 24.6% | 38    | 0.0% |
| 31-9091 | Dental Assistants                                  | 570    | 811    | 0.2% | 0.2% | 241   | 42.2% | 347   | 0.3% |
| 31-9092 | Medical Assistants                                 | 1,070  | 1,501  | 0.3% | 0.4% | 431   | 40.2% | 550   | 0.5% |
| 31-9093 | Medical Equipment Preparers                        | 140    | 165    | 0.0% | 0.0% | 25    | 18.2% | 41    | 0.0% |
| 31-9094 | Medical Transcriptionists                          | 200    | 233    | 0.1% | 0.1% | 33    | 16.4% | 55    | 0.0% |
| 31-9096 | Veterinary Asst. and Laboratory Animal Caretakers  | 110    | 142    | 0.0% | 0.0% | 32    | 28.7% | 44    | 0.0% |
| 31-9099 | Healthcare Support Workers, All Other              | 1,130  | 1,387  | 0.3% | 0.4% | 257   | 22.7% | 382   | 0.3% |
| 33-0000 | Protective Service Occupations                     | 6,820  | 8,102  | 2.0% | 2.1% | 1,282 | 18.8% | 3,166 | 2.7% |
| 33-1011 | First-Line Super./Man. of Correctional Officers    | 80     | 92     | 0.0% | 0.0% | 12    | 14.8% | 41    | 0.0% |
| 33-1012 | First-Line Super./Man. of Police & Detectives      | 240    | 275    | 0.1% | 0.1% | 35    | 14.4% | 140   | 0.1% |
| 33-1021 | First-Line Supervisors/Managers of Fire Fighting a | 240    | 275    | 0.1% | 0.1% | 35    | 14.5% | 156   | 0.1% |
| 33-1099 | First-Line Supervisors/Managers, Protective Servic | 150    | 178    | 0.0% | 0.0% | 28    | 18.6% | 82    | 0.1% |
| 33-2011 | Fire Fighters                                      | 990    | 1,242  | 0.3% | 0.3% | 252   | 25.4% | 556   | 0.5% |
| 33-2021 | Fire Inspectors and Investigators                  | 30     | 35     | 0.0% | 0.0% | 5     | 15.9% | 13    | 0.0% |
| 33-3012 | Correctional Officers and Jailers                  | 530    | 614    | 0.2% | 0.2% | 84    | 15.9% | 201   | 0.2% |
| 33-3021 | Detectives and Criminal Investigators              | 320    | 395    | 0.1% | 0.1% | 75    | 23.5% | 140   | 0.1% |
| 33-3051 | Police and Sheriff's Patrol Officers               | 1,370  | 1,576  | 0.4% | 0.4% | 206   | 15.0% | 559   | 0.5% |
| 33-9011 | Animal Control Workers                             | 40     | 46     | 0.0% | 0.0% | 6     | 15.0% | 17    | 0.0% |
| 33-9032 | Security Guards                                    | 2,420  | 2,924  | 0.7% | 0.8% | 504   | 20.8% | 1,002 | 0.8% |
| 33-9092 | Lifeguards, Ski Patrol, and Other Recreational Pro | 200    | 236    | 0.1% | 0.1% | 36    | 17.8% | 171   | 0.1% |
| 33-9099 | Protective Service Workers, All Other              | 150    | 181    | 0.0% | 0.0% | 31    | 20.7% | 132   | 0.1% |

|         |   |        |        |      |      |       |       |        |       |
|---------|---|--------|--------|------|------|-------|-------|--------|-------|
| 35-0000 | Food Preparation and Serving Related Occupations    | 28,910 | 32,668 | 8.3% | 8.5% | 3,758 | 13.0% | 14,001 | 11.7% |
| 35-1011 | Chefs and Head Cooks                                | 150    | 156    | 0.0% | 0.0% | 6     | 4.1%  | 21     | 0.0%  |
| 35-1012 | First-Line Supervisors/Managers of Food Preparation | 2,400  | 2,660  | 0.7% | 0.7% | 260   | 10.8% | 488    | 0.4%  |
| 35-2012 | Cooks, Institution and Cafeteria                    | 610    | 695    | 0.2% | 0.2% | 85    | 14.0% | 241    | 0.2%  |
| 35-2014 | Cooks, Restaurant                                   | 2,260  | 2,529  | 0.6% | 0.7% | 269   | 11.9% | 848    | 0.7%  |
| 35-2015 | Cooks, Short Order                                  | 550    | 572    | 0.2% | 0.1% | 22    | 4.0%  | 163    | 0.1%  |
| 35-2021 | Food Preparation Workers                            | 2,660  | 2,882  | 0.8% | 0.7% | 222   | 8.3%  | 1,174  | 1.0%  |
| 35-3011 | Bartenders  | 740    | 831    | 0.2% | 0.2% | 91    | 12.3% | 354    | 0.3%  |
| 35-3021 | Combined Food Preparation and Serving Workers, Inc  | 9,270  | 11,041 | 2.7% | 2.9% | 1,771 | 19.1% | 3,737  | 3.1%  |
| 35-3022 | Counter Attendants, Cafeteria, Food Concession, an  | 580    | 659    | 0.2% | 0.2% | 79    | 13.6% | 505    | 0.4%  |
| 35-3031 | Waiters and Waitresses                              | 5,840  | 6,456  | 1.7% | 1.7% | 616   | 10.6% | 3,840  | 3.2%  |
| 35-3041 | Food Servers, Non-restaurant                        | 550    | 630    | 0.2% | 0.2% | 80    | 14.5% | 174    | 0.1%  |
| 35-9011 | Dining Room & Cafeteria Attendants & Bartenders     | 680    | 746    | 0.2% | 0.2% | 66    | 9.7%  | 361    | 0.3%  |
| 35-9021 | Dishwashers   | 1,380  | 1,600  | 0.4% | 0.4% | 220   | 16.0% | 788    | 0.7%  |
| 35-9031 | Host & Hostess, Restaurant, Lounge & Coffee Shop    | 630    | 697    | 0.2% | 0.2% | 67    | 10.7% | 506    | 0.4%  |
| 37-0000 | Building & Grounds Cleaning & Maintenance Occs.     | 10,160 | 11,186 | 2.9% | 2.9% | 1,026 | 10.1% | 2,712  | 2.3%  |
| 37-1011 | First-Line Supervisors/Managers of Housekeeping     | 560    | 597    | 0.2% | 0.2% | 37    | 6.7%  | 96     | 0.1%  |
| 37-1012 | First-Line Supervisors/Managers of Landscaping      | 260    | 303    | 0.1% | 0.1% | 43    | 16.6% | 71     | 0.1%  |
| 37-2011 | Janitors and Cleaners, Except Maids & Housekeepi    | 5,550  | 5,881  | 1.6% | 1.5% | 331   | 6.0%  | 1,380  | 1.2%  |
| 37-2012 | Maids and Housekeeping Cleaners                     | 1,850  | 1,985  | 0.5% | 0.5% | 135   | 7.3%  | 467    | 0.4%  |
| 37-2021 | Pest Control Workers                                | 150    | 176    | 0.0% | 0.0% | 26    | 17.0% | 78     | 0.1%  |
| 37-3011 | Landscaping and Grounds Keeping Workers             | 1,690  | 2,025  | 0.5% | 0.5% | 335   | 19.8% | 538    | 0.5%  |
| 39-0000 | Personal Care and Service Occupations               | 6,630  | 8,045  | 1.9% | 2.1% | 1,415 | 21.3% | 3,062  | 2.6%  |
| 39-1021 | First-Line Super./Manag., Personal Service Workers  | 320    | 372    | 0.1% | 0.1% | 52    | 16.2% | 139    | 0.1%  |
| 39-2021 | Non-farm Animal Caretakers                          | 570    | 693    | 0.2% | 0.2% | 123   | 21.6% | 247    | 0.2%  |
| 39-3031 | Ushers, Lobby Attendants, and Ticket Takers         | 120    | 138    | 0.0% | 0.0% | 18    | 14.6% | 94     | 0.1%  |
| 39-3091 | Amusement and Recreation Attendants                 | 560    | 639    | 0.2% | 0.2% | 79    | 14.2% | 369    | 0.3%  |
| 39-4021 | Funeral Attendants                                  | 120    | 153    | 0.0% | 0.0% | 33    | 27.3% | 90     | 0.1%  |
| 39-5012 | Hairdressers, Hairstylists, and Cosmetologists      | 640    | 775    | 0.2% | 0.2% | 135   | 21.0% | 229    | 0.2%  |
| 39-6021 | Tour Guides and Escorts                             | 80     | 90     | 0.0% | 0.0% | 10    | 12.6% | 44     | 0.0%  |
| 39-6032 | Trans. attds, except flight attds & baggage porters | 50     | 57     | 0.0% | 0.0% | 7     | 14.2% | 18     | 0.0%  |
| 39-9011 | Child Care Workers                                  | 1,000  | 1,117  | 0.3% | 0.3% | 117   | 11.7% | 410    | 0.3%  |

|         |   |        |        |       |       |       |       |        |       |
|---------|---|--------|--------|-------|-------|-------|-------|--------|-------|
| 39-9021 | Personal and Home Care Aides                        | 1,400  | 2,059  | 0.4%  | 0.5%  | 659   | 47.1% | 834    | 0.7%  |
| 39-9031 | Fitness Trainers and Aerobics Instructors           | 690    | 900    | 0.2%  | 0.2%  | 210   | 30.4% | 334    | 0.3%  |
| 39-9032 | Recreation Workers                                  | 600    | 694    | 0.2%  | 0.2%  | 94    | 15.6% | 202    | 0.2%  |
| 39-9041 | Residential Advisors                                | 70     | 77     | 0.0%  | 0.0%  | 7     | 9.8%  | 32     | 0.0%  |
| 41-0000 | Sales and Related Occupations                       | 35,500 | 38,789 | 10.2% | 10.1% | 3,289 | 9.3%  | 13,853 | 11.6% |
| 41-1011 | First-Line Supers./Managers of Retail Sales Work    | 3,740  | 4,051  | 1.1%  | 1.1%  | 311   | 8.3%  | 1,114  | 0.9%  |
| 41-1012 | First-Line Supers./Manag., Non-Retail Sales Workers | 840    | 906    | 0.2%  | 0.2%  | 66    | 7.9%  | 240    | 0.2%  |
| 41-2011 | Cashiers  | 7,470  | 7,960  | 2.1%  | 2.1%  | 490   | 6.6%  | 3,845  | 3.2%  |
| 41-2021 | Counter and Rental Clerks                           | 1,140  | 1,209  | 0.3%  | 0.3%  | 69    | 6.1%  | 374    | 0.3%  |
| 41-2022 | Parts Salespersons                                  | 670    | 696    | 0.2%  | 0.2%  | 26    | 3.9%  | 263    | 0.2%  |
| 41-2031 | Retail Salespersons                                 | 10,430 | 11,630 | 3.0%  | 3.0%  | 1,200 | 11.5% | 4,110  | 3.4%  |
| 41-3011 | Advertising Sales Agents                            | 510    | 563    | 0.1%  | 0.1%  | 53    | 10.4% | 154    | 0.1%  |
| 41-3021 | Insurance Sales Agents                              | 780    | 898    | 0.2%  | 0.2%  | 118   | 15.1% | 299    | 0.3%  |
| 41-3031 | Securities, Commodities, and Financial Sales        | 350    | 394    | 0.1%  | 0.1%  | 44    | 12.5% | 151    | 0.1%  |
| 41-3041 | Travel Agents                                       | 80     | 81     | 0.0%  | 0.0%  | 1     | 1.7%  | 8      | 0.0%  |
| 41-3099 | Sales Representatives, Services, All Other          | 1,490  | 1,746  | 0.4%  | 0.5%  | 256   | 17.2% | 626    | 0.5%  |
| 41-4011 | Sales Representatives, Wholesale & Manufacturing    | 1,550  | 1,750  | 0.4%  | 0.5%  | 200   | 12.9% | 559    | 0.5%  |
| 41-4012 | Sales Representatives, Wholesale and Manufacturing  | 4,810  | 5,275  | 1.4%  | 1.4%  | 465   | 9.7%  | 1,580  | 1.3%  |
| 41-9021 | Real Estate Brokers                                 | 510    | 570    | 0.1%  | 0.1%  | 60    | 11.8% | 143    | 0.1%  |
| 41-9022 | Real Estate Sales Agents                            | 340    | 407    | 0.1%  | 0.1%  | 67    | 19.6% | 122    | 0.1%  |
| 41-9031 | Sales Engineers                                     | 140    | 157    | 0.0%  | 0.0%  | 17    | 12.0% | 67     | 0.1%  |
| 41-9041 | Telemarketers                                       | 160    | 146    | 0.0%  | 0.0%  | -14   | -8.5% | 44     | 0.0%  |
| 41-9099 | Sales and Related Workers, All Other                | 220    | 244    | 0.1%  | 0.1%  | 24    | 10.8% | 73     | 0.1%  |
| 43-0000 | Office and Administrative Support Occupations       | 62,550 | 71,086 | 17.9% | 18.5% | 8,536 | 13.6% | 22,583 | 18.9% |
| 43-1011 | First-Line Supervisors/Managers of Office and Adm.  | 4,040  | 4,735  | 1.2%  | 1.2%  | 695   | 17.2% | 1,606  | 1.3%  |
| 43-2011 | Switchboard Operators, Including Answering Ser      | 400    | 376    | 0.1%  | 0.1%  | -24   | -5.9% | 103    | 0.1%  |
| 43-3011 | Bill and Account Collectors                         | 2,570  | 3,238  | 0.7%  | 0.8%  | 668   | 26.0% | 1,152  | 1.0%  |
| 43-3021 | Billing and Posting Clerks and Machine Operators    | 1,380  | 1,680  | 0.4%  | 0.4%  | 300   | 21.7% | 526    | 0.4%  |
| 43-3031 | Bookkeeping, Accounting, and Auditing Clerks        | 4,140  | 4,821  | 1.2%  | 1.3%  | 681   | 16.4% | 1,178  | 1.0%  |
| 43-3051 | Payroll and Timekeeping Clerks                      | 470    | 470    | 0.1%  | 0.1%  | 0     | 0.0%  | 136    | 0.1%  |
| 43-3061 | Procurement Clerks                                  | 200    | 223    | 0.1%  | 0.1%  | 23    | 11.7% | 85     | 0.1%  |
| 43-3071 | Tellers   | 1,210  | 1,357  | 0.3%  | 0.4%  | 147   | 12.2% | 645    | 0.5%  |

|         |   |        |        |      |      |       |        |       |      |
|---------|---|--------|--------|------|------|-------|--------|-------|------|
| 43-4031 | Court, Municipal, and License Clerks              | 130    | 148    | 0.0% | 0.0% | 18    | 14.2%  | 55    | 0.0% |
| 43-4041 | Credit Authorizers, Checkers, and Clerks          | 190    | 206    | 0.1% | 0.1% | 16    | 8.6%   | 70    | 0.1% |
| 43-4051 | Customer Service Representatives                  | 11,260 | 13,996 | 3.2% | 3.6% | 2,736 | 24.3%  | 6,280 | 5.3% |
| 43-4061 | Eligibility Interviewers, Government Programs     | 470    | 542    | 0.1% | 0.1% | 72    | 15.3%  | 181   | 0.2% |
| 43-4071 | File Clerks                                       | 260    | 210    | 0.1% | 0.1% | -50   | -19.1% | 74    | 0.1% |
| 43-4081 | Hotel, Motel, and Resort Desk Clerks              | 530    | 636    | 0.2% | 0.2% | 106   | 20.0%  | 286   | 0.2% |
| 43-4111 | Interviewers, Except Eligibility and Loan         | 490    | 598    | 0.1% | 0.2% | 108   | 22.1%  | 225   | 0.2% |
| 43-4121 | Library Assistants, Clerical                      | 160    | 188    | 0.0% | 0.0% | 28    | 17.3%  | 94    | 0.1% |
| 43-4131 | Loan Interviewers and Clerks                      | 590    | 650    | 0.2% | 0.2% | 60    | 10.1%  | 205   | 0.2% |
| 43-4141 | New Accounts Clerks                               | 160    | 169    | 0.0% | 0.0% | 9     | 5.7%   | 55    | 0.0% |
| 43-4151 | Order Clerks                                      | 600    | 468    | 0.2% | 0.1% | -132  | -22.0% | 195   | 0.2% |
| 43-4161 | Human Resources Assistants, Except Payroll        | 410    | 408    | 0.1% | 0.1% | -2    | -0.5%  | 138   | 0.1% |
| 43-4171 | Receptionists and Information Clerks              | 2,960  | 3,599  | 0.8% | 0.9% | 639   | 21.6%  | 1,438 | 1.2% |
| 43-4181 | Reservation and Transportation Ticket Agents      | 320    | 365    | 0.1% | 0.1% | 45    | 14.1%  | 117   | 0.1% |
| 43-4199 | Information and Record Clerks, All Other          | 370    | 344    | 0.1% | 0.1% | -26   | -6.9%  | 123   | 0.1% |
| 43-5011 | Cargo and Freight Agents                          | 200    | 262    | 0.1% | 0.1% | 62    | 30.9%  | 108   | 0.1% |
| 43-5021 | Couriers and Messengers                           | 280    | 295    | 0.1% | 0.1% | 15    | 5.2%   | 80    | 0.1% |
| 43-5031 | Police, Fire, and Ambulance Dispatchers           | 230    | 286    | 0.1% | 0.1% | 56    | 24.4%  | 104   | 0.1% |
| 43-5032 | Dispatchers, Except Police, Fire, and Ambulance   | 410    | 422    | 0.1% | 0.1% | 12    | 2.9%   | 107   | 0.1% |
| 43-5041 | Meter Readers, Utilities                          | 130    | 110    | 0.0% | 0.0% | -20   | -15.4% | 42    | 0.0% |
| 43-5051 | Postal Service Clerks                             | 190    | 164    | 0.1% | 0.0% | -26   | -13.5% | 49    | 0.0% |
| 43-5052 | Postal Service Mail Carriers                      | 850    | 887    | 0.2% | 0.2% | 37    | 4.4%   | 312   | 0.3% |
| 43-5053 | Postal Service Mail Sorters, Processors, and PMOs | 1,070  | 787    | 0.3% | 0.2% | -283  | -26.5% | 140   | 0.1% |
| 43-5061 | Production, Planning, and Expediting Clerks       | 920    | 986    | 0.3% | 0.3% | 66    | 7.2%   | 293   | 0.2% |
| 43-5071 | Shipping, Receiving, and Traffic Clerks           | 2,840  | 2,801  | 0.8% | 0.7% | -39   | -1.4%  | 853   | 0.7% |
| 43-5081 | Stock Clerks and Order Fillers                    | 4,580  | 5,185  | 1.3% | 1.3% | 605   | 13.2%  | 1,660 | 1.4% |
| 43-5111 | Weighers, Measurers, Checkers, and Samplers       | 350    | 321    | 0.1% | 0.1% | -29   | -8.4%  | 139   | 0.1% |
| 43-6011 | Executive Secretaries & Administrative Assistants | 3,430  | 4,086  | 1.0% | 1.1% | 656   | 19.1%  | 1,118 | 0.9% |
| 43-6012 | Legal Secretaries                                 | 270    | 338    | 0.1% | 0.1% | 68    | 25.0%  | 104   | 0.1% |
| 43-6013 | Medical Secretaries                               | 610    | 816    | 0.2% | 0.2% | 206   | 33.7%  | 288   | 0.2% |
| 43-6014 | Secretaries, Except Legal, Medical, and Executive | 4,460  | 4,926  | 1.3% | 1.3% | 466   | 10.5%  | 1,067 | 0.9% |
| 43-9011 | Computer Operators                                | 190    | 163    | 0.1% | 0.0% | -27   | -14.1% | 30    | 0.0% |
| 43-9021 | Data Entry Keyers                                 | 800    | 793    | 0.2% | 0.2% | -7    | -0.9%  | 208   | 0.2% |
| 43-9022 | Word Processors and Typists                       | 70     | 70     | 0.0% | 0.0% | 0     | -0.4%  | 9     | 0.0% |

|         |  |        |        |      |      |       |       |       |      |
|---------|--|--------|--------|------|------|-------|-------|-------|------|
| 43-9041 | Insurance Claims and Policy Processing Clerks          | 990    | 1,048  | 0.3% | 0.3% | 58    | 5.8%  | 187   | 0.2% |
| 43-9051 | Mail Clerks and Mail Machine Operators, Except Pos     | 310    | 289    | 0.1% | 0.1% | -21   | -6.8% | 71    | 0.1% |
| 43-9061 | Office Clerks, General                                 | 5,580  | 6,590  | 1.6% | 1.7% | 1,010 | 18.1% | 1,770 | 1.5% |
| 43-9071 | Office Machine Operators, Except Computer              | 70     | 68     | 0.0% | 0.0% | -2    | -2.5% | 27    | 0.0% |
| 43-9111 | Statistical Assistants                                 | 30     | 33     | 0.0% | 0.0% | 3     | 10.9% | 8     | 0.0% |
| 43-9199 | Office and Administrative Support Workers, Other       | 200    | 187    | 0.1% | 0.0% | -13   | -6.7% | 56    | 0.0% |
| 45-0000 | Farming, Fishing, and Forestry Occupations             | 180    | 178    | 0.1% | 0.0% | -2    | -0.9% | 51    | 0.0% |
| 45-4022 | Logging Equipment Operators                            | 50     | 54     | 0.0% | 0.0% | 4     | 7.7%  | 17    | 0.0% |
| 47-0000 | Construction and Extraction Occupations                | 12,840 | 14,986 | 3.7% | 3.9% | 2,146 | 16.7% | 4,410 | 3.7% |
| 47-1011 | First-Line Supervisors/Managers of Construction        | 1,720  | 2,049  | 0.5% | 0.5% | 329   | 19.1% | 661   | 0.6% |
| 47-2021 | Brickmasons and Blockmasons                            | 110    | 127    | 0.0% | 0.0% | 17    | 15.2% | 44    | 0.0% |
| 47-2022 | Stonemasons  | 70     | 81     | 0.0% | 0.0% | 11    | 15.1% | 28    | 0.0% |
| 47-2031 | Carpenters   | 1,200  | 1,398  | 0.3% | 0.4% | 198   | 16.5% | 348   | 0.3% |
| 47-2044 | Tile and Marble Setters                                | 40     | 47     | 0.0% | 0.0% | 7     | 17.9% | 18    | 0.0% |
| 47-2051 | Cement Masons and Concrete Finishers                   | 320    | 373    | 0.1% | 0.1% | 53    | 16.5% | 133   | 0.1% |
| 47-2061 | Construction Laborers                                  | 2,140  | 2,662  | 0.6% | 0.7% | 522   | 24.4% | 665   | 0.6% |
| 47-2071 | Paving, Surfacing, & Tamping Equipment Operators       | 60     | 69     | 0.0% | 0.0% | 9     | 15.3% | 19    | 0.0% |
| 47-2073 | Operating Engineers and Other Construction Equip. Ops. | 590    | 683    | 0.2% | 0.2% | 93    | 15.7% | 194   | 0.2% |
| 47-2081 | Drywall and Ceiling Tile Installers                    | 160    | 187    | 0.0% | 0.0% | 27    | 17.2% | 45    | 0.0% |
| 47-2111 | Electricians   | 1,250  | 1,445  | 0.4% | 0.4% | 195   | 15.6% | 497   | 0.4% |
| 47-2121 | Glaziers   | 110    | 122    | 0.0% | 0.0% | 12    | 11.3% | 52    | 0.0% |
| 47-2131 | Insulation Workers, Floor, Ceiling, and Wall           | 80     | 95     | 0.0% | 0.0% | 15    | 18.6% | 41    | 0.0% |
| 47-2132 | Insulation workers, mechanical                         | 230    | 283    | 0.1% | 0.1% | 53    | 23.0% | 129   | 0.1% |
| 47-2141 | Painters, Construction and Maintenance                 | 380    | 420    | 0.1% | 0.1% | 40    | 10.4% | 105   | 0.1% |
| 47-2152 | Plumbers, Pipefitters, and Steamfitters                | 760    | 905    | 0.2% | 0.2% | 145   | 19.1% | 298   | 0.3% |
| 47-2181 | Roofers  | 250    | 268    | 0.1% | 0.1% | 18    | 7.2%  | 59    | 0.0% |
| 47-2211 | Sheet Metal Workers                                    | 680    | 748    | 0.2% | 0.2% | 68    | 10.0% | 229   | 0.2% |
| 47-3011 | Helpers--Brickmasons & Stonemasons                     | 90     | 108    | 0.0% | 0.0% | 18    | 20.1% | 37    | 0.0% |
| 47-3012 | Helpers--Carpenters                                    | 240    | 306    | 0.1% | 0.1% | 66    | 27.4% | 116   | 0.1% |
| 47-3013 | Helpers--Electricians                                  | 440    | 566    | 0.1% | 0.1% | 126   | 28.7% | 218   | 0.2% |
| 47-3015 | Helpers--Pipelayers, Plumbers, Pipefitters             | 690    | 895    | 0.2% | 0.2% | 205   | 29.7% | 349   | 0.3% |
| 47-3019 | Helpers, Construction Trades, All Other                | 80     | 93     | 0.0% | 0.0% | 13    | 15.9% | 29    | 0.0% |

|         |  |        |        |       |      |        |        |       |      |
|---------|--|--------|--------|-------|------|--------|--------|-------|------|
| 47-4011 | Construction and Building Inspectors                   | 170    | 205    | 0.0%  | 0.1% | 35     | 20.5%  | 70    | 0.1% |
| 47-4041 | Hazardous Materials Removal Workers                    | 330    | 391    | 0.1%  | 0.1% | 61     | 18.6%  | 151   | 0.1% |
| 47-4071 | Septic Tank Servicers and Sewer Pipe Cleaners          | 110    | 141    | 0.0%  | 0.0% | 31     | 28.0%  | 60    | 0.1% |
| 49-0000 | Installation, Maintenance, and Repair Occupations      | 15,570 | 15,277 | 4.5%  | 4.0% | -293   | -1.9%  | 2,785 | 2.3% |
| 49-1011 | First-Line Supervisors/Managers of Mechanics, Inst     | 1,670  | 1,588  | 0.5%  | 0.4% | -82    | -4.9%  | 355   | 0.3% |
| 49-2011 | Computer, Automated Teller & Office Mach. Repairer     | 230    | 201    | 0.1%  | 0.1% | -29    | -12.8% | 20    | 0.0% |
| 49-2022 | Telecommunications Equipment Installers & Repair       | 430    | 391    | 0.1%  | 0.1% | -39    | -9.0%  | 38    | 0.0% |
| 49-2091 | Avionics Technicians                                   | 120    | 121    | 0.0%  | 0.0% | 1      | 0.9%   | 21    | 0.0% |
| 49-2092 | Electric Motor, Power Tool, and Related Repairers      | 70     | 67     | 0.0%  | 0.0% | -3     | -4.2%  | 21    | 0.0% |
| 49-2094 | Electrical and Electronics Repairers                   | 400    | 379    | 0.1%  | 0.1% | -21    | -5.3%  | 48    | 0.0% |
| 49-2097 | Electronic Home Entertainment Equipment Installers     | 170    | 172    | 0.0%  | 0.0% | 2      | 1.2%   | 31    | 0.0% |
| 49-3011 | Aircraft Mechanics and Service Technicians             | 400    | 388    | 0.1%  | 0.1% | -12    | -3.0%  | 66    | 0.1% |
| 49-3021 | Automotive Body and Related Repairers                  | 380    | 348    | 0.1%  | 0.1% | -32    | -8.4%  | 66    | 0.1% |
| 49-3023 | Automotive Service Technicians and Mechanics           | 1,740  | 1,661  | 0.5%  | 0.4% | -79    | -4.5%  | 254   | 0.2% |
| 49-3031 | Bus & Truck Mechanics & Diesel Engine Specialists      | 620    | 597    | 0.2%  | 0.2% | -23    | -3.6%  | 120   | 0.1% |
| 49-3042 | Mobile Heavy Equipment Mechanics, Except Engines       | 220    | 218    | 0.1%  | 0.1% | -2     | -0.9%  | 40    | 0.0% |
| 49-3052 | Motorcycle Mechanics                                   | 50     | 50     | 0.0%  | 0.0% | 0      | -0.6%  | 10    | 0.0% |
| 49-3093 | Tire Repairers and Changers                            | 230    | 211    | 0.1%  | 0.1% | -19    | -8.1%  | 29    | 0.0% |
| 49-9012 | Control and Valve Installers and Repairers, Except     | 80     | 72     | 0.0%  | 0.0% | -8     | -10.0% | 5     | 0.0% |
| 49-9021 | Heating, Air Conditioning, and Refrigeration Mechanics | 630    | 736    | 0.2%  | 0.2% | 106    | 16.8%  | 207   | 0.2% |
| 49-9031 | Home Appliance Repairers                               | 100    | 93     | 0.0%  | 0.0% | -7     | -7.0%  | 9     | 0.0% |
| 49-9041 | Industrial Machinery Mechanics                         | 1,130  | 1,105  | 0.3%  | 0.3% | -25    | -2.2%  | 138   | 0.1% |
| 49-9042 | Maintenance and Repair Workers, General                | 3,760  | 3,801  | 1.1%  | 1.0% | 41     | 1.1%   | 620   | 0.5% |
| 49-9043 | Maintenance Workers, Machinery                         | 610    | 581    | 0.2%  | 0.2% | -29    | -4.7%  | 66    | 0.1% |
| 49-9044 | Millwrights  | 50     | 46     | 0.0%  | 0.0% | -4     | -7.4%  | 6     | 0.0% |
| 49-9051 | Electrical Power-Line Installers and Repairers         | 340    | 324    | 0.1%  | 0.1% | -16    | -4.7%  | 105   | 0.1% |
| 49-9052 | Telecommunications Line Installers and Repairers       | 410    | 377    | 0.1%  | 0.1% | -33    | -8.0%  | 30    | 0.0% |
| 49-9091 | Coin, Vending, and Amusement Machine Ser               | 60     | 59     | 0.0%  | 0.0% | -1     | -2.4%  | 19    | 0.0% |
| 49-9094 | Locksmiths and Safe Repairers                          | 30     | 31     | 0.0%  | 0.0% | 1      | 2.3%   | 5     | 0.0% |
| 49-9098 | Helpers--Installation, Maint., & Repair Workers        | 750    | 741    | 0.2%  | 0.2% | -9     | -1.2%  | 351   | 0.3% |
| 49-9099 | Installation, Maintenance & Repair Workers             | 170    | 169    | 0.0%  | 0.0% | -1     | -0.4%  | 25    | 0.0% |
| 51-0000 | Production Occupations                                 | 40,390 | 37,033 | 11.6% | 9.6% | -3,357 | -8.3%  | 6,677 | 5.6% |

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|---------|--|-------|-------|------|------|------|--------|-------|------|
| 51-1011 | First-Line Supervisors/Managers of Production and  | 2,760 | 2,484 | 0.8% | 0.6% | -276 | -10.0% | 241   | 0.2% |
| 51-2022 | Electrical and Electronic Equipment Assemblers     | 630   | 511   | 0.2% | 0.1% | -119 | -19.0% | 70    | 0.1% |
| 51-2023 | Electromechanical Equipment Assemblers             | 40    | 34    | 0.0% | 0.0% | -6   | -14.8% | 4     | 0.0% |
| 51-2041 | Structural Metal Fabricators and Fitters           | 180   | 170   | 0.1% | 0.0% | -10  | -5.4%  | 29    | 0.0% |
| 51-2092 | Team Assemblers                                    | 5,840 | 5,549 | 1.7% | 1.4% | -291 | -5.0%  | 1,024 | 0.9% |
| 51-2099 | Assemblers and Fabricators, All Other              | 170   | 165   | 0.0% | 0.0% | -5   | -3.2%  | 33    | 0.0% |
| 51-3011 | Bakers   | 310   | 295   | 0.1% | 0.1% | -15  | -4.8%  | 65    | 0.1% |
| 51-3021 | Butchers and Meat Cutters                          | 180   | 173   | 0.1% | 0.0% | -7   | -3.6%  | 51    | 0.0% |
| 51-3093 | Food Cooking Machine Operators and Tenders         | 40    | 39    | 0.0% | 0.0% | -1   | -1.4%  | 11    | 0.0% |
| 51-4011 | Computer-Controlled Machine Tool Operators, Metal  | 120   | 121   | 0.0% | 0.0% | 1    | 1.2%   | 25    | 0.0% |
| 51-4012 | Numerical Tool and Process Control Programmers     | 50    | 40    | 0.0% | 0.0% | -10  | -19.7% | 8     | 0.0% |
| 51-4021 | Extruding and Drawing Machine Setters, Operators,  | 290   | 261   | 0.1% | 0.1% | -29  | -9.9%  | 43    | 0.0% |
| 51-4023 | Rolling Machine Setters, Operators, and Tenders, M | 30    | 24    | 0.0% | 0.0% | -6   | -19.9% | 5     | 0.0% |
| 51-4031 | Cutting, Punching, and Press Machine Setters, Oper | 800   | 653   | 0.2% | 0.2% | -147 | -18.4% | 124   | 0.1% |
| 51-4032 | Drilling and Boring Machine Tool Setters, Operator | 50    | 35    | 0.0% | 0.0% | -15  | -30.3% | 2     | 0.0% |
| 51-4033 | Grinding, Lapping, Polishing, and Buffing Machine  | 160   | 128   | 0.0% | 0.0% | -32  | -20.2% | 17    | 0.0% |
| 51-4034 | Lathe and Turning Machine Tool Setters, Operators, | 120   | 83    | 0.0% | 0.0% | -37  | -30.4% | 15    | 0.0% |
| 51-4035 | Milling and Planing Machine Setters, Operators     | 50    | 40    | 0.0% | 0.0% | -10  | -20.2% | 8     | 0.0% |
| 51-4041 | Machinists   | 1,600 | 1,450 | 0.5% | 0.4% | -150 | -9.4%  | 134   | 0.1% |
| 51-4072 | Molding, Coremaking, and Casting Machine Setters,  | 830   | 753   | 0.2% | 0.2% | -77  | -9.2%  | 132   | 0.1% |
| 51-4081 | Multiple Machine Tool Setters, Operators, and Tend | 190   | 154   | 0.1% | 0.0% | -36  | -18.9% | 29    | 0.0% |
| 51-4111 | Tool and Die Makers                                | 240   | 210   | 0.1% | 0.1% | -30  | -12.6% | 3     | 0.0% |
| 51-4121 | Welders, Cutters, Solderers, and Brazers           | 860   | 804   | 0.2% | 0.2% | -56  | -6.6%  | 221   | 0.2% |
| 51-4122 | Welding, Soldering, and Brazing Machine Setters    | 50    | 44    | 0.0% | 0.0% | -6   | -11.7% | 13    | 0.0% |
| 51-4193 | Plating and Coating Machine Setters, Operators     | 40    | 33    | 0.0% | 0.0% | -7   | -16.8% | 9     | 0.0% |
| 51-5011 | Bindery Workers                                    | 300   | 227   | 0.1% | 0.1% | -73  | -24.2% | 32    | 0.0% |
| 51-5021 | Job Printers                                       | 130   | 114   | 0.0% | 0.0% | -16  | -12.3% | -1    | 0.0% |
| 51-5022 | Prepress Technicians and Workers                   | 150   | 117   | 0.0% | 0.0% | -33  | -21.8% | 13    | 0.0% |
| 51-5023 | Printing Machine Operators                         | 880   | 791   | 0.3% | 0.2% | -89  | -10.2% | 143   | 0.1% |
| 51-6011 | Laundry and Dry-Cleaning Workers                   | 320   | 312   | 0.1% | 0.1% | -8   | -2.4%  | 48    | 0.0% |
| 51-6021 | Pressers, Textile, Garment, and Related Materials  | 370   | 322   | 0.1% | 0.1% | -48  | -12.9% | -1    | 0.0% |
| 51-6031 | Sewing Machine Operators                           | 2,290 | 1,443 | 0.7% | 0.4% | -847 | -37.0% | 50    | 0.0% |
| 51-6051 | Sewers, Hand                                       | 50    | 44    | 0.0% | 0.0% | -6   | -12.8% | 3     | 0.0% |
| 51-6052 | Tailors, Dressmakers, and Custom Sewers            | 30    | 28    | 0.0% | 0.0% | -2   | -6.8%  | 2     | 0.0% |

|         |  |       |       |      |      |      |        |     |      |
|---------|--|-------|-------|------|------|------|--------|-----|------|
| 51-6061 | Textile Bleaching & Dyeing Machine Op. & Tenders   | 500   | 261   | 0.1% | 0.1% | -239 | -47.8% | 39  | 0.0% |
| 51-6062 | Textile Cutting Machine Setters, Operators, Tender | 200   | 131   | 0.1% | 0.0% | -69  | -34.4% | 28  | 0.0% |
| 51-6063 | Textile Knitting and Weaving Machine Setters, Oper | 1,220 | 702   | 0.3% | 0.2% | -518 | -42.4% | 42  | 0.0% |
| 51-6064 | Textile Winding, Twisting, and Drawing Out Machine | 1,140 | 642   | 0.3% | 0.2% | -498 | -43.7% | 155 | 0.1% |
| 51-6091 | Extruding and forming machine setters, operators   | 140   | 88    | 0.0% | 0.0% | -52  | -37.4% | 10  | 0.0% |
| 51-6092 | Fabric and Apparel Patternmakers                   | 160   | 111   | 0.0% | 0.0% | -49  | -30.5% | 12  | 0.0% |
| 51-6093 | Upholsterers                                       | 1,380 | 1,400 | 0.4% | 0.4% | 20   | 1.5%   | 107 | 0.1% |
| 51-6099 | Textile, Apparel, & Furnishings Workers, All Other | 270   | 223   | 0.1% | 0.1% | -47  | -17.2% | 26  | 0.0% |
| 51-7011 | Cabinetmakers and Bench Carpenters                 | 400   | 415   | 0.1% | 0.1% | 15   | 3.6%   | 104 | 0.1% |
| 51-7021 | Furniture Finishers                                | 330   | 328   | 0.1% | 0.1% | -2   | -0.7%  | 72  | 0.1% |
| 51-7031 | Model Makers, Wood                                 | 50    | 47    | 0.0% | 0.0% | -3   | -5.0%  | 9   | 0.0% |
| 51-7041 | Sawing Machine Setters, Operators & Tenders, Wood  | 390   | 376   | 0.1% | 0.1% | -14  | -3.6%  | 56  | 0.0% |
| 51-7042 | Woodworking Machine Setters, Operators             | 770   | 783   | 0.2% | 0.2% | 13   | 1.6%   | 170 | 0.1% |
| 51-8021 | Stationary Engineers and Boiler Operators          | 30    | 30    | 0.0% | 0.0% | 0    | 0.0%   | 5   | 0.0% |
| 51-8031 | Water & Waste Treatment Plant Operators            | 110   | 125   | 0.0% | 0.0% | 15   | 13.8%  | 39  | 0.0% |
| 51-8091 | Chemical Plant and System Operators                | 220   | 166   | 0.1% | 0.0% | -54  | -24.6% | 42  | 0.0% |
| 51-8093 | Petroleum pump system operators                    | 60    | 48    | 0.0% | 0.0% | -12  | -19.3% | 11  | 0.0% |
| 51-9011 | Chemical Equipment Operators and Tenders           | 50    | 42    | 0.0% | 0.0% | -8   | -16.5% | 2   | 0.0% |
| 51-9012 | Separating, Filtering, Clarifying, Precipitating,  | 70    | 73    | 0.0% | 0.0% | 3    | 5.0%   | 9   | 0.0% |
| 51-9021 | Crushing, Grinding, and Polishing Machine Setters, | 80    | 75    | 0.0% | 0.0% | -5   | -6.4%  | 10  | 0.0% |
| 51-9022 | Grinding and Polishing Workers, Hand               | 140   | 143   | 0.0% | 0.0% | 3    | 2.3%   | 27  | 0.0% |
| 51-9023 | Mixing and Blending Machine Setters, Operators, an | 780   | 856   | 0.2% | 0.2% | 76   | 9.7%   | 209 | 0.2% |
| 51-9031 | Cutters and Trimmers, Hand                         | 370   | 305   | 0.1% | 0.1% | -65  | -17.6% | 63  | 0.1% |
| 51-9032 | Cutting and Slicing Machine Setters, Operators, an | 490   | 443   | 0.1% | 0.1% | -47  | -9.6%  | 81  | 0.1% |
| 51-9041 | Extruding, Forming, Pressing, and Compacting       | 550   | 601   | 0.2% | 0.2% | 51   | 9.2%   | 164 | 0.1% |
| 51-9051 | Furnace, Kiln, Oven, Drier, Kettle Oper. & Tenders | 40    | 35    | 0.0% | 0.0% | -5   | -11.6% | 2   | 0.0% |
| 51-9061 | Inspectors, Testers, Sorters, Samplers & Weighers  | 2,040 | 1,867 | 0.6% | 0.5% | -173 | -8.5%  | 243 | 0.2% |
| 51-9071 | Jewelers and Precious Stone and Metal Workers      | 90    | 90    | 0.0% | 0.0% | 0    | -0.1%  | 19  | 0.0% |
| 51-9081 | Dental Laboratory Technicians                      | 110   | 119   | 0.0% | 0.0% | 9    | 8.2%   | 30  | 0.0% |
| 51-9111 | Packaging & Filling Machine Operators & Tenders    | 2,460 | 2,321 | 0.7% | 0.6% | -139 | -5.6%  | 290 | 0.2% |
| 51-9121 | Coating, Painting, and Spraying Machine Setters, O | 430   | 422   | 0.1% | 0.1% | -8   | -1.9%  | 105 | 0.1% |
| 51-9122 | Painters, Transportation Equipment                 | 110   | 105   | 0.0% | 0.0% | -5   | -4.3%  | 24  | 0.0% |
| 51-9123 | Painting, Coating, and Decorating Workers          | 130   | 136   | 0.0% | 0.0% | 6    | 4.6%   | 40  | 0.0% |
| 51-9131 | Photographic Process Workers                       | 70    | 69    | 0.0% | 0.0% | -1   | -2.0%  | 16  | 0.0% |

|         |  |        |        |      |      |      |        |       |      |
|---------|--|--------|--------|------|------|------|--------|-------|------|
| 51-9132 | Photographic Processing Machine Operators            | 160    | 115    | 0.0% | 0.0% | -45  | -28.2% | 33    | 0.0% |
| 51-9191 | Cementing and Gluing Machine Operators               | 180    | 151    | 0.1% | 0.0% | -29  | -16.1% | 36    | 0.0% |
| 51-9195 | Molders, Shapers, & Casters, Exc. Metal & Plastic    | 70     | 68     | 0.0% | 0.0% | -2   | -2.5%  | 33    | 0.0% |
| 51-9196 | Paper Goods Machine Setters, Operators, & Tenders    | 410    | 305    | 0.1% | 0.1% | -105 | -25.5% | 70    | 0.1% |
| 51-9198 | Helpers--Production Workers                          | 2,090  | 1,984  | 0.6% | 0.5% | -106 | -5.1%  | 260   | 0.2% |
| 51-9199 | Production Workers, All Other                        | 130    | 126    | 0.0% | 0.0% | -4   | -3.2%  | 26    | 0.0% |
|         |  |        |        |      |      |      |        |       |      |
| 53-0000 | Transportation and Material Moving Occupations       | 29,400 | 30,377 | 8.4% | 7.9% | 977  | 3.3%   | 8,354 | 7.0% |
| 53-1021 | First-Line Supervisors/Managers of Helpers, Laborers | 860    | 886    | 0.2% | 0.2% | 26   | 3.0%   | 175   | 0.1% |
| 53-1031 | First-Line Supervisors/Managers of Transportation    | 770    | 737    | 0.2% | 0.2% | -33  | -4.3%  | 129   | 0.1% |
| 53-2012 | Commercial Pilots                                    | 40     | 47     | 0.0% | 0.0% | 7    | 17.9%  | 21    | 0.0% |
| 53-3021 | Bus Drivers, Transit and Intercity                   | 210    | 226    | 0.1% | 0.1% | 16   | 7.6%   | 53    | 0.0% |
| 53-3022 | Bus Drivers, School                                  | 1,190  | 1,255  | 0.3% | 0.3% | 65   | 5.5%   | 273   | 0.2% |
| 53-3031 | Driver/Sales Workers                                 | 1,170  | 1,213  | 0.3% | 0.3% | 43   | 3.7%   | 253   | 0.2% |
| 53-3032 | Truck Drivers, Heavy and Tractor-Trailer             | 6,240  | 7,004  | 1.8% | 1.8% | 764  | 12.2%  | 1,880 | 1.6% |
| 53-3033 | Truck Drivers, Light or Delivery Services            | 2,410  | 2,495  | 0.7% | 0.6% | 85   | 3.5%   | 517   | 0.4% |
| 53-3041 | Taxi Drivers and Chauffeurs                          | 260    | 299    | 0.1% | 0.1% | 39   | 14.8%  | 85    | 0.1% |
| 53-3099 | Motor Vehicle Operators, All Other                   | 400    | 431    | 0.1% | 0.1% | 31   | 7.7%   | 101   | 0.1% |
| 53-7011 | Conveyor Operators and Tenders                       | 50     | 45     | 0.0% | 0.0% | -5   | -9.8%  | 14    | 0.0% |
| 53-7021 | Crane and Tower Operators                            | 170    | 157    | 0.0% | 0.0% | -13  | -7.4%  | 38    | 0.0% |
| 53-7032 | Excavating & Loading Machine & Dragline Operators    | 1,860  | 2,005  | 0.5% | 0.5% | 145  | 7.8%   | 688   | 0.6% |
| 53-7051 | Industrial Truck and Tractor Operators               | 710    | 725    | 0.2% | 0.2% | 15   | 2.1%   | 226   | 0.2% |
| 53-7061 | Cleaners of Vehicles and Equipment                   | 8,790  | 8,825  | 2.5% | 2.3% | 35   | 0.4%   | 3,161 | 2.7% |
| 53-7062 | Laborers & Freight, Stock & Material Movers, Hand    | 480    | 473    | 0.1% | 0.1% | -7   | -1.4%  | 151   | 0.1% |
| 53-7063 | Machine Feeders and Off-bearers                      | 2,940  | 2,275  | 0.8% | 0.6% | -665 | -22.6% | 318   | 0.3% |
| 53-7064 | Packers and Packagers, Hand                          | 160    | 152    | 0.0% | 0.0% | -8   | -5.1%  | 26    | 0.0% |

## Appendix II: GTCC Academic & Training Programs and Occupational Classification

| GTCC Program   | GTCC Program<br>Completers 2009-10 | Code    | Occupational Group                |
|--|------------------------------------|---------|-----------------------------------|
| A1010B Pre-Major Business Administration                       | 19                                 | 13-0000 | Business and Financial Operations |
| A25100 Accounting  | 18                                 | 13-0000 | Business and Financial Operations |
| A25100C1 Accounting (certificate)                              | 2                                  | 13-0000 | Business and Financial Operations |
| A25100D1 Accounting (diploma)                                  | 2                                  | 13-0000 | Business and Financial Operations |
| A25120 Business Administration                                 | 43                                 | 13-0000 | Business and Financial Operations |
| A25120C1 Business Administration Concentration I (certificate) | 1                                  | 13-0000 | Business and Financial Operations |
| A2512C Business Administration - Human Resources Management    | 7                                  | 13-0000 | Business and Financial Operations |
| A2512CC1 Human Resources Mgmt (certificate)                    | 8                                  | 13-0000 | Business and Financial Operations |
| A25130 Computer Programming                                    | 2                                  | 15-0000 | Computer and Mathematical         |
| A25260 Computer Information Technology                         | 29                                 | 15-0000 | Computer and Mathematical         |
| A25260C1 Information Systems (Basic Certificate)               | 21                                 | 15-0000 | Computer and Mathematical         |
| A25260C3 Information Systems (Operating Systems Certificate)   | 13                                 | 15-0000 | Computer and Mathematical         |
| A25290 Web Technologies  | 9                                  | 15-0000 | Computer and Mathematical         |
| A25290C1 Web Technologies (Basic Certificate)                  | 5                                  | 15-0000 | Computer and Mathematical         |
| A25290C2 Web Technologies (Advanced Certificate)               | 5                                  | 15-0000 | Computer and Mathematical         |
| A25340 Networking Technology                                   | 16                                 | 15-0000 | Computer and Mathematical         |
| A25340C1 Network Routing (certificate)                         | 8                                  | 15-0000 | Computer and Mathematical         |
| A1040D Pre-Major Engineering                                   | 1                                  | 17-0000 | Architecture and Engineering      |
| A40100 Architectural Technology                                | 11                                 | 17-0000 | Architecture and Engineering      |
| A40100C1 Architectural Technology (certificate)                | 2                                  | 17-0000 | Architecture and Engineering      |
| A40100D1 Architectural Technology (diploma)                    | 1                                  | 17-0000 | Architecture and Engineering      |
| A40140 Civil Engineering Technology                            | 7                                  | 17-0000 | Architecture and Engineering      |
| A40140C1 Civil Engineering Technology (certificate)            | 2                                  | 17-0000 | Architecture and Engineering      |
| A40200 Electronics Engineering Technology                      | 9                                  | 17-0000 | Architecture and Engineering      |
| A40200C3 Basic Electronics (certificate)                       | 1                                  | 17-0000 | Architecture and Engineering      |
| A40320 Mechanical Engineering Technology                       | 7                                  | 17-0000 | Architecture and Engineering      |
| A40320A1 Mechanical Engineering Technology - Drafting & Design | 2                                  | 17-0000 | Architecture and Engineering      |

|  |    |         |                                    |
|--|----|---------|------------------------------------|
| A40320A2 Mechanical Engineering Technology - Cad               | 1  | 17-0000 | Architecture and Engineering       |
| A40320C2 Computer-Aided Drafting                               | 3  | 17-0000 | Architecture and Engineering       |
| A40380 Surveying Technology                                    | 1  | 17-0000 | Architecture and Engineering       |
| A40380C1 Surveying Technology (certificate)                    | 4  | 17-0000 | Architecture and Engineering       |
| A40400 Telecommunications and Network Engineering Technology   | 4  | 17-0000 | Architecture and Engineering       |
| A50240 Industrial Systems Technology                           | 1  | 17-0000 | Architecture and Engineering       |
| A50240C1 Industrial Maintenance Tech (certificate)             | 6  | 17-0000 | Architecture and Engineering       |
| A50300 Machining Technology                                    | 8  | 17-0000 | Architecture and Engineering       |
| A10400 General Studies - Science Major                         | 9  | 19-0000 | Life, Physical, and Social Science |
| A1040A Pre-Major Biology and Biology Education                 | 3  | 19-0000 | Life, Physical, and Social Science |
| A1040E Pre-Major Mathematics                                   | 1  | 19-0000 | Life, Physical, and Social Science |
| A45380 Human Services Technology                               | 4  | 21-0000 | Community and Social Services Occ  |
| A4538C Human Services Technology - Mental Health Concentration | 7  | 21-0000 | Community and Social Services Occ  |
| A4538E Human Services Technology - Substance Abuse Con.        | 6  | 21-0000 | Community and Social Services Occ  |
| A4538EC2 Substance Abuse Treatment Certificate                 | 4  | 21-0000 | Community and Social Services Occ  |
| A25380 Paralegal Technology                                    | 21 | 23-0000 | Legal                              |
| A25380C1 Paralegal Technology/ Real Estate (certificate)       | 5  | 23-0000 | Legal                              |
| A25380C2 Paralegal Technology/ Bankruptcy (certificate)        | 3  | 23-0000 | Legal                              |
| A25380C3 Paralegal Technology (certificate)                    | 1  | 23-0000 | Legal                              |
| A1010C Pre-Major Business Education/Marketing Education        | 5  | 25-0000 | Education, Training, and Library   |
| A1010F Pre-Major English Education                             | 1  | 25-0000 | Education, Training, and Library   |
| A1010J Pre-Major Physical Education                            | 2  | 25-0000 | Education, Training, and Library   |
| A1010P Pre-Major Elementary Education                          | 3  | 25-0000 | Education, Training, and Library   |
| A1010R Elementary Education                                    | 8  | 25-0000 | Education, Training, and Library   |
| A1010S Pre-Major Middle Grades/Special Education               | 1  | 25-0000 | Education, Training, and Library   |
| A1010Z Pre-Major Special Education                             | 1  | 25-0000 | Education, Training, and Library   |
| A10300 Associate in General Education                          | 17 | 25-0000 | Education, Training, and Library   |
| A55220 Early Childhood Education                               | 30 | 25-0000 | Education, Training, and Library   |
| A55220C1 Early Childhood, Certificate                          | 17 | 25-0000 | Education, Training, and Library   |
| A55220C2 Early Childhood Administration, Certificate           | 8  | 25-0000 | Education, Training, and Library   |
| A55220C3 Early Childhood School Age, Certificate               | 1  | 25-0000 | Education, Training, and Library   |

|  |     |         |   |
|--|-----|---------|---|
| A55220C4 Infant-Toddler Care Certificate                         | 4   | 25-0000 | Education, Training, and Library            |
| A55220D1 Early Childhood (diploma)                               | 22  | 25-0000 | Education, Training, and Library            |
| A10100 Pre-Major Communication Studies                           | 8   | 27-0000 | Arts, Design, Entertainment, Sports,& Media |
| A1020C Pre-Major Drama   | 2   | 27-0000 | Arts, Design, Entertainment, Sports,& Media |
| A25190A1 Entertainment Tech/Recording Engineering Option         | 9   | 27-0000 | Arts, Design, Entertainment, Sports,& Media |
| A25190A2 Entertainment Tech/Concert Sound & Lighting Option      | 4   | 27-0000 | Arts, Design, Entertainment, Sports,& Media |
| A25190A3 Entertainment Tech/Music Performance Option             | 1   | 27-0000 | Arts, Design, Entertainment, Sports,& Media |
| A25190A4 Entertainment Tech/Artist Management Option             | 7   | 27-0000 | Arts, Design, Entertainment, Sports,& Media |
| A30100 Advertising and Graphic Design                            | 28  | 27-0000 | Arts, Design, Entertainment, Sports,& Media |
| A30100C1 Advertising & Graphic Des/Computer Graphics             | 19  | 27-0000 | Arts, Design, Entertainment, Sports,& Media |
| A30100C2 Advertising and Graphic Design/ Photography             | 18  | 27-0000 | Arts, Design, Entertainment, Sports,& Media |
| A1010I Pre-Major Nursing   | 3   | 29-0000 | Healthcare Practitioners and Technical      |
| A45100 Associate Degree Nursing                                  | 102 | 29-0000 | Healthcare Practitioners and Technical      |
| A45260 Dental Hygiene  | 28  | 29-0000 | Healthcare Practitioners and Technical      |
| A45400 Medical Assisting   | 19  | 29-0000 | Healthcare Practitioners and Technical      |
| A45580 Pharmacy Technology                                       | 9   | 29-0000 | Healthcare Practitioners and Technical      |
| A45580D1 Pharmacy Technology                                     | 20  | 29-0000 | Healthcare Practitioners and Technical      |
| A45640 Physical Therapist Assistant                              | 15  | 29-0000 | Healthcare Practitioners and Technical      |
| A45740 Surgical Technology                                       | 4   | 29-0000 | Healthcare Practitioners and Technical      |
| A45740D1 Surgical Technology (diploma)                           | 24  | 29-0000 | Healthcare Practitioners and Technical      |
| C45480 Nursing Assistant   | 1   | 29-0000 | Healthcare Practitioners and Technical      |
| D45240 Dental Assisting  | 17  | 29-0000 | Healthcare Practitioners and Technical      |
| D45580 Pharmacy Technology                                       | 18  | 29-0000 | Healthcare Practitioners and Technical      |
| D45660 Practical Nursing   | 21  | 29-0000 | Healthcare Practitioners and Technical      |
| A25200 Healthcare Management Technology                          | 1   | 31-0000 | Healthcare Support                          |
| A25310 Office Systems Technology - Medical Office Administration | 21  | 31-0000 | Healthcare Support                          |
| A25310C2 Medical Billing & Coding (certificate)                  | 20  | 31-0000 | Healthcare Support                          |
| A25310C3 Medical Office Administration (certificate)             | 39  | 31-0000 | Healthcare Support                          |
| A25310C4 Hospital Billing and Coding                             | 18  | 31-0000 | Healthcare Support                          |
| A25310C5 Electronic Medical Records                              | 12  | 31-0000 | Healthcare Support                          |
| A45340A1 AAS, EMERGENCY MEDICAL SERVICES TECHNOLOGY              | 10  | 31-0000 | Healthcare Support                          |

|  |    |         |   |
|--|----|---------|---|
| D25320 Office Systems Technology - Medical Transcription           | 12 | 31-0000 | Healthcare Support                        |
| A1010D Pre-Major Criminal Justice                                  | 4  | 33-0000 | Protective Service                        |
| A55180 Criminal Justice Technology                                 | 24 | 33-0000 | Protective Service                        |
| A55240 Fire Protection Technology                                  | 15 | 33-0000 | Protective Service                        |
| A55420 Emergency Preparedness Technology                           | 1  | 33-0000 | Protective Service                        |
| C55120 Basic Law Enforcement Training                              | 43 | 33-0000 | Protective Service                        |
| A25240 Hotel and Restaurant Management                             | 10 | 35-0000 | Food Preparation and Serving Related      |
| A55200 Culinary Technology   | 24 | 35-0000 | Food Preparation and Serving Related      |
| A55200C1 Culinary Technology (certificate)                         | 2  | 35-0000 | Food Preparation and Serving Related      |
| A55200D1 Culinary Technology (diploma)                             | 2  | 35-0000 | Food Preparation and Serving Related      |
| A15420 Turfgrass Management Technology                             | 5  | 37-0000 | Building & Grounds Cleaning & Maintenance |
| A55140 Cosmetology   | 5  | 39-0000 | Personal Care and Service                 |
| A55140C1 Cosmetology (certificate)                                 | 21 | 39-0000 | Personal Care and Service                 |
| A55140D1 Cosmetology (diploma)                                     | 4  | 39-0000 | Personal Care and Service                 |
| A25120C3 Professional Selling                                      | 1  | 41-0000 | Sales and Related                         |
| A25360 Office Systems Technology                                   | 4  | 43-0000 | Office and Administrative Support         |
| A25360C1 Office Systems Tech (certificate)                         | 6  | 43-0000 | Office and Administrative Support         |
| A25360C2 Office Systems Tech/ Software Applications (certificate)  | 2  | 43-0000 | Office and Administrative Support         |
| A25370C1 Office Administration Receptionist                        | 4  | 43-0000 | Office and Administrative Support         |
| A25370C2 Office Administration Software Applicati                  | 2  | 43-0000 | Office and Administrative Support         |
| A55280 General Occupational Technology                             | 5  | 43-0000 | Office and Administrative Support         |
| A35190 Construction Management Technology                          | 6  | 47-0000 | Construction and Extraction               |
| C35300 Plumbing (certificate)                                      | 5  | 47-0000 | Construction and Extraction               |
| D35180 Carpentry   | 2  | 47-0000 | Construction and Extraction               |
| A35190C1 Construction Mngmt/ Const                                 | 3  | 47-0000 | Construction and Extraction               |
| A35190C2 Construction Mngmt Tech/ Supervision (certificate)        | 1  | 47-0000 | Construction and Extraction               |
| A35220 Electrical/Electronics Technology                           | 7  | 47-0000 | Construction and Extraction               |
| A35220C3 Industrial Electrician (certificate)                      | 6  | 47-0000 | Construction and Extraction               |
| A35220D2 Electrical Construction (diploma)                         | 3  | 47-0000 | Construction and Extraction               |
| A35220D3 Electrical/Electronics Tech./Master Electrician (diploma) | 1  | 47-0000 | Construction and Extraction               |
| A35100 Air Conditioning, Heating, and Refrigeration Technology     | 4  | 49-0000 | Installation, Maintenance, and Repair     |

|   |    |         |                                       |
|---|----|---------|---------------------------------------|
| A35100C1 Air Conditioning (certificate)                         | 4  | 49-0000 | Installation, Maintenance, and Repair |
| A35100C3 Heat Pumps (certificate)                               | 2  | 49-0000 | Installation, Maintenance, and Repair |
| A35100C5 Yr-Round Comfort Systems (certificate)                 | 1  | 49-0000 | Installation, Maintenance, and Repair |
| A35100D1 A/C, Heating, Refrigeration (diploma)                  | 1  | 49-0000 | Installation, Maintenance, and Repair |
| A50300C1 Basic Conventional Machining (Certificate)             | 6  | 49-0000 | Installation, Maintenance, and Repair |
| A50300C2 Intermediate Conventional Machining, Certificate       | 3  | 49-0000 | Installation, Maintenance, and Repair |
| A50300C3 CNC Set-Up (certificate)                               | 2  | 49-0000 | Installation, Maintenance, and Repair |
| A50300C4 CNC Operator, Certificate                              | 12 | 49-0000 | Installation, Maintenance, and Repair |
| A50300D1 Machining Technology (Diploma)                         | 1  | 49-0000 | Installation, Maintenance, and Repair |
| A50420C1 Welding (certificate)                                  | 1  | 49-0000 | Installation, Maintenance, and Repair |
| A60160 Automotive Systems Technology                            | 12 | 49-0000 | Installation, Maintenance, and Repair |
| A60160A1 Automotive Systems Tech/ Ford Option                   | 3  | 49-0000 | Installation, Maintenance, and Repair |
| A60160A2 Automotive Systems Technology/ GM Option               | 2  | 49-0000 | Installation, Maintenance, and Repair |
| A60160C1 Automotive Systems Tech/ Generic Option (certificate)  | 1  | 49-0000 | Installation, Maintenance, and Repair |
| D50420 Welding Technology                                       | 5  | 49-0000 | Installation, Maintenance, and Repair |
| D60100 Autobody Repair  | 18 | 49-0000 | Installation, Maintenance, and Repair |
| D60100C1 Autobody Repair (certificate)                          | 16 | 49-0000 | Installation, Maintenance, and Repair |
| D50220C2 Sewing Certificate, day and evening                    | 3  | 51-0000 | Production                            |
| D50220C3 Furniture Upholstery (certificate)                     | 4  | 51-0000 | Production                            |
| A25170 Global Logistics Technology                              | 5  | 53-0000 | Transportation and Material Moving    |
| A25170C1 Supply Chain Management                                | 5  | 53-0000 | Transportation and Material Moving    |
| A60180A1 Aviation Management Option                             | 4  | 53-0000 | Transportation and Material Moving    |
| A60180A2 Career Pilot Option                                    | 1  | 53-0000 | Transportation and Material Moving    |
| A60200 Aviation Systems Technology                              | 23 | 53-0000 | Transportation and Material Moving    |
| A60200C1 Air Frame and Power Plant Option (certificate)         | 4  | 53-0000 | Transportation and Material Moving    |
| A60200C3 Power Plant Option (certificate)                       | 2  | 53-0000 | Transportation and Material Moving    |
| A60240 Heavy Equipment and Transport Technology                 | 5  | 53-0000 | Transportation and Material Moving    |
| A60240C1 Heavy Equipment and Transport Technology (certificate) | 5  | 53-0000 | Transportation and Material Moving    |
| A60240D1 Heavy Equipment and Transport Technology Diploma       | 3  | 53-0000 | Transportation and Material Moving    |
| A6024A Heavy Equipment and Transport Technology                 | 1  | 53-0000 | Transportation and Material Moving    |

## Background of the Principal Investigator

G. Donald Jud is Professor Emeritus of Finance and Interim Director of the Center for Business & Economic Research in the Bryan School of Business and Economics at the University of North Carolina at Greensboro. He has taught courses in economics, finance, and real estate. Dr. Jud received his Ph.D. from the University of Iowa and MBA and BA degrees from the University of Texas. He is author of over 80 academic articles and three books.

Dr. Jud is a NAIOP Distinguished Fellow and a past president of the American Real Estate Society (ARES). He is an emeritus fellow of the Homer Hoyt Advanced Studies Institute and the American Real Estate Society. In 2003, he was named a Burns Fellow at the University of Denver.

Dr. Jud serves on the editorial boards of the *Journal of Real Estate Literature* and *Development Magazine* and is a member of the *Appraisal Journal's* academic review panel. He is a past editor of the *Journal of Real Estate Research* and continues to serve as a member of its editorial board. Dr. Jud's research has appeared in numerous academic and professional journals including the *Appraisal Journal*, *American Real Estate and Urban Economics Association Journal*, *Journal of Real Estate Finance and Economics*, *Journal of Real Estate Literature*, *Journal of Real Estate Research*, *Journal of Housing Economics*, *Journal of Financial Education*, *Journal of Real Estate Portfolio Management*, *Journal of Real Estate Practice and Education*, *Real Estate Issues*, *Journal of Property Research*, *Journal of Financial Economics*, *Land Economics*, and *Urban Studies*. A recent article entitled "The Internationalization of Real Estate Research," by Kam C. Chan, William G. Hardin III, Kartono Liano, and Zhenf Yu. (*Journal of Real Estate Research*, vol. 30, no. 1 (2008), pp. 91-124) ranks Dr. Jud 7<sup>th</sup> in a global ranking of real estate researchers publishing in top-tier academic real estate journals.

Dr. Jud has been a research consultant to Wachovia Bank, NC Department of Commerce, the Piedmont-Triad Partnership, the National Association of Realtors®, the NC Association of Realtors®, the Greensboro Chamber of Commerce, Downtown Greensboro, Inc., the Greensboro Regional Realtors® Association, the City of High Point, the Town of Boone, the North Carolina Association of Electrical Cooperatives, CME Merchant Energy, Home Builders Assn. of Burlington-Alamance County, Triad Real Estate and Building Industry Coalition (TREBIC), the Triad MLS, the Carroll Companies, the Homebuilders Association of Fayetteville, The Reynolds Companies, Wood Partners, Cone Mills, the Roulac Global Places Fund, and RMIC Corporation.

Dr. Jud was economic consultant to the NC Workforce Commission, 2004-05. There he developed a system of workforce training program evaluation. He has published articles on various aspects of the labor market in the *Monthly Labor Review*, *Journal of Human Resources*, *Growth and Change*, and other journals.