

LABOR MARKET ASSESSMENT OF THE GREATER KNOXVILLE REGION

**A Nine-County Region (Anderson, Blount, Grainger, Jefferson, Knox, Loudon,
Roane, Sevier, and Union Counties)**

Prepared for:

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BACKGROUND

This labor market evaluation is the product of a contract between Younger Associates (YA) and the Knoxville Area Chamber Partnership, with the Wadley-Donovan Group (WDG) serving as a partner to Younger Associates. It is a summary of the labor market resources of a nine-county region in east Tennessee centered around the City of Knoxville and consisting of Knox, Union, Blount, Anderson, Loudon, Jefferson, Grainger, Sevier, and Roane Counties. For purposes of this analysis, this nine-county area is referred to as *the Greater Knoxville Region* in this report. This analysis uses data obtained through two YAWDG-conducted surveys of labor-related issues among employers and households in the region; interviews with representative employers, educators, elected officials, staffing services, and residential realtors throughout the region; and a review of key statistical and other secondary-source information. The employer survey gathered information from area employers on the availability, quality, and cost of labor, future labor demand, and quality of area training resources. The household survey results allowed us to quantify and profile the area's regular labor force and its hidden labor reserve.

The findings presented herein are those of WDG and YA only. We have examined the region from a corporate perspective and our own knowledge of labor markets across the U.S.

This authorized study required independent research to review the labor market resources of the region from the perspective of a locationally active company. For this study, WDG:

- Confidentially interviewed approximately 35 representative employers, educators, and government officials throughout the region.
- Prepared maps depicting the geographic concentration of key demographic variables in 30-minute commute zones centered around nine separate locations, or nodes, in the region. These maps are presented in Appendix A. The commute zone nodes are:

Site	Location	Appendix	County
– I-75 Business Park	Tennessee Highway 61 at Frank L. Diggs Drive	Aa	Anderson
– Horizon Center	Tennessee Highway Drive at Novus Drive	Ab	Roane
– Centre 75 Business Park	Tennessee Highway 72 at Interstate 75-Exit #72	Ac	Loudon
– Partnership Park South	304 Partnership Way, Maryville	Ad	Blount
– EastBridge Business Park	EastBridge Blvd. at Mine Road	Ae	Knox
– Hardin Business Park	Hardin Valley Drive at Reagan Road	Af	Knox
– I-275 Business Corridor	I-275 at Baxter Avenue	Ag	Knox
– Forks of the River Industrial Park	National Drive at John Sevier Highway	Ah	Knox
– Midway Business Park	Interstate 40 at Midway Interchange-Exit #402	Ai	Knox

- Surveyed all employers across the region with 50 or more employees in all business sectors. Surveys were sent in the summer of 2006. Findings from the employer survey are presented in Appendix B.
 - WDG distributed 637 surveys to employers in all business sectors in the Knoxville region during the last week of August 2006. The mailing list was developed through InfoUSA, a private vendor, and modified with local input. 88 surveys were

returned, for a solid 13.8% response rate. The rate of return and the representative return sample allowed WDG to provide observations on the condition of the region's labor market based on employers' experiences.

- In addition, YA surveyed, in the early fall, a random stratified sample of the region's residents aged 18 to 64 to gather information on employment status, skills, training needs, and income and education levels. To achieve the required response rate for statistical validity and to reach all socio-economic segments of the population, the survey was conducted using face-to-face interviews at popular retail centers across the region. Data from the residential survey has been broken out into two regions – the eastern sub-region and the western sub-region. Counties in the eastern sub-region include Union, Grainger, Sevier, and Jefferson. Counties in the western sub-region include Anderson, Loudon, Roane, and Blount. The survey results have a $\pm 3\%$ margin of error and a reliability of 95%. Approximately 1,195 residents in the nine-county region were interviewed. Household survey findings are presented in Appendix C.
- Prepared and reviewed statistical data on key location factors for each of the nine commute zones, the City of Knoxville, the nine counties, the region, Tennessee, and the nation. Research sources include, but are not limited to, the State of Tennessee, the U.S. Bureau of the Census, the U.S. Bureau of Labor Statistics, and the U.S. Departments of Education and Commerce. TETRAD, Inc. –a leading demographic data vendor of Claritas data– was used for 2006 and 2011 demographic, occupational, and related data estimates and projections. Exhibits containing the gathered data are presented in Appendix D.

A study of this nature can do no more than describe local conditions. The actual impact of these conditions for any given organizational activity will vary, reflecting the different characteristics and structure of each organization. WDG's and YA's principal findings and conclusions are recapped in the Executive Summary, followed by a presentation of findings on key labor market factors.

The Wadley-Donovan Group is the nation's oldest independent management consulting firm that specializes in location consulting and economic development. Its corporate clients include many of the world's leading companies. WDG's economic development practice provides expertise to workforce and economic development agencies and utilities in sales and marketing, strategic planning, database development, overall product development, and assessment. Clients have included Memphis TN, Cookeville, TN, Eastern Idaho; Orange County and Orlando, FL; Tampa; Tulsa; Rochester, NY; Huntsville, AL; Buffalo, NY; Asheville, NC; Richmond, VA; Tallahassee; Collier County, FL; Charlotte County, FL; Lee County, FL; Jackson, TN; and the states of Delaware, Iowa, Kansas, Kentucky, Wisconsin, Wyoming and Maryland.

EXECUTIVE SUMMARY

This labor market evaluation provides a summary of the labor market conditions in the Greater Knoxville Region, which consists of nine counties in East Tennessee centered around the City of Knoxville. The counties in the region are: Knox, Union, Blount, Anderson, Loudon, Jefferson, Grainger, Sevier, and Roane Counties. There is one metropolitan statistical area (MSA) located in the region –the Knoxville, TN MSA – which consists of Anderson, Blount, Knox, Loudon and Union Counties. The region is displayed in the context of the mid-Atlantic portion of the United States in Figure 1 and in the context of the State of Tennessee in Figure 2. The study area and its counties are shown in Figure 3.

The region is well known for its significant technology resources, including the Oak Ridge National Laboratory (ORNL) and the Y-12 National Security Complex (Y-12) located in Oak Ridge, several private technology-based companies, the state's flagship university – the University of Tennessee-Knoxville, and 12 additional colleges, universities and technical institutes that are all well rated by the region's major employers. The region is also a well-known recreational area because of its proximity to the Great Smoky Mountains.

Overall, greater Knoxville has many assets that make it an attractive location for companies to locate their office, distribution, manufacturing and other operations, including those that are technologically focused. The area's population is growing faster than the national average rate, but not so quickly that the infrastructure is being overwhelmed, wages and salaries are moderate, labor availability is generally good although some skills are hard to find, labor quality is well rated by employers, governmental regulations are pro-business, there is a technological base founded on ORNL, Y-12, and their contractors, the University of Tennessee (UT) and the other universities provide a good academic resource for area companies, and the quality of life is very attractive for recruiting managerial and professional/technical talent to the area.

The challenges that would pose potential obstacles against attracting companies to Knoxville or having existing companies expand are modest, including an above average aged population, which can be seen as a negative for companies looking for a sizable pool of young employees, and a modest level of basic skills within the workforce. Other challenges include the need to: diversify the area's technology base to include more private sector activities; retain more college graduates; strengthen the ties between area employers and area educational institutions; more strongly leverage the assets of UT and the strength of the other 12 colleges and universities.

These challenges need to be addressed if Knoxville is to continue along its current course of being a pleasant and comfortable location for mostly local, regional and some national business activities. However, if the area wants to emerge out of the middle tier of U.S. metropolitan technology centered locations, in which it now rests, and surge to a more technologically vibrant and creative center that serves more nationally and globally focused customers, additional challenges must be addressed. These include significantly enhancing the basic skills of the area's residents, increasing the percentage of residents with advanced college degrees (especially among residents living outside of Knox County); elevate the public educational systems to meet the standards of the nation's leading technological centers; promote the University of Tennessee among the nation's top research universities earning a significant percentage of private sector research grants; maintaining dynamic co-op, training, and other linkages between employers and educators.

The region's key assets and challenges are detailed below.

Key Assets

1. **The region has a fast-growing population that is on average well-educated, with lower incomes relative to the nation.** This combination offers an opportunity for growth-minded companies. See Table 1 for summary comparative data on the region, state, and U.S.
 - The Greater Knoxville Region has a moderately large population base that is growing at a rate faster than the state or the nation. The population is projected to increase by 5.8%, compared to 4.3% in Tennessee and 4.8% nationally between 2006 and 2011.
 - The proportion of residents with some post-secondary training less than a four-year degree (56.4%) is equal to the state and slightly higher than the national rate (56.0%). This asset is significant, as many office and industrial employers prefer to hire workers with some higher education less than a four-year degree.
 - Median household incomes in the region are lower than the state and national figures, and a higher percentage of households are earning less than \$35,000. These conditions are indicators of a high proportion of workers who are interested in upgrading their jobs and career advancement.

TABLE 1
COMPARATIVE DATA ON THE REGION, THE STATE, AND THE U.S.

Source: Claritas, U.S. Bureau of Labor Statistics

	Greater Knoxville Region	Tennessee	U.S.
Population 2006	861,975	5,980,956	298,021,266
Projected change (5-Yr)	5.8%	4.3%	4.8%
Median Age	38.9	37.3	36.4
No HS diploma	21.5%	23.6%	19.4%
12 to 15 years of education	56.4%	56.4%	56.0%
16+ years of education	22.1%	20.0%	24.6%
Median household income	\$42,582	\$42,850	\$48,775
Households earning < \$35K	41.6%	41.2%	35.6%
Workforce, 2005	442,467	2,909,562	149,320,000
% Unemployed, 2005	5.3%	5.6%	5.1%
Workforce Participation, 2006	62.9%	63.8%	64.0%
Proj. Wrkg Age Pop Growth (5-Yr) (18-34)	-0.5%	0.0%	2.6%

2. **The region also has a growing labor force and a low labor-force-participation rate.** Between 2000 and 2005, the labor force in the Greater Knoxville Region grew by 6.5%. This is significantly higher than the state rate (1.3%) as well as the national rate (4.7%).
 - The labor-force-participation rate is low in the region. This may indicate there are additional workers that could enter and actively participate in the local workforce given the right opportunity.

3. **The region has unique technology operations that contribute to a considerably skilled and technical workforce.** Oak Ridge National Laboratory (ORNL) and the Y-12 National Security Complex (Y-12) are the key resources that have propelled Anderson/Roane Counties, home of Oak Ridge, to exceed the nation in the proportion of residents employed in the professional/scientific and technical service industry sector. Almost 25% of the county's jobs are in this sector, compared to a national average of 6.6%.
- ORNL is the Department of Energy's largest science and energy laboratory. It is managed by a partnership of the University of Tennessee and Battelle. ORNL is an international leader in a range of scientific fields, including neutron science, energy, high performance computing, systems biology, material science at the nanoscale, and national security.
 - ORNL is in the final stages of a \$350 million project to provide a modern campus for the next generation of science. The campus will contain such new facilities as the Laboratory for Comparative and Functional Genomics, the Center for Nanophase Materials Sciences, the Advanced Microscopy Laboratory, the Office of Science's National Leadership Computing Facility for unclassified high-performance computing, and joint institutes for computational sciences, biological sciences, and neutron sciences. In addition, the \$1.4 billion Spallation Neutron Source, combined with the upgraded High Flux Isotope Reactor, will make ORNL the world's foremost center for neutron science research.
 - ORNL has a staff of more than 4,000
 - Y-12 is a premier manufacturing facility dedicated to national security. It is operated by BWXT Y-12 for the National Nuclear Security Administration (NNSA). Y-12 plays a vital role in the Department of Energy's Nuclear Weapons Complex. Y-12 provides unique and highly specialized manufacturing and software technologies to other federal agencies through the Department of Energy's *Work for Others* program.
 - Y-12 encompasses 811 acres, spanning 2.5 miles, with 500 buildings that house 7 million square feet of laboratory, machining, dismantlement, and R&D areas. The mission of Y-12 includes:
 - Production/rework of complex nuclear weapons components and secondaries;
 - Receipt, storage, and protection of special nuclear materials;
 - Quality evaluation/enhanced surveillance of the nation's nuclear weapons stockpile;
 - Dismantlement of weapon secondaries and disposition of weapon components;
 - Prevention of the spread of weapons of mass destruction; and
 - Support of the Department of Energy, other federal agencies, and other national priorities.
 - Y-12 has a total of 6,000 personnel onsite including: BWXT Y-12 – 4,700; NNSA – 72, plus UT-Battelle, Science Applications International Corporation (SAIC), Bechtel Jacobs Company, and Wackenhut Services employees.

- **The region has a potential hidden labor supply of approximately 151,484 residents.** This hidden labor supply consists of underemployed residents, residents not currently employed but interested in working, and recent college graduates. See the following table.

GREATER KNOXVILLE REGION'S HIDDEN LABOR FORCE

Source: YA Residential Survey, Fall 2006

	Greater Knoxville Region
Employed, but underemployed	40,468
Not employed but interested in work	101,904
Recent college graduates	9,112
Total Hidden Labor Supply	151,484

* Includes unemployed and those not participating in the workforce

- Among the not-employed working-age residents, 57.8% are interested in employment. The not-employed group includes residents who are unemployed and those not participating in the workforce. Unemployed residents are those who are not working but are actively seeking employment and are registered as unemployed. Residents not participating in the workforce include several different groups, such as residents who are raising a family, retirees, and students immediately out of school.
 - Both the underemployed and the not-employed-but-interested-in-working are relatively young and well-educated, and they have diverse skill sets.
 - Included within the hidden workforce are older, retired workers. Employers report that few retirees leave the area after retirement.
4. **There are numerous business-site locations that offer significantly sized labor pools.** Based on its location in the region, a well-recognized, competitively-paying new or expanding office employer could potentially hire up to 1,650 qualified and screened workers during the first year of operation. Meanwhile, a new or expanding competitive and well-known manufacturing and distribution employer could potentially hire up to 2,130 qualified and screened workers during its first year of operation, depending on the facility's location in the region.
 5. **Employers report satisfactory – to – excellent availability of a variety of skills.** Surveyed employers reported satisfactory to very good availability of most occupations listed in the WDG survey. Of the 51 occupations in the survey for which sufficient survey responses were received, 67% are available at satisfactory or better levels.
 - Among the occupations that can be recruited satisfactorily include a number of general business and office support, management and supervisory, manufacturing and distribution occupations.
 - Many of the jobs with satisfactory-to-good availability are those that are currently in demand by *existing* local employers, such as customer service representatives, clerical workers with advanced computer skills, certified nursing assistants, machine operators (no set-up), experienced management, and material handling laborers.
 - Technology centered employers report having little or no trouble recruiting most technicians and the personnel needed to fill positions requiring technical certificates and Associates degrees. Roane State and Pellissippi State are frequently mentioned as good recruiting sources for these skills.

6. **Employers report that they can recruit professional and managerial talent from outside the region.** Surveyed employers report an overall satisfactory to good experience recruiting professionals and managers to the area. The perceived quality of life is an important factor in recruiting talent to the area. Surveyed employers provided a good rating on how the region's quality of life is perceived by non-local prospective job candidates. Interviewed employers reported experienced professionals and managers that are recruited to the area enjoy the area, especially for raising a family. Spousal employment opportunities, however, are borderline satisfactory as a factor in personnel relocation.
 - Area employers report that they can recruit "fresh out" engineers from regional colleges and universities, including the University of Tennessee and Tennessee Technological University. Engineers can also be recruited from universities in the Middle Atlantic and Northeastern states.
7. **Employers report good to very good work ethic and productivity among employees.** Ratings in work ethic, productivity, productivity compared to company facilities elsewhere, willingness of employees to work overtime, employee punctuality, and other employer/employee relations as "good" to "very good".
8. **Turnover and absenteeism are not problems for area employers.** Almost 60% of surveyed employers report annual turnover of less than 10%.
9. **As an advantage for relocating and expanding companies, average employee earnings in the Greater Knoxville Region are below state and national averages.** The region's general overall employee earnings are 74.8% of the national average and 84.4% of the state average, while employee earnings in the professional, scientific, and technical services sector are only 61% of the national average.
 - Survey results show that the average hourly starting rate for customer service representatives is \$9.62, for administrative assistants it is \$10.90, for electronic engineering technicians it is \$10.78, and for engineers it is \$21.32. Full results are presented in the appendix.
10. **Employer training needs for existing workers are being met locally.** 84% of surveyed employers report that their training needs for existing workers are being met locally. The training courses and programs that are not available locally are largely in the vocational technical and technician sectors.
 - Employers rate the quality of the area's higher educational institutions and their product as good to very good. The institutions rated above 3.5 on a 5 point scale are Carson-Newman College, Lincoln Memorial University-Alcoa/Maryville, Maryville College, Pellissippi State Technical College, Roane State Community College, Tusculum College-Knoxville and the University of Tennessee.

Key Challenges

1. **WDG's survey of regional employers shows that most are expecting to add jobs over the next year, approximately one third of which will be difficult to fill.** 95.4% of survey respondents expect to add employees within the next 12 months. Almost half of these employers expect to grow less than 2%, about a quarter are planning on employment growth between 2% and 5%, and a quarter are expecting growth of over 5%.

- According to surveyed employers, 33% of the occupations included in the survey are difficult or somewhat difficult to recruit from the region's workforce. These occupations are largely professional and technical in nature, requiring a vocational-technical education, a two - or four - year college degree, or an advanced degree, as outlined below.

SELECT OCCUPATIONS WITH CURRENT BORDERLINE-TO-POOR AVAILABILITY

	Responses	Average Score*	Median Score*	Educational or Training Requirement
Borderline Availability				
Programmer/analysts	18	2.8	3	Four-year bachelor's degree and/or 2-4 years of work experience
Database administrators	12	2.8	3	Four-year bachelor's degree and/or 2-4 years of work experience
Systems analysts	12	2.8	2.5	Four-year bachelor's degree and/or 2-4 years of work experience
Nurses, licensed practical	12	2.7	3	Training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree
Electrical and electronic repairer	6	2.7	2.5	Training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree
Radiological technicians	6	2.5	2.5	Training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree
Medical and clinical laboratory technicians	5	2.6	3	Four year bachelor's degree
Management trainees	9	2.9	3	N/A
Fair to Poor Availability				
Physicians	5	2	2	Bachelor's degree and/or medical school plus experience
Therapists, physical	9	1.9	2	Bachelor's degree and/or graduate school plus experience
Computer security specialists	9	2.4	2	Four-year bachelor's degree and/or 2-4 years of work experience
Therapists, occupational	7	2	2	Four-year bachelor's degree and/or 2-4 years of work experience
Nurses, registered	12	2.7	2	Training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree
Telecommunications specialists	6	2.3	2.5	Training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree
Wireless communications technicians	6	2.2	2.5	Training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree
Engineering technicians, mechanical	5	2.2	2	Training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree
CNC machine operators	9	2.2	2	High school diploma and may require some vocational training or job-related coursework

* Availability Rating: 5=Plentiful; 3= Satisfactory; 1=Unavailable

- Interviews with top area technology centered employers indicated difficulty in recruiting *experienced* engineers. For ORNL, Y-12, and their contractors, it is frequently difficult to find experienced engineers who are US citizens and have sufficient security level clearances.

2. **The region's residents employed in technology occupations are concentrated in Anderson, Roane and Knox Counties.** Only Knox County has a technology occupational ratio that exceeds the national average in occupations.
 - Regionally, occupational ratios only slightly exceed the national averages in architecture/engineering (2.5% vs. 2.1%) and in life/physical/social science (1.2% vs. 0.9%). Meanwhile, the ratio of computer and mathematical occupations falls below the national average (1.6% vs. 2.5%). Anderson, Roane and Knox are the only counties within the region that exceed the national average in these occupational groups.
3. **Despite the presence of ORNL, Y-12 and their contractors, the region's employment distribution by industry is not indicative of a technology-centered economy.** The region's occupational distribution is higher than the nation in two low skill-low salaried industry sectors, retail trade and accommodation and food service. It also is under-represented in the information sector (2.1% vs. 3.0% for the nation), and it is just slightly above the nation in the ratio of employment in professional, scientific and technical services (6.7% vs. 6.6%). Technology employment exceeds the national norm in only Anderson County (which would also include Roane County if national labor statistics accurately reflected the location of all ORNL jobs), and it falls below the national average in all other counties.
 - There are 152 companies in the entire Knoxville study area that fall within the industrial classifications identified as "high tech" as defined by NASDAQ and the American Electronics Association. Medical care or medical research facilities within a hospital environment are not included in this definition.
4. **Survey data shows that the occupations in greatest demand within the next 12 months by existing employers range from semi-skilled to very skilled, and significantly, most are currently available at satisfactory or better levels.** According to WDG's employer survey results, customer service representatives (telephone and Internet based) will be the occupation in greatest demand, by a wide margin. The next occupations in greatest demand will be, by number of openings: registered nurses (difficult to fill), customer service representatives (other than telephone and Internet) and certified nursing assistants.
 - The following table lists the occupations that will be in the greatest demand in one year, according to WDG's employer survey. Occupations that are currently difficult to somewhat difficult to recruit are in bold italic font. The greatest imbalance between current availability and future demand is in the health services sector.

ANTICIPATED DEMAND FOR WORKERS IN ONE YEAR BY LOCAL EMPLOYERS RESPONDING TO WDG'S SURVEY

Source: WDG Employer Surveys, Fall 2006; US Bureau of Labor Statistics

Current Labor Demand	# of Openings *	% of Labor Demand	Availability **		Educational or Training Requirement	Educational Attainment ***
			Average Score	Median Score		
Customer service rep. (tele/Internet)	742	30.2%	3.7	4	Moderate term OJT	HS/SC
Nurses, registered	347	14.1%	2.7	2	Associate degree	SC/C
Customer service representatives, other	221	9.0%	3.6	3	Moderate term OJT	HS/SC
Certified Nurse Assistants (CNAs)	143	5.8%	3.4	3	Postsecondary vocational award	HS/SC
CNC machine operators	89	3.6%	2.2	2	Moderate term OJT	HS/SC
Machine operators, no setup	88	3.6%	4.1	4	Moderate term OJT	HS/SC
Clerical workers with advanced computer skills	62	2.5%	3.4	3	Moderate term OJT	HS/SC
Management, experienced	49	2.0%	3	3	Work experience in a related occupation	SC/C
Nurses, licensed practical	48	2.0%	2.7	3	Postsecondary vocational award	HS/SC
Material handling laborers	42	1.7%	3.8	4	Short-term OJT	HS
Medical and clinical laboratory technicians	40	1.6%	2.6	3	Bachelor's degree	C
Office clerks	39	1.6%	4.1	4	Short-term OJT	HS/SC
Truck drivers	37	1.5%	3.8	4	Moderate term OJT	HS/SC
Administrative assistants	34	1.4%	3.7	4	Moderate term OJT	HS/SC
Accounting clerks/bookkeepers	32	1.3%	3.7	4	Moderate term OJT	HS/SC
Building and construction trades	29	1.2%	3.5	3.5	Moderate to short term OJT	HS/SC
Customer service managers	28	1.1%	3.3	3	Bachelor's degree plus experience	SC/C
Hand pickers and packagers	27	1.1%	3.6	4	Short-term OJT	HS
Engineers	24	1.0%	3.1	3	Bachelor's degree	C

* Data for surveyed employers only. Not extrapolated to the entire workforce.

** Availability Rating according to WDG employer survey: 5=Plentiful; 3= Satisfactory; 1=Unavailable

*** HS=High School occupations; SC=Some college occupations; C=College occupations

- Although not indicated in the survey responses, employer interviews indicated that construction at the government facilities in Oak Ridge is generating a large demand for skilled construction trade skills.

5. **The area's population and workforce are aging faster than the nation.** The region has an older population relative to the state and the nation. In 2006, the median age in the Greater Knoxville Region was 38.9 years, versus 37.3 years in Tennessee and 36.4 years in the U.S. Relative to the nation, the area is forecasted to be aging more quickly. The forecasted 2011 median age is 40.6 compared to a national median of 37.6.

- Importantly, Claritas forecasts show a decline of 0.5% in the number of residents aged 18-34 years, a key sector of the workforce and a critical population sector for replacing retiring individuals and growing the region's technology base. This decline contrasts

with a gain of 2.6% for the nation. Counties showing a growth rate above the national average include Anderson, Blount, Loudon, and Sevier. Knox County is forecast to have a 3.8% decline.

6. **The region is experiencing an aging of the workforce, a critical challenge for future growth and sustainability.** The aging of the population coincides with a graying of the workforce, an event that will affect future workforce availability as current employees reach retirement age. Although survey data was not obtained on this topic, employer interviews revealed deep concern on what impact the aging workforce will have on future workforce availability, especially for engineers, engineering technicians and other professional/technical skills.
- This graying of the workforce is of greatest concern among the technology-focused employers. Y-12 is a prime example, where the average age of the 4,700 workforce is over 50 years, according to facility representatives. Most of the facility's full-time workforce is employed in technical or professional occupations. Currently about 300 employees retire each year, representing a 6.3% annual retirement rate. The facility is preparing full retirement projections.
 - This faster aging of the population is a challenge for attracting new company facilities, as some companies prefer to locate operations in areas with a median age that approximates or is below the national norm for optimum access to younger talent.
 - The aging of the population may affect the attractiveness of the area for luring younger workers from other parts of the country and world. Younger, talented workers, especially those that are college educated and are between 25 and 35 years old are increasingly mobile, and are selective in where they want to live. Areas that are growing economically and technologically need, and seek this population group.
 - Locations that offer a balance of career development, interesting working environments, and high quality of life (as measured by the young and talented) are at an advantage for attracting these workers. Metro areas such as Portland (OR) Atlanta, Austin, Las Vegas, Columbus (OH), Seattle, San Francisco, Indianapolis, Louisville, and Charlotte are gaining in the share of these residents to the total population.
 - The post-Baby Boom demographic trends of the country and the increasingly non-technical educational preferences of U.S. students will result in a diminished supply of young technical workers in the near and long term. This diminishing supply will occur at the same time that the number of retiring technical workers grows and the increasingly technical nature of the economy will demand more technology savvy workers. The areas that are attractive to the technically educated and creative workforce will, therefore, be at a considerably more advantageous position in the future. It is Knoxville's challenge to become more attractive to the nation's young and talented workforce over other areas, and to attract those people to the area and to retain the graduates of the area's colleges and the University of Tennessee.
7. **Employer ratings of skill availability among job applicants are mixed.** Surveyed employers reported satisfaction with the *overall basic* skills of their job applicants, but they gave lukewarm reviews on their ratings of individual skills. Of all the individual skills listed in the survey, only Team and Cooperative Skills got a satisfactory or better assessment. All of the others received borderline satisfactory to slightly unsatisfactory reviews: written communication, reading comprehension, arithmetic/math, thinking and judgment, and verbal communication/comprehension.

- These shortfalls in basic skills will be a drag on the region's ability to advance economically. Most skills in today's economy, and certainly in the future economy, will depend upon strong basic skills, especially in mathematics.
8. **The computer skills among job applicants also received mixed reviews among surveyed employers.** Skills available among job applicants generally met employers' needs among several database, operating system and networking categories. However, among job applicants for office and non-managerial and non-technical positions, the skills held by applicants, while satisfactory to very good, tend to be less than what are needed in the workplace.
- This shortfall needs to be addressed among the high schools, vocational-technical schools and colleges. Expanded training efforts are needed for traditional students and for adults through continuing education programs. Surveyed residents indicated a strong desire for training in general computer applications and use. The challenge is designing courses and programs that meet employer needs and, for adult continuing education programs, are accessible and conveniently scheduled for residents.
9. **The public schools in the area offer different indicators on quality.** Although an assessment of the area's public schools was not part of this assessment, a review of available data from other studies shows that the area has good school systems, but that they do not have the striking indicators of other technology centers across the country. The following table shows that Oak Ridge City School District does match the ratings of the top technology centers; however, Knox County School District does not. The table shows the rankings of school districts by the economic development publication *Expansion Management*. Other school districts in the region were not rated by the publication.
- It is critical for the area to have top ranking schools for two principal reasons: they are very important for attracting the married young and talented workforce as they seek first class locations for educating their children, and they are critical for preparing the region's future workforce.
 - If the Knoxville region wants to enter the top tier of national technology-focused centers, it must have highly ranked school systems. The table below shows the relative ranking of Oak Ridge and Knox County School systems against a sample of the nation's technology centers.

Metropolitan Statistical Area	State	School District (with at least 3,300 students K-12)	School District Ratings* Ranked by EQ - Overall Percentile Ranking				
			EQ	GO	RI	CI	Rating
New York-Northern New Jersey-Long Island	NY-NJ-PA	Paramus, NJ - Paramus Boro Public Schools	97	94	97	90	Gold
Austin-Round Rock	TX	Eanes Independent School District	97	97	79	98	Gold
San Jose-Sunnyvale-Santa Clara	CA	Palo Alto Unified	95	93	88	97	Gold
Dallas-Fort Worth-Arlington	TX	Highland Park Independent School District	94	97	48	97	Gold
Omaha-Council Bluffs	NE-IA	Millard Public Schools	90	96	32	87	Gold
Washington-Arlington-Alexandria	DC-VA-MD-WV	Arlington County Public Schools	85	76	99	93	Gold

Metropolitan Statistical Area	State	School District (with at least 3,300 students K-12)	School District Ratings* Ranked by EQ - Overall Percentile Ranking				
			EQ	GO	RI	CI	Rating
Oak Ridge	TN	Oak Ridge City School District	83	84	54	65	Gold
Raleigh-Cary	NC	Wake County Schools	80	84	27	80	Blue
Richmond	VA	Henrico County Public Schools	79	75	71	80	Blue
Houston-Sugar Land-Baytown	TX	Cypress-Fairbanks Independent School District	72	71	51	77	Blue
Huntsville	AL	Huntsville City School District	64	64	48	63	Green
Albuquerque	NM	Albuquerque Public Schools	63	68	21	56	Green
Nashville-Davidson-Murfreesboro	TN	Rutherford County School District	52	58	10	58	Green
Atlanta-Sandy Springs-Marietta	GA	Fulton County School District	49	43	74	61	Green
Portland-Vancouver-Beaverton	OR-WA	Portland School District 1J	44	43	44	70	Green
Knoxville	TN	Knox County School District	43	45	31	47	Green
Durham	NC	Durham Public Schools	36	34	49	67	Green
Richmond	VA	Richmond City Schools	28	20	90	26	Green
Orlando-Kissimmee	FL	Orange County School District	25	30	6	59	Yellow

* Explanation of ratings

Expansion Management, 2006 Education Quotient

Ranking Definitions:

EQ: Overall Percentile Ranking

GO: College Board Scores & Graduation Rates

RI: Teacher Salaries (Beginning & Average), Per Pupil Spending & Student-Teacher Ratio

CI: Median Household Income, Adult Education Levels (HS & College), Child Poverty Rate

Rating:

Gold - Top 17%

Blue - Top 33%

Green - The Solid Middle

Yellow - Bottom 25%

Red - Bottom 10%

10. **Although employers think highly of the region's post-secondary schools, the majority does not actively recruit from them or use them for training, co-op, apprenticeship or other programs.** The University of Tennessee and Pellissippi State Technical College are the most frequently used institutions for training or development and recruiting efforts. However, the frequency of use of all educational institutions by area companies is low.
11. **Employers see a need for improvement among the area's high schools and post secondary institutions.** Even though the employers are happy with the quality of the area's schools, they do see a need for some improvements.
- Improvements needed in the high schools include better development of student work ethic, basic skills and life skills.
 - Improvements needed among the area's two-year institutions include improved student critical thinking and communication/ speaking skills, and student work ethic.
 - Improvements needed at the area's four-year institutions include teaching critical thinking and job preparedness skills.

12. **The education levels of Knoxville area's residents are good, but they are below the standard of the top tier of U.S. technically-focused metropolitan areas.** The following tables demonstrate that the percentage of residents with high school diplomas and college degrees. While good versus the national average, the Knoxville percentages are below the standards of most of the listed tech-centered metro areas.

- Critically, the graduation rate ranges significantly from school to school, from 55.5% for a school in Knox County to 96.8% for one school in Sevier County. Graduation rates for each high school in the Knoxville region are listed in an appendix to this report.

RATIOS OF HIGH-SCHOOL-EDUCATED RESIDENTS BY TECH-FOCUSED MSA

Source: Editor and Publisher, 2006

Metropolitan Statistical Area	State	High School Graduated*	
		Percent	Index US=100
Omaha-Council Bluffs	NE-IA	93.54%	109.6
Portland-Vancouver-Beaverton	OR-WA	92.25%	108.1
Raleigh-Cary	NC	91.53%	107.3
Washington-Arlington-Alexandria	DC-VA-MD-WV	90.42%	106.0
Austin-Round Rock	TX	90.07%	105.6
San Jose-Sunnyvale-Santa Clara	CA	89.56%	105.0
Albuquerque	NM	89.44%	104.8
Orlando-Kissimmee	FL	89.37%	104.7
Atlanta-Sandy Springs-Marietta	GA	88.73%	104.0
Dallas-Fort Worth-Arlington	TX	88.61%	103.8
Huntsville	AL	87.92%	103.0
Durham	NC	87.78%	102.9
Nashville-Davidson-Murfreesboro	TN	85.35%	100.0
New York-Northern New Jersey-Long Island	NY-NJ-PA	84.26%	98.7
Knoxville	TN	83.84%	98.3
Houston-Sugar Land-Baytown	TX	83.43%	97.8
Richmond	VA	83.42%	97.8
Tennessee Average	TN	82.19%	96.3
U.S. Average		85.33%	100

* Editor & Publisher Market Guide 2006

COLLEGE GRADUATION RATES OF RESIDENTS BY TECH-FOCUSED MSA
Source: Editor and Publisher, 2006

Metropolitan Statistical Area	State	College Graduated*	
		Percent	Index US=100
Durham	NC	39.2%	145.9
San Jose-Sunnyvale-Santa Clara	CA	36.6%	136.1
Raleigh-Cary	NC	36.1%	134.4
Austin-Round Rock	TX	35.3%	131.2
Washington-Arlington-Alexandria	DC-VA-MD-WV	34.9%	130.0
Dallas-Fort Worth-Arlington	TX	33.3%	124.0
Huntsville	AL	32.4%	120.7
Atlanta-Sandy Springs-Marietta	GA	28.8%	107.3
New York-Northern New Jersey-Long Island	NY-NJ-PA	28.6%	106.4
Houston-Sugar Land-Baytown	TX	28.4%	105.5
Albuquerque	NM	28.2%	104.8
Portland-Vancouver-Beaverton	OR-WA	27.2%	101.2
Omaha-Council Bluffs	NE-IA	26.5%	98.4
Nashville-Davidson-Murfreesboro	TN	24.8%	92.4
Knoxville	TN	24.3%	90.4
Orlando-Kissimmee	FL	24.1%	89.6
Richmond	VA	23.5%	87.7
Tennessee Average	TN	21.4%	79.8
U.S. Average		26.9%	100

* Editor & Publisher Market Guide 2006

13. **An important characteristic of an area's future workforce ability for the skills-based or knowledge-based economy is a measurement of students' competency in math and science, and Tennessee scores are below average.** According to the National Science Foundation (NSF), these scores demonstrate whether students have achieved a solid foundation for adult mathematics and science competency. District-level data is not available for all areas, and the most recent data is for 2000 (science) and 2003 (math). However, based on state data, Tennessee is under-performing relative to other states and the nation as a whole. See the table below.

- According to the NSF, 24 states exceeded the 2003 national average fourth-grade mathematics score, 11 had average scores, and 15 fell below the national average, including Tennessee. Eighth-grade performance scores followed a similar pattern, with 28 states exceeding the national average, seven meeting the national average, and 15 falling below the national average. Again, Tennessee is among those states in the bottom quartile of reporting states.

- In terms of fourth-grade science performance, among those states where data is available, 18 states exceeded the 2000 national average science score, 11 had average scores, and 10 fell below the national average, including Tennessee. Among eighth-grade science performance scores, 16 states exceeded the national average, 11 had average scores, and 11 fell below the national average. Again, Tennessee is below the national average.

SCIENCE AND MATH PROFICIENCY BY STATE*

Source: National Science Foundation

Area	Average Science Scores, 2000		Average Math Scores, 2003	
	4th Grade	8th Grade	4th Grade	8th Grade
Tennessee	145	145	228	268
United States	147	149	234	276

* Performance in science is measured on a scale of 0 to 300. Performance in math is measured on a scale of 0 to 500.

14. **If the region is to strengthen its position as a technology center, it must be able to provide the skills needed by its existing employers and by the nation's technology sectors.** The U.S. Bureau of Labor Statistics identified the technology-based skills that will be in the greatest demand in the country between 2004 and 2014. If greater Knoxville is to gain in its attractiveness for technology operations, these occupations will need to be provided locally and must be recruitable from outside the area.

TOP TECHNICAL OCCUPATIONS BY RATE OF PROJECTED GROWTH 2004-2014

Source: US Bureau of Labor Statistics; Institute of Electrical and Electronic Engineers

Occupation	Change		Most Significant Source of Post-Secondary Education or Training
	Number (000's)	Percent	
Network systems & data communications analysis	126	54.6%	Bachelor's degree
Computer software engineers, applications	222	48.4%	Bachelor's degree
Computer software engineers, systems software	146	43.0%	Bachelor's degree
Network & computer systems administrators	107	38.4%	Bachelor's degree
Database administrators	40	38.2%	Bachelor's degree
Computer systems analysts	153	31.4%	Bachelor's degree
Biomedical engineers	3	30.7%	Bachelor's degree
Environmental engineers	15	30.0%	Bachelor's degree
Personal financial advisors	41	25.9%	Bachelor's degree
Actuaries	4	23.2%	Bachelor's degree or higher, plus work experience
Accountants and auditors	264	22.4%	Bachelor's degree
Financial analysts	34	17.3%	Bachelor's degree
Engineers, all	195	13.4%	Bachelor's degree or higher
Engineering managers	25	13.0%	Bachelor's degree or higher, plus work experience
Architects & engineers	315	12.5%	Bachelor's degree or higher

TOP TECHNICAL OCCUPATIONS BY RATE OF PROJECTED GROWTH 2004-2014, *continued*

Source: US Bureau of Labor Statistics; Institute of Electrical and Electronic Engineers

Occupation	Change		Most Significant Source of Post-Secondary Education or Training
	Number	Percent	
Electrical engineers	18	11.8%	Bachelor's degree
Computer hardware engineers	8	10.1%	Bachelor's degree
Electronics engineers, except computer	14	9.7%	Bachelor's degree

15. **Non-technically focused occupations also will be needed locally to meet the needs of a growth economy.** According to the U.S. Bureau of Labor Statistics, there are many occupations that will be in high demand by general industry between 2004 and 2014. Although all of these may not be needed as strongly in the region, many will. It is the challenge of the area to provide the training needed for such skills to sustain general economic growth. These occupations are listed in the following two tables. They are listed by the fastest growing and those that are forecasted to grow the most numerically. Interestingly, most of the high growth jobs require only a high school diploma or up to two years of post-secondary education.

FASTEST GROWING OCCUPATIONS BY RATE OF PROJECTED GROWTH 2004-2014

Source: US Bureau of Labor Statistics

Occupation	Change 2004-2014		Most Significant Source of Post-Secondary Education or Training
	Number (000's)	Percent	
Home health aides	350	56.0%	Short-term on-the-job training
Network systems and data communications analysts	126	55.0%	Bachelor's degree
Medical assistants	202	52.0%	Moderate-term on-the-job training
Physician assistants	31	50.0%	Bachelor's degree
Computer software engineers, applications	222	48.0%	Bachelor's degree
Physical therapist assistants	26	44.0%	Associate degree
Dental hygienists	68	43.0%	Associate degree
Computer software engineers, systems software	146	43.0%	Bachelor's degree
Dental assistants	114	43.0%	Moderate-term on-the-job training
Personal and home care aides	287	41.0%	Short-term on-the-job training
Network and computer systems administrators	107	38.4%	Bachelor's degree
Database administrators	40	38.2%	Bachelor's degree
Physical therapists	57	36.7%	Master's degree
Forensic science technicians	4	36.4%	Associate degree
Veterinary technologists and technicians	21	35.3%	Associate degree
Diagnostic medical sonographers	15	34.8%	Associate degree
Physical therapist aides	15	34.4%	Short-term on-the-job training

FASTEST GROWING OCCUPATIONS BY RATE OF PROJECTED GROWTH 2004-2014, *continued*

Source: US Bureau of Labor Statistics

Occupation	Change 2004-2014		Most Significant Source of Post-Secondary Education or Training
	Number (000's)	Percent	
Occupational therapist assistants	7	34.1%	Associate degree
Medical scientists, except epidemiologists	25	34.1%	Doctoral degree
Occupational therapists	31	33.6%	Master's degree

FASTEST GROWING OCCUPATIONS BY NUMERIC INCREASE 2004-2014

Source: US Bureau of Labor Statistics

Occupation	Change		Most Significant Source of Post-Secondary Education or Training
	Number (000's)	Percent	
Retail salespersons	736	17.0%	Short-term on-the-job training
Registered nurses	703	29.0%	Associate degree
Postsecondary teachers	524	32.0%	Doctoral degree
Customer service representatives	471	23.0%	Moderate-term on-the-job training
Janitors and cleaners, except maids and housekeeping cleaners	440	19.0%	Short-term on-the-job training
Waiters and waitresses	376	17.0%	Short-term on-the-job training
Combined food preparation and serving workers, incl. fast food	367	17.0%	Short-term on-the-job training
Home health aides	350	56.0%	Short-term on-the-job training
Nursing aides, orderlies, and attendants	325	22.0%	Postsecondary vocational award
General and operations managers	308	17.0%	Bachelor's degree or higher, plus work experience
Personal and home care aides	287	41.0%	Short-term on-the-job training
Elementary school teachers, except special education	265	18.2%	Bachelor's degree
Accountants and auditors	264	22.4%	Bachelor's degree
Office clerks, general	263	8.4%	Short-term on-the-job training
Laborers and freight, stock, and material movers, hand	248	10.2%	Short-term on-the-job training
Receptionists and information clerks	246	21.7%	Short-term on-the-job training
Landscaping and groundskeeping workers	230	19.5%	Short-term on-the-job training
Truck drivers, heavy and tractor-trailer	223	12.9%	Moderate-term on-the-job training
Computer software engineers, applications	222	48.4%	Bachelor's degree
Maintenance and repair workers, general	202	15.2%	Moderate-term on-the-job training

Recommendations

Knoxville has many attractive qualities that contribute to its potential as a highly-skilled, technologically-savvy location. The key components building this foundation largely derive from the presence of the Oak Ridge National Laboratory (ORNL), the Y-12 National Security Complex and the University of Tennessee. However, these facilities alone have not positioned the area among the nation's top tier technology-centered locations.

Knoxville is in a comfortable situation. It has a good technical base, it has a collection of good colleges and universities, it has a generally well-educated workforce that is growing faster than the national average, most of its employers can find the workforce they need, the quality of its workforce is satisfactory to good, and its labor costs are below the U.S. average.

However, the goal of the business leadership is not to be just a comfortable business location that survives in a changing global environment. It wants to become a dynamic, exciting recognized regional and national technology center with a diversified strong economy, coupled with a high quality of life. To achieve this goal, a significant effort will be needed to propel the region into a higher orbit. The following recommendations are offered to reach that goal.

- 1. Expanded workforce development efforts are needed to meet the current and future the area's high tech employers.** While some of these recommendations are currently being explored or pursued, these recommendations need to be fully implanted. It is recommended that the Chamber and its allies and partners develop or stimulate the development of a strong regional workforce partnership to coordinate regional labor- and workforce-related efforts, including transfer of best practices among area and national employers and educational institutions, goal setting, networking assistance, state legislative lobbying efforts, and funding. Goals of the partnership would include: enhancing the use of the region's educational resources by employers for employee training and recruiting; alerting employers to the full breadth of educational resources available in the region; providing educators with information on the comprehensive training needs of area employers; identifying industry and technology skill standards; lobbying for required training programs; and generally promoting improvements in the workforce-development systems region-wide. Recommended issues for the partnership to address encompass:
 - Improve recruiting relationships between industry and educational institutions.
 - Demonstrate the need for educational institutions to better prepare students for the demands of the workplace.
 - Expand co-op, intern, or apprentice programs between area employers and educational institutions as roles in workforce training. This will help address the occupational shortages that require previous work experience and help retain the young in the region, particularly among the college educated. Co-op programs between employers and the area's four-year colleges and universities are particularly recommended.
 - Identify educational services and employers' needs and ways to synchronize those needs through effective training/retraining.
 - Develop better communication between area educators and employers. Given that many occupations in short supply require at least a two-year degree (if not higher), this will be critical in defining future training programs.

- Gain consensus on what kinds of vocational/technical programs are needed and develop career pathways between vocational/technical schools, community colleges, and four-year degree programs.
 - Explore the potential for a much stronger role in workforce development by the private sector through the following efforts or programs:
 - work/study
 - positive peer development
 - mentoring, shadowing programs
 - career planning
 - teaming with educators and community groups
 - monitoring the effectiveness of educational programs and workforce-development efforts
 - providing tests for students that evaluate their preparedness for the needs of business
 - conveyance of opportunities and skill/training requirements to young people and their parents
 - guaranteed jobs for educational-performance programs
 - special scholarships for sponsored youth, apprenticeships
 - in-house training programs (job skills, life skills, career development)
2. **Give attention to the needs of the not-employed.** Because the primary limitations to employment among those not currently employed but interested in working are childcare issues and disabilities, employers, along with the public sector, need to identify solutions to these obstacles. Subsidized child care, partnering with specific child care centers, and offering alternative transportation opportunities or working arrangements for disabled workers are just a few possible options.
3. **Elevate the local school system standards to meet or exceed those of leading technology centers nationwide.** It is urged that the school systems throughout the region meet the criteria of excellence that prevails at the nation's top public school systems. The Oak Ridge school system might a useful standard for the region.
- Input from the area's high-tech employers is urged in defining and developing these standards.
 - Financial or other assistance is recommended for consideration from the area employers to the public school systems in this effort.
 - Math and science courses should be considered as top priority in all school system elevations.
 - Drop out rates need to be reduced
 - Basic skills need to be emphasized including critical thinking

4. **Expand public school funding.** Encourage greater state funding for the region's school systems to address the task of preparing a workforce that is competitive in the knowledge- and technology-based economy. Programs to enhance the math and science skills of elementary, intermediate/middle, and high school students are critical. It is urged that every effort be taken by the business, economic development, and educational communities to see that such funding is received. This will be accomplished, in part, through support of the Tennessee State Board of Education's *Ready for College = Ready for Training* initiative that increases the standards set for Tennessee's high school students.
5. **Create a national recruiting campaign to encourage younger residents to move back the area.** The region offers good to excellent school systems, numerous recreational opportunities, and affordable housing, all of which are attractive to younger families. Activities must be developed and promoted that attract young people (single and married) to the Greater Knoxville Region.
6. **Prepare a plan to attract more young and talented people to the area and retain more graduates from the region's colleges and universities.** This would be through development of a lively residential environment principally in downtown Knoxville, and possible elsewhere. Some such activities are already in place, but these efforts need to be expanded. It is hard for a community to plan a vibrant young and talented community, as such areas tend to develop on their own from private sector investment. However, the public sector can create a regulatory environment that encourages such investment (such as zoning and business licensing). Sometimes public investment is needed to spur some development, such as streetscapes, parking facilities, festivals, image campaigns, low cost housing and gallery/rehearsal space for artists, performance venues, general amenities and infrastructure development. Several communities across the country have developed attractive arts-centered or creative centers, including Pittsburgh, Portland (OR), Austin, Atlanta, and Richmond, VA. Efforts used in these and other communities include live music (Austin, Louisville, Indianapolis, Cincinnati); bike paths (Portland, OR); sports complexes (Memphis, Lancaster); and attractive downtown residential areas with market rate professional housing (loft style housing, co-ops and apartments), trendy retail establishments, cyber cafes and restaurants, WIFI zones, and entertainment-artistic zones (Richmond, Pittsburgh, Huntsville, Austin).
 - The region must increase its number of college educated residents between the ages of 25 and 38 if it is to become an expanded technology center.
 - The area needs to be viewed as a trendy, interesting, fun, progressive and "hip" location with a diversified population.
 - The area's colleges and universities offer a great potential as a foundation for development.
7. **Develop a campaign to encourage residents to complete their high school diplomas and obtain their GEDs.** The high percentage of residents without a high school diploma could be a red flag to locationally active companies. This is also supported by the state's initiative to implement elevated standards on what it takes to succeed in both post-secondary education and in the workplace. Expanded basic skills training is also needed.
8. **Relocation materials should emphasize opportunities for "trailing spouses."**

9. **Investigate the role of retired residents in the workforce.** The area is seeing a significant graying of the workforce. Some of these retirees are highly skilled and well-educated, and could serve as a resource for employers, even in a part-time capacity.
- The leading reason that residents not currently employed but interested in working are not in the labor force is because they are retired. Employers should be educated on the roles retirees can play and special accommodations that would be needed for them to enter the workforce.
 - Housing opportunities should be explored and developed that meet the “downsizing” needs of the retired. Such opportunities would allow retired employees to stay in the area under ideal conditions, providing an opportunity for them to remain active in the workforce.
 - Developments offering the “active” life style attractive of retiring “Boomers” should be considered. The latest trends in such community development should be followed.
 - The area colleges and universities (particularly UT) should be approached as sponsors of university focused retirement centers, with their alumni in particular mind. The University of Florida has followed this concept. Such communities would attract college educated retirees that could become part of the area’s workforce.
10. **Support existing manufacturers through workforce-development programs in the middle and high schools.** Continue to promote manufacturing opportunities as early as possible in the area secondary schools. Vocational/technical training needs an emphasis in the high schools to engender a greater desire by high school graduates to attend post-secondary technical training. It is important to improve the image of vocational/technical education as an alternative to college.
11. **Develop a strategy to diversify the region’s technology base to include a higher percentage of companies not dependent upon government contracts.** The area needs to diversity its technology base to include more commercial activities, but using the area’s current technology resources as leverage for the effort. The Chamber and its partners are urged to develop a plan for such diversification. Development also needs to be in more sectors of the region. Factors needed in this effort would be technology transfer from UT, the Labs and Y-12 and development of significant sized technology parks linked to UT.

FIGURE 1
THE STUDY REGION IN THE CONTEXT OF THE MID-ATLANTIC UNITED STATES

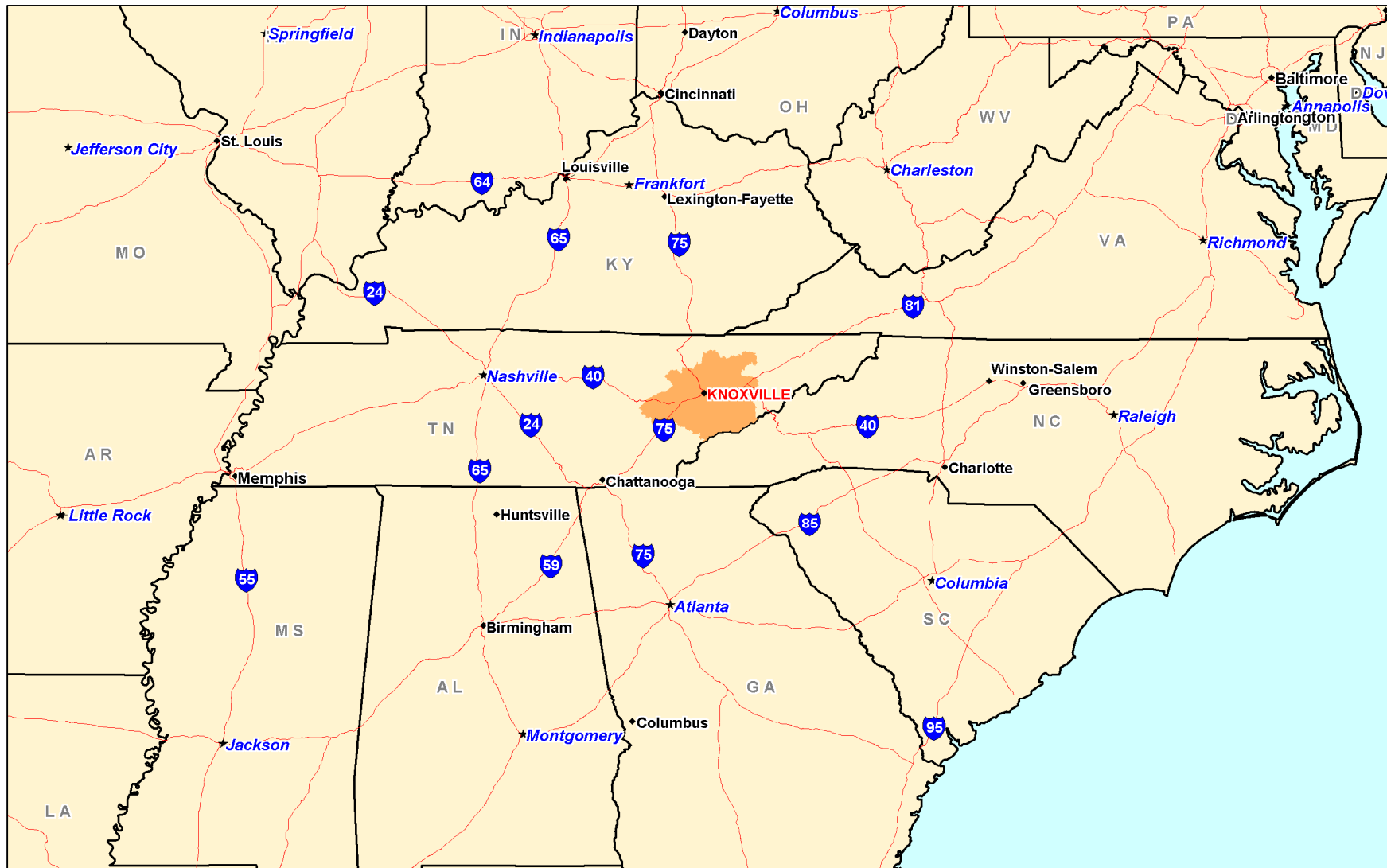
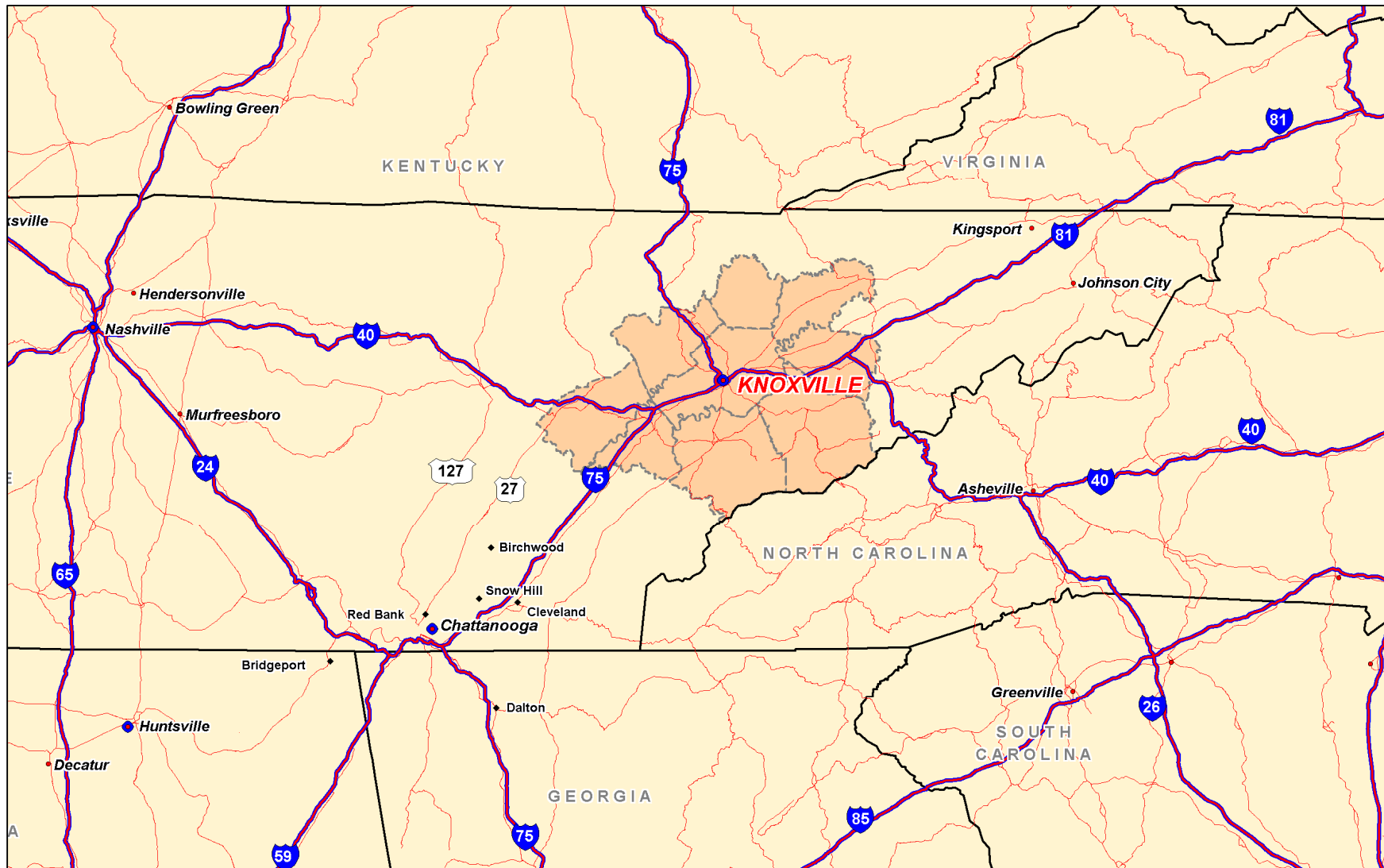
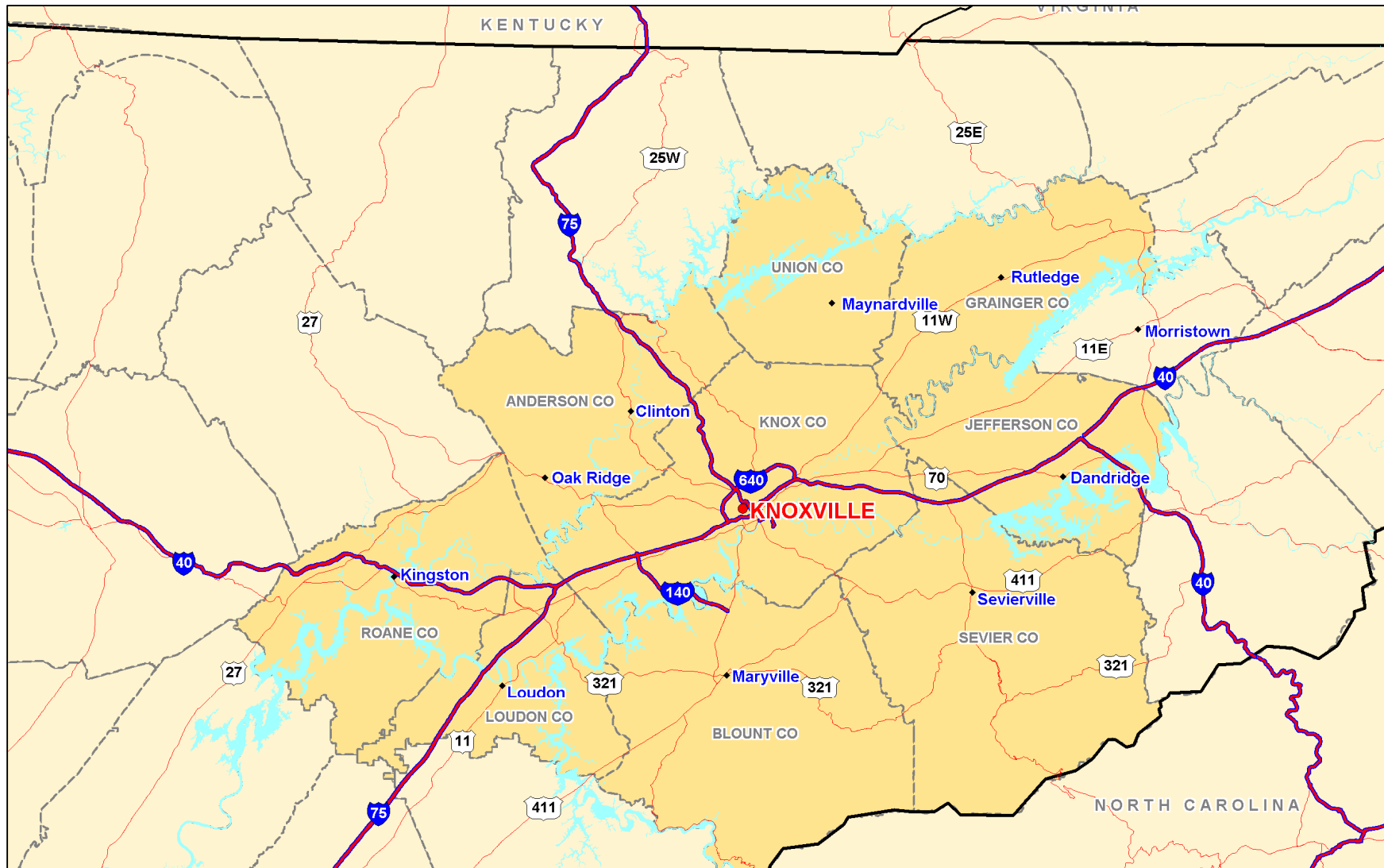


FIGURE 2
THE STUDY REGION IN THE CONTEXT OF THE STATE OF TENNESSEE



**FIGURE 3
STUDY REGION DETAILS**



LABOR MARKET ORIENTATION

1. **The Greater Knoxville Region is a nine-county area consisting of Knox, Union, Blount, Anderson, Loudon, Jefferson, Grainger, Sevier, and Roane Counties.** The region is located in the eastern portion of the State of Tennessee, and is displayed in the context of the mid-Atlantic section of the United States in Figure 1 and in the context of the State of Tennessee in Figure 2. The study area and its counties are shown in detail in Figure 3. The City of Knoxville, located in Knox County, is the largest population center in the region, and accounts for approximately 44% of Knox County’s population. There is one metropolitan statistical area (MSA) located in the region –the Knoxville, TN MSA– which consists of Anderson, Blount, Knox, Loudon, and Union Counties.
 - Primary access to the region is provided by Interstate 75, Interstate 40 and Interstate 81. I-75 is a north/south route that intersects with I-40 in Knoxville. I-75 travels north to Kentucky and south to Chattanooga, TN and into Georgia. I-40 is the primary east/west route, and travels from North Carolina through Knoxville and eastward across Tennessee to Memphis. I-40 continues into Arkansas. I-81 begins in Jefferson County and extends northeast through Virginia, Maryland and the northeast United States.
 - Table 3 shows mileage and driving distances from Knoxville to select local and regional destinations.
 - Due to its central location and multiple interstates serving the area, Knoxville is within a day’s driving distance to 75% of the U.S. population.

TABLE 3
DISTANCE FROM REGIONAL CENTERS TO SELECT LOCAL AND REGIONAL DESTINATIONS
 Source: Microsoft MapPoint

Destination City	From Knoxville, TN	
	Highway Miles	Driving Time
Atlanta, GA	211.7	3 hrs, 27 mins.
Baltimore, MD	523.2	8 hrs, 16 mins.
Birmingham, AL	257.3	4 hrs, 13 mins.
Chattanooga, TN	111.0	1 hr, 51 mins.
Huntsville, AL	213.0	3 hrs, 47 mins.
Jackson, MS	496.5	7 hrs, 54 mins.
Little Rock, AR	529.8	8 hrs, 22 mins.
Louisville, KY	248.5	4 hrs, 1 min.
Memphis, TN	393.2	6 hrs, 15 mins.
Nashville, TN	179.2	2 hrs, 55 mins.
New Orleans, LA	600.7	9 hrs, 35 mins.
Raleigh, NC	358.2	5 hrs, 44 mins.
Washington, DC	486.7	7 hrs, 45 mins.

- Air service is provided through the Knoxville’s McGhee Tyson Airport. Table 4 shows those locations that can be reached from Knoxville on non-stop flights.

TABLE 4
NON-STOP FLIGHTS OFFERED FROM KNOXVILLE'S MCGHEE TYSON AIRPORT

Source: OAG, Inc.

Destination City	From Knoxville Int'l Airport		Destination City	From Knoxville Int'l Airport	
	Daily Direct Flights	Flight Time		Daily Direct Flights	Flight Time
Atlanta, GA	9	1 hour	Las Vegas, NV	1	3 hrs, 15 mins
Charlotte, NC	7	55 mins	Memphis, TN	4	1 hour, 20 mins
Chicago, IL	9	1 hour, 45 mins	Minneapolis/St. Paul, MN	1	2 hrs, 30 mins
Cincinnati, OH	6	1 hour, 5 mins	Newark, NJ	3	2 hrs, 5 mins
Cleveland, OH	2	1 hour, 25 mins	New York, NY	3	2 hrs, 5 mins
Dallas/Ft. Worth, TX	3	2 hrs, 15 mins	Orlando, FL	2	1 hour, 40 mins
Denver, CO	1	3 hrs, 10 mins	Philadelphia, PA	2	1 hour, 40 mins
Detroit, MI	4	1 hour, 40 mins	Tampa/St. Petersburg, FL	1	1 hour, 40 mins
Houston, TX	3	2 hrs, 30 mins	Washington, DC	6	1 hour, 30 mins

2. **According to estimates provided by Claritas, the Knoxville region has a population base that is projected to grow more quickly than the state or the U.S.** Over the next five years, it is estimated that the region will grow by 5.8%, compared to 4.3% in Tennessee and 4.8% nationwide. Most of the counties in the region are showing strong growth. Historical, estimated, and projected growth in all of the counties, with the exception of Anderson and Roane Counties, have exceeded or are projected to exceeded national figures. See Table 5 and Exhibit D-1 in Appendix D, which provides complete demographic information.
- The Greater Knoxville Region has a large population base of 861,975. Among the counties comprising the region, Knox County is the largest, with an estimated 2006 population of 406,171. The smallest population base is found in Union County, with an estimated 2006 population of 19,130.

TABLE 5
POPULATION OF THE GREATER KNOXVILLE REGION

Source: US Bureau of the Census, Claritas

Location	1990	2000	2006	2011	Change 1990 - 2000	Change 2000 - 2006	Change 2006 - 2011
Anderson County	68,250	71,330	72,669	74,010	4.5%	1.9%	1.8%
Blount County	85,961	105,823	116,689	126,048	23.1%	10.3%	8.0%
Grainger County	17,095	20,659	22,438	24,007	20.8%	8.6%	7.0%
Jefferson County	33,016	44,294	48,730	52,484	34.2%	10.0%	7.7%
Knox County	335,749	382,032	406,171	426,815	13.8%	6.3%	5.1%
Loudon County	31,265	39,086	43,276	46,781	25.0%	10.7%	8.1%
Roane County	47,227	51,910	53,408	54,865	9.9%	2.9%	2.7%

TABLE 5, CONTINUED
POPULATION OF THE GREATER KNOXVILLE REGION

Source: US Bureau of the Census, Claritas

Location	1990	2000	2006	2011	Change 1990 - 2000	Change 2000 - 2006	Change 2006 - 2011
Sevier County	51,051	71,170	79,464	86,531	39.4%	11.7%	8.9%
Union County	13,694	17,808	19,130	20,159	30.0%	7.4%	5.4%
Greater Knoxville Region	683,308	804,112	861,975	911,700	17.7%	7.2%	5.8%
Tennessee	4,877,185	5,689,283	5,980,956	6,239,185	16.7%	5.1%	4.3%
U.S.	248,709,873	281,421,906	298,021,266	312,383,955	13.2%	5.9%	4.8%

3. **Among the commute zones analyzed, the largest population base is found within a 30-minute drive time of the I-275 Business Corridor, located at I-275 and Baxter Avenue in Knox County.** Employers locating at this location will have access to a population base of 533,748. The largest percent change in population is projected to occur within a 30-minute drive of Centre 75 Business Park in Loudon County. All of the commute zones are showing a growing population, but four of the zones are exhibiting especially robust growth, with rates exceeding the national figure. Population estimates and projections are provided in Table 6, while complete demographic information for the commute zones is provided in Exhibit D-1. Commute zones are illustrated in Appendix A.

TABLE 6
ESTIMATED AND PROJECTED POPULATION FIGURES FOR KNOXVILLE REGION'S 30-MINUTE COMMUTE ZONES

Source: Claritas

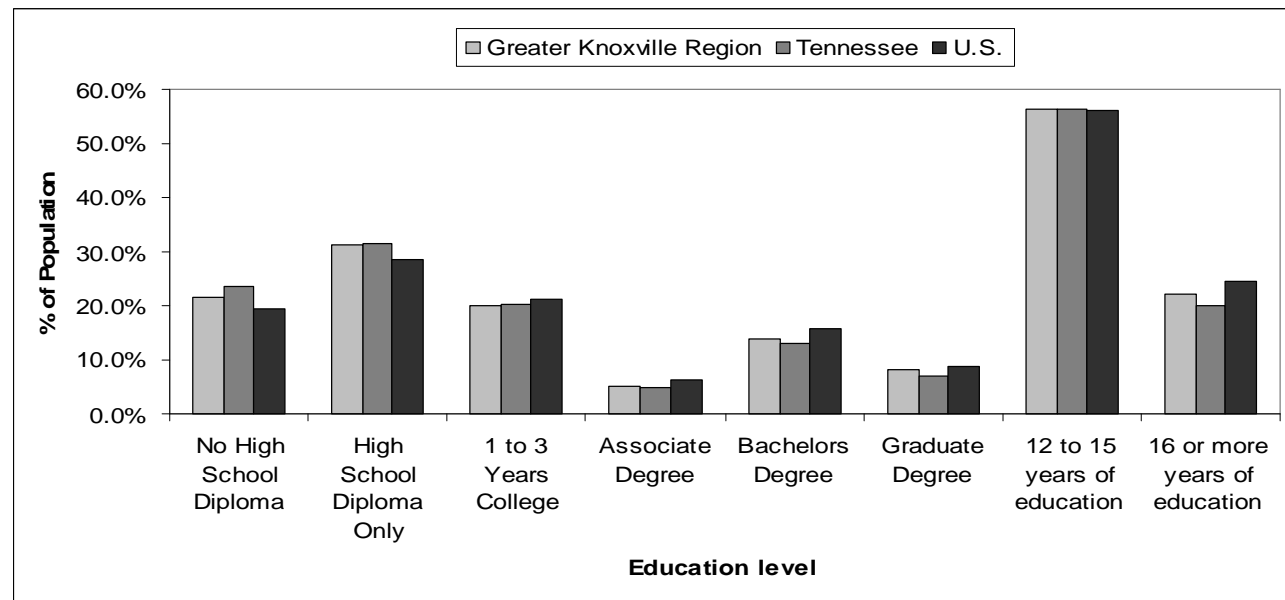
Commute Zone Node (County)	1990	2000	2006	2011	Change 1990 - 2000	Change 2000 - 2006	Change 2006 - 2011
I-75 Business Park (Anderson)	312,677	340,320	354,216	366,833	8.8%	4.1%	3.6%
Horizon Center (Roane)	193,875	227,182	240,610	252,065	17.2%	5.9%	4.8%
Centre 75 Business Park (Loudon)	95,345	122,562	132,909	141,541	28.5%	8.4%	6.5%
Partnership Park South (Blount)	193,804	225,508	243,096	258,273	16.4%	7.8%	6.2%
EastBridge Business Park (Knox)	253,654	274,513	285,599	295,927	8.2%	4.0%	3.6%
Hardin Business Park (Knox)	393,970	440,200	462,463	482,473	11.7%	5.1%	4.3%
I-275 Business Corridor (Knox)	437,594	502,535	533,748	561,027	14.8%	6.2%	5.1%
Forks of the River Industrial Park (Knox)	347,264	389,322	410,729	429,862	12.1%	5.5%	4.7%
Midway Business Park (Knox)	338,867	384,618	408,178	428,909	13.5%	6.1%	5.1%
Greater Knoxville Region	683,308	804,112	861,975	911,700	17.7%	7.2%	5.8%
Tennessee	4,877,185	5,689,283	5,980,956	6,239,185	16.7%	5.1%	4.3%
U.S.	248,709,873	281,421,906	298,021,266	312,383,955	13.2%	5.9%	4.8%

4. **The Greater Knoxville Region has a well-educated population especially compared to the State of Tennessee, and in some cases, the nation.** The percentage of residents with at least a high school diploma and some post-secondary training less than a four-year degree in the region (56.4%) is equal to the state (56.4%) and slightly higher than the nation (56.0%). This asset is significant, as

many office and industrial employers prefer to hire workers with some higher education less than a four-year degree. Compared to the state, the region also has a high percentage of residents with a bachelor’s degree or higher. See Figure 4 and Exhibit D-1.

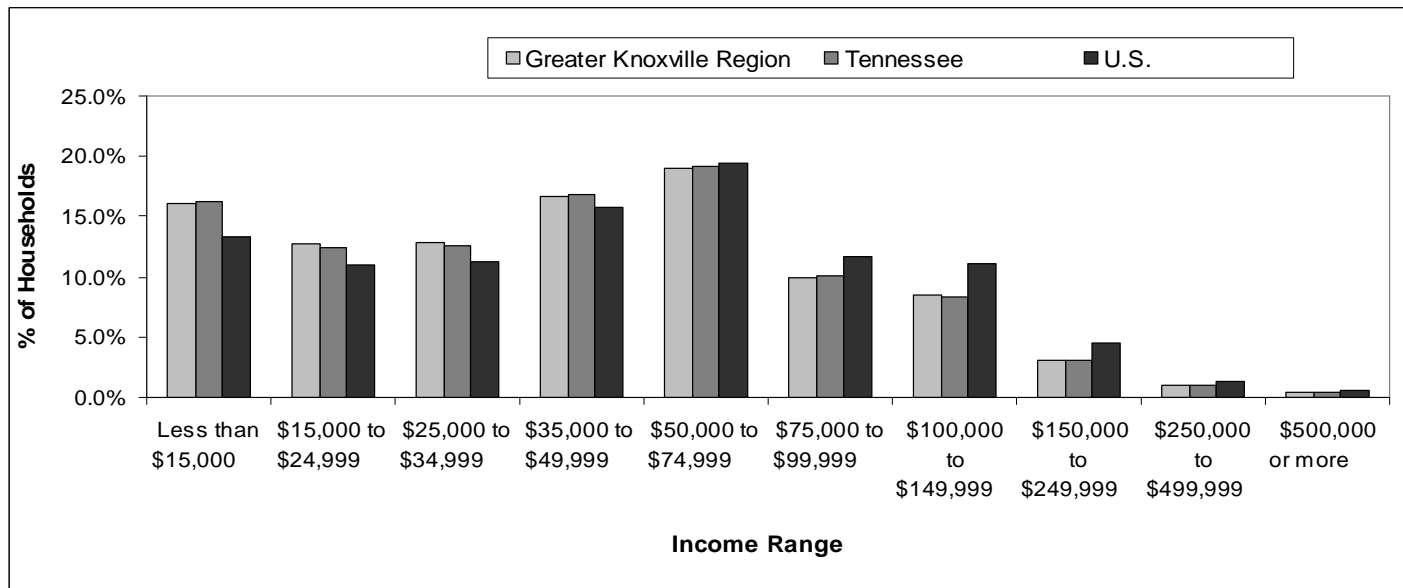
- Of concern, however, the region has a higher proportion of residents without a high school diploma relative to the nation. 21.5% of residents do not have a high school diploma, compared to 19.4% nationally. The state rate is higher at 23.6%.
- Knox County has a significantly higher percentage of residents with bachelor’s degrees or higher compared to the other counties in the region, Tennessee, and the U.S. Meanwhile, none of the counties exceeds the national percentage of residents with one to three years of college. See Exhibit D-1.
- Education levels in the commute zones vary. The percentage of residents with at least a high school diploma is higher than the national average in three of the zones — the Horizon Center, the Hardin Business Park, and the I-275 Business Park. Three of the zones have a higher percentage of residents with at least a high school diploma and some post-secondary training less than a four-year degree (i.e., 12 to 15 years of education), including the I-75 Business Park, the EastBridge Business Park, and the Forks of the River Industrial Park. Five of the zones, including the Horizon Center, the Centre 75 Business Park, Partnership Park South, Hardin Business Park, and the I-275 Business Corridor, have well-educated residents, with a higher percentage attaining 16 years or more of education compared to the national average. See Exhibit D-1 for educational information by commute zone.

FIGURE 4
EDUCATIONAL ATTAINMENT FOR REGION, TENNESSEE, AND U.S. (2006)
 Source: Claritas



5. **Household incomes in the Greater Knoxville Region are below state and national norms.** In 2006, the median household income in the Greater Knoxville Region (\$42,582) was below the state (\$42,850) and national (\$48,775) medians.
- Union County has the lowest median household income (\$30,941). Knox County has the highest income (\$44,519) among the nine counties.
 - According to Claritas, 41.6% of regional households earn less than \$35,000 annually, compared to 41.2% in Tennessee and 35.6% nationally. WDG’s experience typically shows that the higher the percentage of households earning less than \$35,000, the more likely it is to have residents interested in upgrading their jobs and career advancement, working second jobs, or working as second-income earners. However, in the Greater Knoxville Region, many of the households earning less than \$35,000 annually have disproportionately low incomes. As Figure 4 shows, over 16% of the area’s households have an annual income of less than \$15,000 compared to 13.3% nationally. This is problematic, because this population may have social issues or lower educational levels that would make it difficult to maintain employment.

FIGURE 5
HOUSEHOLD INCOME DISTRIBUTION IN THE REGION, TENNESSEE, AND THE U.S.
 Source: Claritas



6. **The region has an older population relative to the state and nation.** In 2006, the median age in the Greater Knoxville Region was 38.9 years, versus 37.3 years in Tennessee and 36.4 years in the U.S. This is a challenge, as some companies prefer to locate operations in areas with a median age that approximates or is below the national norm for optimum access to younger talent.

Younger employees typically offer a higher energy level and technical awareness, learn faster, are more creative, and require lower healthcare costs and salaries than do older employees.

- Union County has the youngest median age (37.3), followed by Knox County (37.7) and Jefferson County (38.0), all of which are above the national norm.

7. The Greater Knoxville Region is well-known for unique technology operations that provide a large technical workforce and company base.

- Key technology assets in the region are anchored by the Oak Ridge National Laboratory (Anderson County) and the University of Tennessee (Knox County). Details on each of these institutions are provided further in the report.
- The Oak Ridge/Knoxville region, according to some estimates, is home to more than 1,000 high-tech companies, 45,000 high-tech professionals, 3,500 PhDs, and more than 9,000 college students majoring in technology, science, math, or engineering.
- Knoxville is home to 70 corporate headquarters and more than 1,000 manufacturers. A list of major employers is provided in Exhibit D-12 in Appendix D.

8. The region has a significantly higher percentage of its population employed in the professional/scientific and technical services sector, compared to the state or U.S. Much of the region's strength in these sectors is due to facilities located in Anderson and Knox Counties.

- As seen in Table 7, the region's largest employment sector is manufacturing, accounting for 14.7% of total industry employment, while the second largest sector, retail trade, accounts for 13.2% of total employment. See Exhibit D-2 for the change in employment by industry from 2000 to 2006. Exhibit D-3 provides employment by industry by major NAICS codes.
- The region lags in the finance, insurance and real estate (FIRE) sector largely due to Nashville's position as the state and regional FIRE center. Charlotte is also a regional center, eliminating the need for a developed center in Knoxville.

TABLE 7
PERCENT EMPLOYMENT BY INDUSTRY FOR KNOX COUNTY, ANDERSON COUNTY,
REGION, TENNESSEE, AND U.S. (2006)

Source: Claritas

Industry	Anderson County	Knox County	Greater Knoxville Region	Tennessee	U.S.
Total	100%	100%	100%	100%	100%
<i>Greater Knoxville Regional Sectors that Exceed National Ratios in Employment</i>					
Accommodation/Food Services	5.9%	7.0%	7.5%	6.0%	6.0%
Administration/Support/Waste Management Services	4.5%	3.9%	3.6%	3.2%	3.4%
Construction	8.8%	5.8%	7.4%	7.3%	6.9%
Manufacturing	15.2%	10.6%	14.7%	18.9%	14.1%
Professional/Scientific/Technical Services	12.5%	8.0%	6.5%	4.2%	5.9%

TABLE 7, CONTINUED
PERCENT EMPLOYMENT BY INDUSTRY FOR KNOX COUNTY, ANDERSON COUNTY,
REGION, TENNESSEE, AND U.S. (2006)

Source: Claritas

Industry	Anderson County	Knox County	Greater Knoxville Region	Tennessee	U.S.
<i>Greater Knoxville Regional Sectors that Exceed National Ratios in Employment, continued</i>					
Retail Trade	11.4%	13.8%	13.2%	11.8%	11.7%
Transportation/Warehousing/Utilities	4.9%	5.2%	5.3%	6.3%	5.2%
Wholesale Trade	2.6%	4.5%	3.8%	3.9%	3.6%
Health Care/Social Assistance	10.8%	12.7%	11.3%	11.0%	11.1%
<i>Greater Knoxville Regional Sectors that Lag National Ratios in Employment</i>					
Agriculture/Forestry/Fishing/Hunting/Mining	0.8%	0.4%	1.0%	1.4%	1.9%
Arts/Entertainment/Recreation	0.7%	1.3%	1.5%	1.4%	1.8%
Educational Services	7.0%	9.8%	8.4%	7.6%	8.7%
Finance/Insurance/Real Estate	4.8%	5.9%	5.4%	5.9%	6.9%
Information	1.4%	2.6%	2.0%	2.4%	3.1%
Management of Companies/Enterprises	0.0%	0.1%	0.0%	0.1%	0.1%
Other services (excl. Public Admin.)	4.7%	4.8%	4.7%	4.8%	4.8%
Public Administration	4.2%	3.7%	3.6%	4.0%	4.8%

9. **The region's employment ratio exceeds state and national averages in two key, knowledge-intensive, white-collar occupational groupings —*architecture/engineering* and *life, physical and social sciences*.** The occupational distribution follows the trends in industry employment demonstrated in Table 7. Anderson and Knox Counties lead the region in the percentage of residents in these occupational groups. Knox and Anderson Counties are also very close to the national percentage of residents employed in computer and mathematical occupations, and Knox County exceeds the national percentage of residents employed in arts/design/entertainment/sports and media occupations.
- As seen in Table 8, regional employment in *building/grounds cleaning/maintenance, construction and extraction, healthcare practitioner/technician, sales and food preparation/serving, installation/maintenance and repair, production and transportation/material moving-related* occupations also exceeds national norms. Occupational groups in which the region lags behind national figures are provided in Table 8.
 - See Exhibits D-4 (2000 Census) and D-5 (2006 estimates) for additional occupational information by commute zone, county, region, state, and U.S.

TABLE 8
PERCENT EMPLOYMENT BY OCCUPATION FOR KNOX COUNTY, ANDERSON COUNTY, REGION, TENNESSEE, AND U.S. (2006)
 Source: Claritas

Occupation	Anderson County	Knox County	Greater Knoxville Region	Tennessee	U.S.
<i>Regional Occupational Groups that Exceed Nation in Employment</i>					
Architecture/Engineering	3.3%	2.9%	2.5%	1.7%	2.1%
Building/Grounds Cleaning/Maint	3.7%	3.0%	3.5%	3.1%	3.2%
Construction/Extraction	7.0%	4.4%	6.1%	5.9%	5.5%
Food Preparation/Serving-related	5.1%	5.4%	5.4%	4.6%	4.7%
Healthcare Practitioner/Technician	4.9%	5.8%	5.2%	5.0%	4.6%
Installation/Maintenance/Repair	4.7%	3.4%	4.2%	4.3%	4.0%
Life/Physical/Social Science	2.6%	1.3%	1.2%	0.7%	0.9%
Production	10.8%	6.1%	9.6%	12.3%	8.4%
Sales/Related	9.8%	13.5%	12.4%	11.3%	11.3%
Transportation/Material Moving	5.3%	5.4%	6.3%	7.5%	6.1%
<i>Regional Occupational Groups that Lag Nation in Employment</i>					
Arts/Design/Entert/Sports/Media	1.5%	2.1%	1.7%	1.7%	1.9%
Business operations specialists	1.7%	2.0%	1.7%	1.8%	2.1%
Financial specialists	1.6%	2.2%	1.8%	1.9%	2.2%
Community/Social Services	1.4%	1.6%	1.4%	1.4%	1.5%
Computer and Mathematical	2.2%	2.2%	1.6%	1.5%	2.5%
Education/Training/Library	4.7%	6.3%	5.4%	5.1%	5.7%
Farming/Fishing/Forestry	0.3%	0.2%	0.4%	0.6%	0.7%
Healthcare Support	2.0%	1.7%	1.7%	1.7%	2.0%
Legal	0.7%	1.2%	0.8%	0.7%	1.1%
Management incl Farmers/Farm Mgrs	7.4%	9.4%	8.3%	8.4%	9.3%
Office/Administrative Support	15.6%	15.4%	14.8%	14.9%	15.4%
Personal Care/Service	2.1%	2.5%	2.5%	2.4%	2.8%
Protective Service	2.1%	1.7%	1.6%	1.7%	2.0%

10. **Oak Ridge National Laboratory (ORNL) is located on the Oak Ridge Reservation in Anderson and Roane Counties.** ORNL is a multi-program science and technology laboratory managed for the U.S. Department of Energy by the University of Tennessee and Battelle, LLC. Battelle is a 7,500-person R&D organization, founded in 1929 in Columbus, Ohio, as a non-profit charitable trust. A not-for-profit company known as UT-Battelle has been established for the sole purpose of managing and operating the Oak Ridge National Laboratory for the U.S. Department of Energy. Formed as a 50-50 limited liability partnership between the University of Tennessee and Battelle, UT-Battelle is the legal entity responsible for leading ORNL.

Scientists and engineers at ORNL conduct basic and applied research and development to create scientific knowledge and technological solutions that: strengthen the nation's leadership in key areas of science; increase the availability of clean, abundant energy; restore and protect the environment; and contribute to national security.

ORNL focuses on six broad scientific areas: neutron science, biological systems, energy, advanced materials, national security, and high-performance computing.

- Oak Ridge National Laboratory is the Department of Energy's largest science and energy laboratory. ORNL was established in 1943 as a part of the secret Manhattan Project to pioneer a method for producing and separating plutonium.
- ORNL has a staff of more than 4,000, and annually hosts approximately 3,000 guest researchers who spend two weeks or longer in Oak Ridge.
- ORNL funding for 2006 exceeds \$1 billion. UT-Batelle has provided nearly \$8 million in support of math and science education, economic development, and other projects in the greater Oak Ridge region.
- ORNL is currently undergoing a \$350 million expansion that will provide 13 new facilities to support new research and development.

LABOR AVAILABILITY

1. **The Greater Knoxville Region has a labor force of 442,467, which has been growing more rapidly than the state or nation in recent years.** According to the U.S. Bureau of Labor Statistics, the labor force grew by 6.5% between 2000 and 2005 (the latest five-year period for which data is available). Comparatively, Tennessee’s labor force grew by 1.3% and the nation’s grew by 4.7%. See Table 9 and Exhibit D-6 (pages 11 and 12 in Appendix D).
 - The counties in the Greater Knoxville Region varied significantly in their growth rates between 2000 and 2005. Sevier County saw the fastest growth rate (11.7%), while the slowest growth was seen in Roane County (2.4%).
 - Labor-force participation in the region is below state and national rates, indicating a potential pool of working-age residents who are not working but who could potentially enter the workforce.
 - In 2000, 62.6% of residents 16 years of age and older were actively participating in the labor force, compared to 63.1% in Tennessee and 63.4% nationally. The labor-force-participation rates are particularly low in Union and Grainger Counties (57.2%). Meanwhile, Knox (64.4%) and Sevier Counties (66.6%) exceeded the state and national figures. The labor-force-participation rate is the ratio of an area’s workforce to the population aged 16 years and over.
 - In 2005, the region’s annual average unemployment rate (5.3%) was below the state rate (5.6%) but slightly higher than the national rate (5.1%). Sevier County had the highest rate (6.0%), while the lowest unemployment was in Knox County at 4.1%.

TABLE 9
GREATER KNOXVILLE REGION LABOR FORCE CHARACTERISTICS
 Source: ESRIBIS, Inc., U.S. Bureau of Labor Statistics

	Greater Knoxville Region	Tennessee	U.S.
Labor Force, 2005	442,467	2,909,562	149,320,000
% Change 2000 – 2005	6.5%	1.3%	4.7%
Unemployment Rate, 2005	5.3%	5.6%	5.1%
Labor Participation, 2000	62.6%	63.1%	63.4%

2. **The region is losing a key labor-force component at a rate faster than the state and nation.** This age group represents those residents who are in a career-developing phase of their lives and of key interest to employers. The proportion of residents between the ages of 18 and 34 is projected to decrease region-wide by 0.5% between 2006 and 2011. Meanwhile, the state’s percentage will remain stable and the nation will see an increase within this age group by 2.6%. See Exhibit D-1.
 - Loudon County will see the largest increase among this segment of the population, with an increase of 5.0%. The biggest decline (-3.8%) will be seen in Knox County.
3. **The I-275 Business Corridor site located at the intersection of I-275 and Baxter Avenue in Knox County provides the largest labor pool of the nine commute zones surveyed.** A 30-minute commute zone was developed for each of nine regional sites to

estimate the labor force available to a company locating at each of these sites. Labor force data for these zones is shown in Exhibit D-6 and Table 10. The zones are illustrated in Appendix A.

TABLE 10
GREATER KNOXVILLE REGION'S COMMUTE ZONES: LABOR FORCE CHARACTERISTICS

Source: Claritas

	Labor Force, 2006	Labor Participation, 2000
I-75 Business Park	178,227	61.8%
Horizon Center	125,245	64.6%
Centre 75 Business Park	67,574	63.2%
Partnership Park South	124,663	63.2%
EastBridge Business Park	143,770	61.6%
Hardin Business Park	239,344	63.9%
I-275 Business Corridor	277,495	64.3%
Forks of the River Industrial Park	213,614	63.9%
Midway Business Park	211,989	63.7%

4. **One or more competitively paying office operations could potentially hire up to 1,650 qualified and screened workers, depending on their facilities' locations in the region.** As seen in Table 11, these estimates are based on WDG's standard clerical/nonexempt-labor-supply model applied to each of the nine representative work sites. These estimates show the number of qualified clerical and administrative support employees an employer could potentially hire given a one-in-three selectivity and a one-in-five selectivity ratio. The site located at I-275 Business Park in Knox County provides the largest clerical labor supply.

TABLE 11
ESTIMATED CLERICAL AND ADMINISTRATIVE SUPPORT LABOR SUPPLY YIELD BY COMMUTE ZONE

Source: WDG estimate based on population and employment figures from Claritas

Commute Zone Location	Office/Clerical Labor Yield	
	1 in 3 Selectivity	1 in 5 Selectivity
Anderson County I-75 Business Park	1,092	655
Roane County Horizon Center	677	406
Loudon Count Center 75 Business Park	346	208
Blount County Partnership Park South	703	422
Knox County EastBridge Business Park	905	543
Hardin Business Park	1,392	835
I-275 Business Park	1,657	994
Forks of the River Industrial Park	1,311	786
Midway Business Park	1,314	788

5. **One or more competitively paying manufacturing/distribution operations could potentially hire up to 2,130 qualified and screened workers, depending on their facilities' locations in the region.** As seen in Table 12, these estimates are based on WDG's standard manufacturing/distribution-labor-supply model applied to each of the nine representative work sites. These estimates show the number of qualified employees a manufacturing/distribution employer could potentially hire given a one-in-three selectivity and a one-in-five selectivity ratio. The site located at the I-275 Business Park in Knox County provides the largest manufacturing-related labor supply.

TABLE 12
ESTIMATED MANUFACTURING/DISTRIBUTION LABOR SUPPLY YIELD BY COMMUTE ZONE

Source: WDG estimate based on population and employment figures from Claritas

Commute Zone Location	Manufacturing/Distribution Labor Yield	
	1 in 3 Selectivity	1 in 5 Selectivity
Anderson County I-75 Business Park	1,156	693
Roane County Horizon Center	746	448
Loudon County Center 75 Business Park	497	298
Blount County Partnership Park South	948	569
Knox County EastBridge Business Park	1,196	718
Hardin Business Park	1,729	1,037
I-275 Business Park	2,132	1,279
Forks of the River Industrial Park	1,695	1,017
Midway Business Park	1,708	1,025

6. **The region has 11 post-secondary institutions graduating more than 9,100 students annually in a variety of disciplines.** Enrollment at the area's four two-year institutions is approximately 13,920 annually. The region's seven four-year institutions enroll roughly 33,260 students annually. More detailed information on post-secondary institutions, including degree and program information is provided in the *Education and Training* section starting on page 39.

TABLE 13
GRADUATION AND ENROLLMENT FIGURES FOR LOCAL POST-SECONDARY SCHOOLS

Source: U.S. Department of Education, IPEDS

Less- than-Four-Year Institutions	Location	Total Graduates (2004-2005)	Total Fall Enrollment (2004-2005)
Roane State Community College	Harriman	676	5,331
Pellissippi State Technical Community College	Knoxville	654	7,562
Tennessee Technology Center at Harriman	Harriman	147	224
Tennessee Technology Center at Knoxville	Knoxville	311	804

TABLE 13, CONTINUED
GRADUATION AND ENROLLMENT FIGURES FOR LOCAL POST-SECONDARY SCHOOLS

Source: U.S. Department of Education, IPEDS

More-than-Four-Year Institutions	Location	Total Graduates (2004-2005)	Total Fall Enrollment (2004-2005)
Maryville College	Maryville	166	1,080
Carson-Newman College	Jefferson City	390	2,053
The University Of Tennessee	Knoxville	6,244	27,792
ITT Technical Institute	Knoxville	179	734
South College	Knoxville	104	589
Fountainhead College Of Technology	Knoxville	77	147
Johnson Bible College	Knoxville	164	866

7. **According to local employers, there is good availability of a variety of skills.** Among the 51 occupations for which sufficient data was received from WDG's employer survey (i.e., more than five employer responses), it was reported that 34 of these can be recruited satisfactorily (67%). See Table 14 and Exhibit B-6 in Appendix B. Among those occupations that can be recruited satisfactorily are a number of manufacturing, clerical, and professional skills including some engineering skills. This ratio of available skills is high compared to similar studies conducted by WDG.
- The job zone refers to the Occupational Information Network (O*Net) system of classifying occupations based on educational and experience requirements. The codes are as follows:
 - Zone 1 – May require a high school diploma or GED
 - Zone 2 – High school diploma and may require some vocational training or job-related coursework
 - Zone 3 – Training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree
 - Zone 4 – Four-year bachelor's degree and/or 2-4 years of work experience
 - Zone 5 – Bachelor's degree and/or graduate school plus experience
 - As can be seen in Table 14, over 67% of the occupations with satisfactory-to-good availability are in Zones 3 and higher. All of these occupations require some additional training beyond high school.

TABLE 14
SELECT OCCUPATIONS WITH SATISFACTORY-TO-GOOD AVAILABILITY,
AS REPORTED BY REGIONAL EMPLOYERS

(5=PLENTIFUL; 1=UNAVAILABLE)
 Source: WDG Employer Survey, Fall 2006

Occupation	Responses	Average Score	Median Score	Job Zone
Media/TV/Web/multi-media production	6	4	5	4
Engineers, mechanical	7	3.3	4	4
Webmaster	7	3.3	4	4
Accountants	23	3.2	3	4
Network technicians	12	3.2	3	4
Engineers	14	3.1	3.5	4
Management, experienced	28	3	3	4
Network systems administrators	20	3	3	4
Administrative assistants	49	3.7	4	3
Accounting clerks/bookkeepers	46	3.7	4	3
Sales representatives	5	3.6	3	3
Building and construction trades	6	3.5	3.5	3
Clerical workers with advanced computer skills	34	3.4	3	3
Computer operators	14	3.4	3	3
Production supervisors	13	3.3	3	3
Customer service managers	11	3.3	3	3
Electricians	8	3.3	3	3
Computer support specialists, technicians	19	3.2	3	3
Warehouse managers	17	3.2	3	3
Medical records technicians	5	3.2	3	3
Maintenance mechanics	20	3.1	3	3
Machinists/manufacturing mechanic	8	3.1	3	3
CAD drafters	7	3.1	3	3
Forklift operators	15	4.2	4	2
Office clerks	26	4.1	4	2
Machine operators, no setup	11	4.1	4	2
Material handling laborers	12	3.8	4	2
Truck drivers	8	3.8	4	2
Customer service rep. (tele/Internet)	21	3.7	4	2

TABLE 14, CONTINUED
SELECT OCCUPATIONS WITH SATISFACTORY-TO-GOOD AVAILABILITY,
AS REPORTED BY REGIONAL EMPLOYERS

(5=PLENTIFUL; 1=UNAVAILABLE)
 Source: WDG Employer Survey, Fall 2006

Occupation	Responses	Average Score	Median Score	Job Zone
Customer service representatives, other	15	3.6	3	2
Certified Nurse Assistants (CNAs)	5	3.4	3	2
Unskilled laborers (manufacturing, repair)	11	4.2	4	1
Hand pickers and packagers	10	3.6	4	1
Skilled machine trades (general)	7	3.1	3	N/A

- Some occupations can be recruited, but with slightly more difficulty. Surveyed employers rated eight occupations as having borderline availability. 75% of these occupations are classified in Zones 3 or higher, indicating a need for at least some post-secondary training. 37.5% require at least a four-year degree or higher. See Table 15. These include:

TABLE 15
SELECT OCCUPATIONS WITH FAIR TO BORDERLINE AVAILABILITY AS REPORTED BY AREA EMPLOYERS
 (5=PLENTIFUL; 1=UNAVAILABLE)
 Source: WDG Employer Survey, Fall 2006

Borderline Availability	Responses	Average Score	Median Score	Job Zone*
Programmer/analysts	18	2.8	3	4
Database administrators	12	2.8	3	4
Systems analysts	12	2.8	2.5	4
Nurses, licensed practical	12	2.7	3	3
Electrical and electronic repairer	6	2.7	2.5	3
Radiological technicians	6	2.5	2.5	3
Medical and clinical laboratory technicians	5	2.6	3	2
Management trainees	9	2.9	3	N/A

* See description of job zones in point #7 on page 22

- Those occupations that are difficult to find are provided in Table 16. These include, among others, a variety of skilled technical occupations such as telecommunications specialists, wireless communications technicians, computer security specialists, and mechanical engineering technicians. Approximately 89%, or all but one of these occupations, are classified in Zones 3 or higher,

with 44.4% classified in Zone 4 or higher. This indicates that occupations with the least availability typically require some post-secondary training and, in many cases, a four-year degree or higher.

TABLE 16
SELECT OCCUPATIONS WITH FAIR TO POOR AVAILABILITY, AS REPORTED BY EMPLOYERS
(5=PLENTIFUL; 1=UNAVAILABLE)
 Source: WDG Employer Survey, Fall 2006

Poor Availability	Responses	Average Score	Median Score	Job Zone*
Physicians	5	2	2	5
Therapists, physical	9	1.9	2	5
Computer security specialists	9	2.4	2	4
Therapists, occupational	7	2	2	4
Nurses, registered	12	2.7	2	3
Telecommunications specialists	6	2.3	2.5	3
Wireless communications technicians	6	2.2	2.5	3
Engineering technicians, mechanical	5	2.2	2	3
CNC machine operators	9	2.2	2	2

* See description of job zones in point #7 on page 22

8. **Employers are generally able to recruit managers and professional talent from outside the region.** Employers report a median score of 3.0 (on a scale where 1=unable to recruit and 5=easily recruited) and an average score of 3.3 on their ability to relocate talent from outside the region. See Exhibit B-1 in Appendix B. Employers report that one advantage to recruiting professional talent from outside the region is the quality of life as perceived by job candidates from outside the area. Employers provided an average score of 4.1 and a median score of 4.0 on the quality of life as seen by non-local prospective job candidates. This is a high score, compared with WDG's experience on similar studies nationwide.
- One factor that may somewhat negatively impact employers' ability to recruit talent into the area is the availability of employment opportunities for "trailing" spouses, which employers report are limited. Employers provided a median score of 3.0 and an average score of 2.9 on the availability of job opportunities for trailing spouses where 1=poor and 5=excellent.
 - Employers also report that the quality of schools is also a draw for job candidates. Employers provided a median rating of 4.0 and an average rating of 3.4 on the quality of schools for relocatees/transferees.
9. **The Greater Knoxville Region has a potential hidden labor supply with diversified skills, an important component of which is not-employed residents that are interested in employment.** WDG estimates from its household survey data and population data that there are roughly 101,904 residents over 18 years of age in the region that are not employed but are interested in employment. See Table 17 and the profile of residents not employed but interested in work in Exhibit C-4 of Appendix C.

- A majority of not-employed residents who are interested in working are interested in full-time work (56.0% or 57,088), as shown in Table 19. Meanwhile, there are an estimated 44,816 individuals that are not working, but would be interested in part-time employment.

TABLE 17
EMPLOYMENT PREFERENCES OF NOT-EMPLOYED RESIDENTS OVER 18 YEARS OLD

Source: YA/WDG Residential Survey, Fall 2006

Interest	Number	Percentage
Total - Not-employed	176,518	100%
Interested in Employment	101,904	57.7%
Not Interested in Employment/Did not Respond	74,614	42.3%
Employment Preference		
Part-Time	57,088	56.0%
Full-Time	44,816	44.0%
Total	101,904	100%

- More than 21% (21,566) of not employed residents interested in employment are not working because they are retired. Other commonly mentioned reasons include the inability to find a suitable job (18.5%) and raising a family (18.5%). 19.7% of these residents are not working but do specify a reason for their non-employment.

TABLE 18
REASONS FOR NON-EMPLOYMENT AMONG NOT EMPLOYED RESIDENTS INTERESTED IN WORKING

Source: YA/WDG Residential Survey, Fall 2006

Reasons for Non-Employment	Number	Percentage
Retired	21,566	21.2%
Other	20,099	19.7%
Can't find a suitable job	18,865	18.5%
Raising a family	18,809	18.5%
Attending school	9,988	9.8%
Disabled	8,493	8.3%
Not looking for employment	4,083	4.0%
Total	101,904	100%

- Among not-employed residents who want to work, approximately 34% are under the age of 35, indicating a pool of younger workers who are beginning to start their careers and who would welcome improved job opportunities. See Table 19.

TABLE 19
AGE DISTRIBUTION OF NOT-EMPLOYED RESIDENTS INTERESTED IN WORKING

Source: YA/WDG Residential Survey, Fall 2006

Age	Number	Percentage
18-24	16,842	16.5%
25-34	17,566	17.2%
35-44	19,369	19.0%
45-54	20,029	19.7%
55-64	23,485	23.0%
65-74	4,613	4.5%
Total	101,904	100%

- A majority (61.4%) of not-employed residents interested in employment have no limitations to employment. The leading reasons for these individuals not to be in the workplace are: childcare needs (16.2%), disabled (14.0%), and inability to find a suitable job (10.2%). See Table 20.

TABLE 20
**WORK OPTION LIMITATIONS AMONG RESIDENTS NOT IN THE WORKFORCE
 BUT INTERESTED IN EMPLOYMENT**

Source: YA/WDG Residential Survey, Fall 2006

Reason	Number	Percentage
No Limitations	62,528	61.4%
Childcare needs	16,486	16.2%
A disability	14,233	14.0%
Lack of jobs in your field of education/training	10,369	10.2%
Lack of transportation	3,853	3.8%
Other	0	0.0%
Total	101,904	100%

- The occupational skill base of the region's not-employed residents who are interested in working is somewhat diverse. Table 21 outlines the largest occupational skill groups within this sector of the population. As shown, *food preparation & serving* constitutes the largest category of skills, accounting for 17.1% of the not-employed-but-interested skills base. This is followed by customer services (7.4%) and education-professional (7.0%).

TABLE 21
LEADING OCCUPATIONAL SKILLS OF NOT-EMPLOYED RESIDENTS INTERESTED IN EMPLOYMENT

Source: YA/WDG Residential Survey, Fall 2006

Occupational Skills	Number	Percentage
Food Preparation & Serving	17,432	17.1%
Customer Services	7,490	7.4%

TABLE 21, CONTINUED
LEADING OCCUPATIONAL SKILLS OF NOT-EMPLOYED RESIDENTS INTERESTED IN EMPLOYMENT
 Source: YA/WDG Residential Survey, Fall 2006

Occupational Skills	Number	Percentage
Education – Professional	7,109	7.0%
Management - Entry Level	6,596	6.5%
Office & Administrative Support	5,902	5.8%
Retail Sales & Service	5,109	5.0%
Construction	4,731	4.6%

10. A majority of the region's not-employed residents would like to receive job training. In total, 74,627 not-employed residents interested in working would enroll in job training programs. See Table 22. See Table 38 on page 32 for those fields in which not-employed residents would like to receive training.

TABLE 22
JOB TRAINING INTEREST AMONG NOT-EMPLOYED RESIDENTS INTERESTED IN WORKING
 Source: YA/WDG Residential Survey, Fall 2006

Interest	Number	Percentage
Interested in job training	74,627	73.2%
Not interested in job training	27,277	26.8%
Total	101,904	100%

- Education levels among not-employed residents interested in working are fairly high, with approximately 93.7% of respondents reporting at least a high school diploma. Of those, 36.3% have some post-secondary training less than a four-year degree.

TABLE 23
EDUCATIONAL ATTAINMENT OF NOT-EMPLOYED RESIDENTS INTERESTED IN WORKING
 Source: YA/WDG Residential Survey, Fall 2006

Highest Grade Level Completed	Number	Percentage
8th grade	0	1.7%
Some high school	4,830	4.6%
High school/GED	39,075	38.3%
Some voc/tech school	0	0.0%
Some college, no degree	27,877	27.4%
Voc/tech certificate	4,949	4.9%
Associates	4,080	4.0%
Bachelors	15,083	14.8%
Post grad study, no degree	2,009	2.0%
Graduate/professional degree	2,280	2.2%
Total	101,904	100%

11. **New and expanding employers also would rely heavily on another element of the hidden labor force: the region's already-employed residents, particularly the underemployed.** Approximately 40,468 (10.1%) currently employed residents consider themselves underemployed, i.e., qualified for better positions than they currently hold because of experience, training, or education. See the demographic profile on underemployed residents in Exhibit C-3 of Appendix C for additional details on this component of the workforce. As can be seen in Tables 26 through 28, the underemployed component of the workforce is older, well educated, and looking for diverse employment opportunities. They also tend to be lower-paid, indicating that even though they are well-educated, they may not have developed their careers.

- Most of the underemployed residents are older. 64.7% of the underemployed are over the age of 35. See Table 24.

TABLE 24
AGE DISTRIBUTION OF UNDEREMPLOYED RESIDENTS
Source: YA/WDG Residential Survey, Fall 2006

Age	Number	Percentage
18-24	4,215	10.4%
25-34	10,056	24.8%
35-44	8,569	21.2%
45-54	13,242	32.7%
55-64	3,935	9.7%
65-74	452	1.1%
Total	40,468	100%

- The underemployed residents are well educated. Nearly 98% have at least a high school diploma, while 38.2% have some post-secondary training less than a four-year degree. See Table 25.

TABLE 25
EDUCATIONAL ATTAINMENT OF UNDEREMPLOYED RESIDENTS
Source: YA/WDG Residential Survey, Fall 2006

Highest Grade Level Completed	Number	Percentage
8 th Grade	874	2.2%
Some High School	0	0.0%
High School/GED	13,815	34.1%
Some Voc/Tech School	790	2.0%
Some college, no degree	10,686	26.4%
Voc/Tech Certificate	1,447	3.6%
Associates	3,028	7.5%
Bachelors	5,789	14.3%
Post Grad Study, No Degree	1,314	3.2%
Graduate/Professional Degree	2,727	6.7%
Total	40,468	100%

- The employment base of the region's underemployed residents is diverse. The largest percentage (13.5%) holds positions in the retail sales & service occupational group, followed by customer service (13.3%) and entry-level management (9.1%). See Exhibit C-3 for a complete listing.

TABLE 26
CURRENT JOB TITLE OR POSITION OF UNDEREMPLOYED RESIDENTS

Source: YA/WDG Residential Survey, Fall 2006

Current Job Title or Position	Number	Percentage
Retail Sales & Service	5,472	13.5%
Customer Services	5,386	13.3%
Management - Entry Level	3,682	9.1%
Management – Middle	2,541	6.3%
Management – Upper	2,408	5.9%
Cleaning & Maintenance	2,018	5.0%
Food Preparation & Serving	1,970	4.9%
Financial	1,884	4.7%

- Table 27 shows the most commonly reported areas of specialized training held by underemployed residents. The largest percentage of residents report specialized training in special trades (11.2%) followed by office & administrative support (8.7%) and financial (8.4%)

TABLE 27
AREAS OF SPECIALIZED TRAINING REPORTED BY UNDEREMPLOYED RESIDENTS

Source: YA/WDG Residential Survey, Fall 2006

Area of Specialized Training	Number	Percentage
Special Trades	4,534	11.2%
Office & Administrative Support	3,520	8.7%
Financial	3,393	8.4%
Management - Entry Level	3,222	8.0%
Business/Professional Services	2,654	6.6%
Computer/IS - Support/Tech	2,352	5.8%
Personal Services	2,352	5.8%
Manufacturing - Production (unskilled)	1,911	4.7%

12. **Many of the region's employed residents would like to enhance their job skills through training.** Returns from the Younger Associates/WDG residential survey show that 47.1% of underemployed residents would be interested in receiving training to acquire new jobs skills for career development, which amounts to roughly 187,972 residents (see Table 28). These individuals would offer a potential workforce for existing and new companies offering career advancement and training opportunities.

TABLE 28
JOB TRAINING INTEREST AMONG EMPLOYED RESIDENTS

Source: YA/WDG Residential Survey, Fall 2006

Interest	Number	Percentage
Interested in job training	187,972	47.1%
Not interested in job training	211,274	52.9%
Total	399,246	100%

13. **Both underemployed and not-employed residents interested in working prefer to travel less than 30 minutes for employment opportunities.** The not-employed-but-interested-in-work report an openness to longer commute times. These commute times are below what we typically see on other WDG projects nationwide. See Table 29.

TABLE 29
MAXIMUM COMMUTE TIMES FOR UNDEREMPLOYED AND NOT-EMPLOYED RESIDENTS

Source: YA/WDG Residential Survey, Fall 2006

Maximum Commute Time	Prevailing Commute Pattern of Employed		Underemployed		Not Employed but Interested	
	%	#	%	#	%	#
Less than 15 minutes	46.8%	187,042	44.5%	18,000	25.2%	25,638
15-29 minutes	30.1%	120,014	32.5%	13,156	48.9%	49,828
30-44 minutes	14.0%	55,807	12.4%	5,035	16.1%	16,418
45-59 minutes	4.1%	16,270	3.6%	1,462	5.7%	5,839
1 hour to 1 hour, 29 minutes	1.8%	7,024	5.0%	2,012	2.4%	2,420
1 hour, 30 minutes or more	1.1%	4,587	0.9%	353	1.2%	1,174
Varies (for not employed but int., would relocate)	2.1%	8,504	1.1%	452	0.6%	587
Total	100%	399,246	100%	41,455	100%	102,046

14. **Knox County has the highest number of in-commuters of all the counties in the region.** As can be seen in Table 31, Knox County has 46,327 in-commuters from the eight other counties in the Greater Knoxville Region. At 18,255, Anderson County has the second highest number of in-commuters from the surrounding counties.

TABLE 30
NUMBER OF COUNTY RESIDENTS BY COUNTY OF EMPLOYMENT (2000)

Source: U.S. Bureau of the Census

County of Residence	County of Employment								
	Anderson	Blount	Grainger	Jefferson	Knox	Loudon	Roane	Sevier	Union
Anderson	20,029	354	13	14	8,115	133	1,030	48	15
Blount	730	31,298	0	31	13,611	839	80	915	7
Grainger	31	47	3,032	614	2,065	8	4	57	142
Jefferson	106	127	96	9,007	4,381	14	20	1,756	0

TABLE 30, CONTINUED
NUMBER OF COUNTY RESIDENTS BY COUNTY OF EMPLOYMENT (2000)

Source: U.S. Bureau of the Census

County of Residence	County of Employment								
	Anderson	Blount	Grainger	Jefferson	Knox	Loudon	Roane	Sevier	Union
Knox	11,014	5,328	195	518	158,292	1,554	1,317	1,634	472
Loudon	804	1,076	0	21	4,580	8,951	264	26	0
Roane	5,097	251	0	6	3,180	939	11,223	0	0
Sevier	142	904	30	476	6,522	16	0	25,388	7
Union	331	70	13	27	3,873	23	12	52	2,573
Total # of In-Commuters	18,255	8,157	347	1,707	46,327	3,526	2,727	4,488	643

15. **Employers still largely rely on traditional recruiting techniques.** The most commonly used recruiting methods, according to local employers, are newspaper advertising, employee referrals, and walk-ins/unsolicited resumes. Approximately 35.8% of responding employers do recruit via the Internet, which is higher than in many other WDG-studied areas.
- Of concern, employers rarely recruit at the area's post-secondary institutions. Employers occasionally recruit at the University of Tennessee, but rarely or never recruit at the region's other institutions.

LABOR DEMAND

1. Among companies responding to the employer survey, 26.4% plan on expanding their workforces by 5% or more over the next year. 21.8% plan on increasing their employment by 2% to 5%, while 47.1% will increase their workforces by 2% or less. Only four companies, or 4.6%, report layoffs over the next 12 months. See Exhibit B-1 in Appendix B.
2. Currently, the occupation in greatest demand by local employers is *customer service representatives (telephone/internet)*. This position accounts for 23.2% of the total demand for labor, as seen in Table 31. This is followed by *machine operators-no setup*, *registered nurses*, and *other customer service representatives*.

TABLE 31
TOP OCCUPATIONS/POSITIONS CURRENTLY IN DEMAND BY LOCAL EMPLOYERS RESPONDING TO WDG'S SURVEY
 Source: WDG Employer Survey, Fall 2006

Current Labor Demand	# of Openings	% of Labor Demand
Customer service rep. (tele/Internet)	195	23.2%
Machine operators, no setup	71	8.4%
Nurses, registered	70	8.3%
Customer service representatives, other	48	5.7%
Certified Nurse Assistants (CNAs)	40	4.8%
Hand pickers and packagers	36	4.3%
Engineers	29	3.4%
Management, experienced	28	3.3%
Nurses, licensed practical	27	3.2%
CNC machine operators	25	3.0%
Clerical workers with advanced computer skills	22	2.6%
Forklift operators	20	2.4%
Administrative assistants	17	2.0%
Material handling laborers	17	2.0%
Maintenance mechanics	14	1.7%
Management trainees	11	1.3%
Accounting clerks/bookkeepers	10	1.2%
Therapists, physical	10	1.2%
Office clerks	9	1.1%
Therapists, occupational	9	1.1%
Building and construction trades	9	1.1%
Skilled machine trades (general)	9	1.1%
Customer service managers	8	1.0%
Accountants	8	1.0%
Medical and clinical laboratory technicians	6	0.7%

TABLE 31, CONTINUED
TOP OCCUPATIONS/POSITIONS CURRENTLY IN DEMAND BY LOCAL EMPLOYERS RESPONDING TO WDG'S SURVEY
 Source: WDG Employer Survey, Fall 2006

Current Labor Demand	# of Openings	% of Labor Demand
Aircraft mechanics	6	0.7%
CAD drafters	6	0.7%
Sales representatives	6	0.7%
Physicians	5	0.6%
Production supervisors	4	0.5%
Warehouse managers	4	0.5%
Medical secretaries	4	0.5%
Engineers, mechanical	4	0.5%
Electrical and electronic repairer	4	0.5%
Computer support specialists, technicians	4	0.5%
Programmer/analysts	4	0.5%
Therapists, respiratory	3	0.4%
Engineering technicians, electronic	3	0.4%
Engineers, electric and electronic	3	0.4%
Network systems administrators	3	0.4%
Network technicians	3	0.4%
Medical records technicians	2	0.2%
Medical Technologists	2	0.2%
Engineering technicians, mechanical	2	0.2%
Electricians	2	0.2%
Heavy equipment operators	2	0.2%
Machinists/manufacturing mechanic	2	0.2%
Truck drivers	2	0.2%
Unskilled laborers (manufacturing, repair)	2	0.2%
Computer security specialists	2	0.2%
Technologists, cardiovascular	1	0.1%
Associate engineers (2-year degree)	1	0.1%
Avionics technicians	1	0.1%
Geographic information systems technicians	1	0.1%
Telecommunications specialists	1	0.1%
Wireless communications technicians	1	0.1%
Computer operators	1	0.1%
Database administrators	1	0.1%
Systems analysts	1	0.1%

3. In one year, the demand for occupations will be similar to what employers are currently demanding. The occupations projected to be in highest demand include *customer service representatives (telephone/internet)*, *registered nurses*, and *other customer service representatives*. See Table 32.

TABLE 32
ANTICIPATED DEMAND FOR WORKERS IN ONE YEAR BY LOCAL EMPLOYERS RESPONDING TO WDG'S SURVEY
 Source: WDG Employer Surveys, Fall 2006

Current Labor Demand	# of Openings	% of Labor Demand
Customer service rep. (tele/Internet)	742	30.2%
Nurses, registered	347	14.1%
Customer service representatives, other	221	9.0%
Certified Nurse Assistants (CNAs)	143	5.8%
CNC machine operators	89	3.6%
Machine operators, no setup	88	3.6%
Clerical workers with advanced computer skills	62	2.5%
Management, experienced	49	2.0%
Nurses, licensed practical	48	2.0%
Material handling laborers	42	1.7%
Medical and clinical laboratory technicians	40	1.6%
Office clerks	39	1.6%
Truck drivers	37	1.5%
Administrative assistants	34	1.4%
Accounting clerks/bookkeepers	32	1.3%
Building and construction trades	29	1.2%
Customer service managers	28	1.1%
Hand pickers and packagers	27	1.1%
Engineers	24	1.0%
Therapists, physical	21	0.9%
Radiological technicians	20	0.8%
Maintenance mechanics	19	0.8%
Unskilled laborers (manufacturing, repair)	19	0.8%
Production supervisors	18	0.7%
Management trainees	17	0.7%
Skilled machine trades (general)	17	0.7%
Forklift operators	16	0.7%
Computer support specialists, technicians	13	0.5%
Accountants	12	0.5%
Aircraft mechanics	12	0.5%

TABLE 32, CONTINUED
ANTICIPATED DEMAND FOR WORKERS IN ONE YEAR BY LOCAL EMPLOYERS RESPONDING TO WDG'S SURVEY
 Source: WDG Employer Surveys, Fall 2006

Current Labor Demand	# of Openings	% of Labor Demand
Physicians	11	0.4%
Welders	11	0.4%
Warehouse managers	9	0.4%
CAD drafters	9	0.4%
Sales representatives	9	0.4%
Heavy equipment operators	9	0.4%
Therapists, respiratory	8	0.3%
Computer operators	8	0.3%
Network systems administrators	8	0.3%
Medical secretaries	6	0.2%
Electrical and electronic repairer	6	0.2%
Network technicians	6	0.2%
Therapists, occupational	5	0.2%
Engineers, electric and electronic	5	0.2%
Technicians (general)	5	0.2%
Programmer/analysts	5	0.2%
Medical records technicians	3	0.1%
Medical Technologists	3	0.1%
Technologists, cardiovascular	3	0.1%
Electricians	3	0.1%
Engineering technicians, electronic	2	0.1%
Engineers, mechanical	2	0.1%
Machinists/manufacturing mechanic	2	0.1%
Computer security specialists	2	0.1%
Associate engineers (2-year degree)	1	0.0%
Avionics technicians	1	0.0%
Geographic information systems technicians	1	0.0%
Scientists (general)	1	0.0%
Bench assemblers	1	0.0%
Telecommunications specialists	1	0.0%
Database administrators	1	0.0%
Internet development specialists	1	0.0%
Systems analysts	1	0.0%

LABOR QUALITY

1. **Employers report that the overall level of basic skills seen among job applicants is satisfactory.** As seen in Table 33, the median score (on a five-point scale where 1=poor and 5=excellent) for all basic skills was a 3.0 (i.e., satisfactory), while the average score was 3.1. *Team and cooperative skills* received the highest ratings, with a median score of 3.0 and an average score of 3.3.
 - Written communication skills received the lowest ratings, with a median score of 3.0 and an average score of 2.6. This score is considered by WDG as an indication of some slight dissatisfaction among employers in the written communication skills of job applicants.
2. **Surveyed employers report good-to-very-good work ethic and productivity among employees.** Work ethic received a median score of 4.0 and an average score of 3.4, while productivity received a median score of 4.0 and average score of 3.6. Productivity was rated as good (a median score of 4.0 and an average score of 3.7) compared to other sites among companies that have more than one location.

TABLE 33
EMPLOYER RATINGS ON LABOR QUALITY MEASURES (1=POOR; 5=EXCELLENT)
 Source: WDG Employer Survey, Fall 2006

Basic Skills of Job Applicants	Average Score	Median Score
Overall basic skills of all applicants	3.1	3.0
Written communication	2.6	3.0
Reading comprehension	2.8	3.0
Arithmetic/math	2.7	3.0
Thinking and judgment	2.9	3.0
Verbal communication/comprehension	2.9	3.0
Team and cooperative skills	3.3	3.0
Productivity and Work Ethic of Employees		
Work ethic	3.4	4.0
Productivity	3.6	4.0
Productivity compared to that of other company sites	3.7	4.0
Willingness to work overtime	3.7	4.0
Punctuality	3.3	4.0
Overall employer/employee relations	3.7	4.0

3. **Turnover and absenteeism are not problems for area employers.** 32.9% of responding companies report turnover of less than 5%. More than 61% of companies report average daily absenteeism at less than 5%. Nearly 40% of responding companies report the new-hire-turnover rate (i.e., employees that have been employed for less than one year) is less than 10%.
4. **Employers report slightly lower computer skill levels among job applicants versus the skills they require.** As can be seen in Table 34, office employers report a gap in applicant skill levels versus the needed skill levels of applicants in basic keyboard skills, basic software programs, and accessing and using the Internet. A skills gap also exists in the availability of spreadsheet and database software skills. While the demand for advanced computer languages is less, there is also a gap in these applicant skill levels.

- The skills gap is not as evident among distribution and manufacturing requirements.

TABLE 34
EMPLOYER RATINGS OF COMPUTER SKILLS IN THE WORKFORCE

Source: WDG Employer Survey, Fall 2006

	Needed Skills		Currently Seen Skills	
	Average Score	Median Score	Average Score	Median Score
Office Personnel (Non-managerial)				
Basic keyboard skills	4.0	4.0	3.6	4.0
Using word processing software	3.8	4.0	3.4	3.0
Using spreadsheet software	3.5	4.0	3.0	3.0
Using database software	3.3	3.0	2.6	3.0
Accessing and using the Internet	3.8	4.0	3.6	4.0
Professionals/Technicians				
Cisco	2.2	1.0	2.5	2.5
Linux	2.0	1.0	2.4	2.0
Microsoft	4.2	4.0	3.7	4.0
Novell	2.2	2.0	2.4	3.0
Oracle	2.4	3.0	2.6	3.0
UNIX	2.2	1.0	2.6	3.0
Overall training or learning capacity of applicants	3.8	4.0	3.4	3.0
Other	2.8	3.0	2.3	2.0
Manufacturing Personnel				
Basic keyboard skills	2.3	2.0	2.4	2.0
Distribution Personnel				
Basic keyboard skills	2.8	3.0	2.8	3.0

*1=no skill needed, 5=highest skill needed

**1=poor; 5=excellent

5. **Employers report relatively few overqualified job applicants.** Employers provided a median score of 3.0 and an average score of 2.4 on the availability of overqualified job applicants.

EDUCATION AND TRAINING

1. **Each county in the region has its own school district.** Combined, the region has a total of 209 primary and secondary schools serving more than 110,470 students. The largest school district is profiled in the bullets below.
 - Knox County is the largest district in the region, with 88 elementary, middle, and high schools and 53,130 students.
 - Knox County schools graduates approximately 3,030 students annually. Of those, more than 1,800 continue their education.
 - In 2005, Knox County schools had an 11.2% dropout rate. This was the cohort rate, meaning that of those students that started the ninth grade four years earlier, 11.2% did not complete their high school diplomas in four years.
 - Knox County schools performed well relative to state averages. Among high-school-aged students, there was a higher percentage of students exhibiting proficiency or higher in Algebra I, Biology I, and English II compared to the state.
 - Knox County schools have met federal benchmarks in the *No Child Left Behind* assessments at both elementary and secondary levels.
2. **The region has 11 post-secondary institutions graduating more than 9,100 students annually in a variety of disciplines.** As mentioned previously, annual enrollment at the area's two-year institutions is approximately 13,920. The region's four-year institutions enroll roughly 33,260 students annually. See Table 13 on page 10 for enrollment and graduation figures. Exhibit D-7 shows, where data is available, degrees awarded by program for each post-secondary institution.
 - **Pellissippi State Technical Community College (PSTCC)**, located in Knox and Blount Counties, is the largest two-year institution in the Greater Knoxville Region. It enrolls more than 7,560 students and graduates approximately 650 students annually.
 - PSTCC offers associate's degree and certificate programs that lead to employment in engineering technologies and business, among other areas. Job placement rates are consistently above 90%, and starting salaries for some fields average nearly \$30,000. There are 19 career and technical programs offered at Pellissippi State.
 - PSTCC College Transfer/University Parallel programs are for students planning to earn a baccalaureate degree at a four-year college or university. Students may complete the first two years at Pellissippi State from a broad selection of courses that will transfer to most four-year institutions. Pellissippi State has program-specific articulation agreements with East Tennessee State University, Tennessee Wesleyan College, Lincoln Memorial University, Maryville College, Tennessee Technological University, Tusculum College, and the University of Tennessee at Knoxville. The University Connection agreements with Tennessee Technological University (TTU) in Cookeville and East Tennessee State University (ETSU) in Johnson City allow students to complete a bachelor's degree without ever leaving the Pellissippi State campus.
 - Pellissippi State comprehensively serves the greater Knox and Blount County area and extends its engineering technology offerings to Anderson, Loudon, Roane, Cumberland, Campbell, Fentress, Scott, and Morgan Counties.
 - PSTCC also offers online courses and distance-learning opportunities.

- **The University of Tennessee-Knoxville** is the largest post-secondary institution in the region, with an average annual enrollment of 27,790 students, and is the state's flagship university. There are approximately 6,355 graduates annually. UT-Knoxville is one of seven institutions in the University of Tennessee system, which is a statewide institution governed by a 24-member Board of Trustees appointed by the governor of Tennessee.
 - Over 230 degree programs are offered through 11 colleges and schools, with major research programs in the fields of energy, polymer engineering, advanced composite materials, biomedical sciences, and geological sciences.
 - The university has more than 1,400 faculty members, many of whom are internationally and nationally recognized for their research and teaching contributions.
 - The university is a co-manager with Battelle of the nearby Oak Ridge National Laboratory (ORNL). Faculty and students experience unparalleled research and learning opportunities at the Department of Energy's largest science and energy lab. Areas of joint research with ORNL include the Science Alliance, with divisions in biological, chemical, physical, and mathematical/computer science. UT/ORNL Joint Institutes and Centers include Heavy Ion Research, Computational Sciences, Neutron Sciences, Materials, National Transportation Center, and Environmental Biotechnology.
 - UT Knoxville is a Carnegie I research institution. The University of Tennessee conducts approximately \$160 million annually in externally-funded research, including more than \$20 million annually in joint research with Oak Ridge. The university is also one of six Internet II research institutions.
 - UT Knoxville has nationally ranked programs in accounting, business administration, supply chain/logistics, nuclear engineering, and education.

3. **The post-secondary institutions in the greater Knoxville region graduate approximately 2,700 students annually in high-tech and business degree programs.** As can be seen in Table 35, most of the degrees awarded in high-tech fields are awarded at the baccalaureate level. Following general business administration and management, the highest numbers of degrees/certificates are awarded in management information systems and business data processing and biology.

TABLE 35
NUMBER OF DEGREES/CERTIFICATES AWARDED IN SELECT HIGH-TECH AND BUSINESS DEGREE PROGRAMS (2004)
 Source: U.S. Department of Education, IPEDS

Degree Program	Certificate	Associate's Degree	Bachelor's Degree	Master's Degree	Doctorate	Total
Architecture and Related Services			30	15		45
Biological and Biomedical Sciences			154	16	30	200
Business, Management, Marketing, & Related Support Services	110	151	776	277	13	1,327
Computer and Information Sciences and Support Services	2	68	82	108	0	260
Engineering			297	168	40	505
Engineering Technologies/Technicians	14	24	21	81		140
Mathematics and Statistics			47	21	2	70

TABLE 35, CONTINUED
NUMBER OF DEGREES/CERTIFICATES AWARDED IN SELECT HIGH-TECH AND BUSINESS DEGREE PROGRAMS (2004)
 Source: U.S. Department of Education, IPEDS

Degree Program	Certificate	Associate's Degree	Bachelor's Degree	Master's Degree	Doctorate	Total
Mechanic and Repair Technologies/Technicians	85					85
Precision Production	33					33
Science Technologies/Technicians		65				65
Total	244	308	1,407	686	85	2,730

4. **Employers are pleased with the quality of graduates from local post-secondary institutions.** As seen in Table 36, surveyed employers report that the overall quality of graduates and programs offered by local training and educational institutions is strong. Carson-Newman College received the highest ratings (a median score of 4.0 and an average score of 4.1), followed by Maryville College and the University of Tennessee. Private vendors received slightly unsatisfactory ratings, but were only rated by 18 employers. Employers report the most experience with the University of Tennessee and Pellissippi State.

TABLE 36
EMPLOYER RATINGS OF THE QUALITY OF GRADUATES AND PROGRAMS
FROM REGIONAL EDUCATIONAL INSTITUTIONS
 (1=POOR; 5=EXCELLENT)

Source: WDG Employer Survey, Fall 2006

Institution	Employer Responses	Average Score	Median Score	# Employers With No Experience
Carson-Newman College	38	4.1	4.0	50
University of Tennessee	74	4.0	4.0	16
Maryville College	43	4.0	4.0	45
Lincoln Memorial University - Alcoa/Maryville	24	3.7	4.0	64
Pellissippi State Technical Community College	60	3.6	4.0	28
Tusculum College - Knoxville Campus	31	3.5	4.0	57
Roane State Community College	42	3.5	3.0	46
Walters State Community College	31	3.4	3.0	57
ITT Technical Institute	37	3.2	3.0	54
Fountainhead College of Technology	14	3.2	3.0	75
Area High Schools	72	3.1	3.0	18
South College	19	3.1	3.0	69
Johnson Bible College	16	3.1	3.0	72
National College of Business & Technology	14	3.1	3.0	75
Private vendors	18	2.9	3.0	69

5. **Despite high ratings given by area employers on the quality of graduates and training programs among area post-secondary institutions, employers have limited experience working with the region's educational institutions for general and customized training programs.** University of Tennessee and Pellissippi State Technical Community College are the most commonly used training providers. The other post-secondary institutions appear to be under-utilized. The reason for this may be that the training providers do not offer programs that meet employers' needs, or employers may not be aware of what programs local institutions offer. See Table 37.

TABLE 37
EMPLOYER RATINGS OF THE EXPERIENCE WORKING WITH
REGIONAL EDUCATIONAL INSTITUTIONS
(1=NEVER; 5=CONTINUOUSLY)
 Source: WDG Employer Survey, Fall 2006

Institution	Employer Responses	Average Score	Median Score
University of Tennessee	89	2.6	3.0
Pellissippi State Technical Community College	89	2.0	1.0
Roane State Community College	89	1.8	1.0
Area High Schools	92	1.7	1.0
Private vendors	88	1.5	1.0
ITT Technical Institute	88	1.4	1.0
Walters State Community College	87	1.4	1.0
Carson-Newman College	88	1.3	1.0
Maryville College	87	1.3	1.0
South College	86	1.3	1.0
Lincoln Memorial University - Alcoa/Maryville	87	1.2	1.0
Tusculum College - Knoxville Campus	86	1.2	1.0
Fountainhead College of Technology	88	1.1	1.0
Johnson Bible College	88	1.1	1.0
National College of Business & Technology	88	1.1	1.0

6. **Employers also would like to see some training programs strengthened or instituted to better meet their needs.** The most commonly mentioned deficiencies among area training institutions are provided below. See Exhibit B-4 in Appendix B for a complete listing.
- **High schools:** work ethic, basic skills, reading/writing, communication/speaking, critical thinking.
 - **Two-year institutions:** critical thinking, work ethic, communication/speaking, job interview skills
 - **Four-year institutions:** critical thinking, job preparedness, job interview skills
7. **As noted previously, local residents would like to see additional training programs in order to upgrade their skills.** 47.1% of residents in the nine-county region who are currently employed (approximately 187,939 individuals) and 73.2% of those not currently

employed but interested in employment (roughly 74,627 individuals) are interested in receiving training/education to acquire new job skills, as outlined in Table 38.

- The largest number of residents reports a desire for any type of training, with no explicit field specified. This is followed by *general computer skills* and *medical-related except for nursing*.

TABLE 38
FIRST PREFERENCE FOR TRAINING AMONG THE REGION'S EMPLOYED AND NOT-EMPLOYED-BUT-INTERESTED-IN-WORK:
ESTIMATED NUMBER OF RESIDENTS, FALL 2006

Source: YA/WDG Residential Survey, Fall 2006

Field	Employed	% of Employed	Not employed	% of Not-Employed	Total
Any/Open	21.9%	41,181	27.1%	20,235	61,416
Computer - General	12.9%	24,230	23.3%	17,424	41,654
Medical-related (except nursing)	7.6%	14,287	14.8%	11,054	25,341
Business	9.1%	17,011	5.2%	3,910	20,921
Education-related	5.4%	10,061	2.6%	1,955	12,016
Nursing	4.9%	9,177	3.4%	2,517	11,694
Management	5.0%	9,407	0.9%	660	10,067
Office/Clerical	4.3%	8,018	2.5%	1,857	9,875
Construction	2.8%	5,172	1.8%	1,336	6,508
Financial Services	1.8%	3,322	4.3%	3,177	6,499
Electronics/Electrical	3.2%	6,081	0.0%	0	6,081
Customer Service	1.8%	3,403	2.6%	1,955	5,358
Leisure/Entertainment	1.8%	3,373	1.8%	1,336	4,709
Computer - Specialized	2.4%	4,465	0.0%	0	4,465
All Other	2.1%	3,971	0.0%	0	3,971
Protective Services	2.0%	3,699	0.0%	0	3,699
Agriculture	1.8%	3,389	0.0%	0	3,389
manufacturing - Skilled	1.4%	2,570	0.9%	660	3,230
Sales	1.3%	2,498	0.9%	660	3,158
Social Services	0.6%	1,134	2.6%	1,955	3,089
Special Trade	0.8%	1,548	1.7%	1,279	2,827
Government Services/Military	0.5%	946	1.8%	1,336	2,282
Transportation/Truck Driving	1.2%	2,268	0.0%	0	2,268
Cosmetology	1.0%	1,967	0.0%	0	1,967
Auto Mechanic/Auto Body	0.6%	1,134	0.9%	660	1,794
Food Preparation & Services	0.9%	1,666	0.0%	0	1,666
Real Estate	0.8%	1,431	0.0%	0	1,431
Childcare	0.3%	531	0.9%	660	1,191

8. **Nearly half (48.9%) of all responding companies report that they currently use co-op, apprenticeship, internships, or other similar programs.** An additional 26.1% report they have used these programs in the past but are not doing so currently. Employers with current or past experience using these programs report a high value of the programs to their companies, with a median score of 4.0 and an average score of 3.9.

LABOR COST

1. **Average industry earnings in the Greater Knoxville Region are below state and national averages.** The region's overall earnings are 74.8% of the national average and 84.4% of the state average, as seen in Table 39.
 - The biggest earning differentials, by percent, between the region and the U.S. are seen in the *utilities, educational services, and finance and insurance* sectors. The only sector where the region exceeds state and national averages is in the *forestry, fishing, hunting and agricultural support* sectors.
 - Average annual earnings for each of the nine counties are provided in Exhibit D-8.

TABLE 39
AVERAGE ANNUAL EARNINGS BY INDUSTRY, 2004
 Source: U.S Department of Commerce, County Business Patterns

NAICS	Industry	Greater Knoxville Region	Tennessee	U.S.	Greater Knoxville Region (Indexed to U.S.)	Tennessee (Indexed to U.S.)	U.S. (Index Base)
-----	Total	\$27,642	\$32,770	\$36,967	74.8%	88.6%	100%
11----	Forestry, fishing, hunting, and agriculture support	\$26,491	\$25,072	\$28,684	92.4%	87.4%	100%
21----	Mining	\$36,269	\$40,127	\$56,880	63.8%	70.5%	100%
22----	Utilities	\$40,814	\$50,408	\$70,527	57.9%	71.5%	100%
23----	Construction	\$29,550	\$35,751	\$40,355	73.2%	88.6%	100%
31----	Manufacturing	\$34,185	\$38,940	\$42,890	79.7%	90.8%	100%
42----	Wholesale trade	\$34,391	\$44,627	\$49,191	69.9%	90.7%	100%
44----	Retail trade	\$18,887	\$20,564	\$21,758	86.8%	94.5%	100%
48----	Transportation & warehousing	\$30,673	\$35,032	\$36,167	84.8%	96.9%	100%
51----	Information	\$35,538	\$42,097	\$57,725	61.6%	72.9%	100%
52----	Finance & insurance	\$31,930	\$52,029	\$65,180	49.0%	79.8%	100%
53----	Real estate & rental & leasing	\$24,881	\$31,812	\$35,528	70.0%	89.5%	100%
54----	Professional, scientific & technical services	\$34,337	\$48,146	\$56,369	60.9%	85.4%	100%
55----	Management of companies & enterprises	\$58,462	\$66,932	\$78,753	74.2%	85.0%	100%
56----	Admin, support, waste mgt, remediation services	\$23,223	\$24,586	\$27,049	85.9%	90.9%	100%
61----	Educational services	\$14,112	\$26,859	\$27,749	50.9%	96.8%	100%
62----	Health care and social assistance	\$27,936	\$34,933	\$35,400	78.9%	98.7%	100%
71----	Arts, entertainment & recreation	\$19,008	\$32,662	\$26,844	70.8%	121.7%	100%
72----	Accommodation & food services	\$11,101	\$11,976	\$13,691	81.1%	87.5%	100%
81----	Other services (except public administration)	\$17,383	\$19,977	\$22,618	76.9%	88.3%	100%
99----	Unclassified establishments	N/A	\$14,561	\$19,637	N/A	N/A	100%

2. Table 40 shows that wages in select locations in the Knoxville region are lower than U.S. figures.

TABLE 40
MEDIAN ANNUAL EARNINGS IN SELECT KNOXVILLE REGION LOCATIONS FOR REPRESENTATIVE OCCUPATIONS

Source: SalarySource.com

Occupation Description	Blount County (Alcoa)	Knox County (Knoxville)	Roane County (Harriman)	Sevier County (Sevierville)	U.S.
Accounting Clerk	\$27,955	\$28,418	\$26,873	\$25,823	\$30,912
Assistant, Administrative	\$34,065	\$35,235	\$33,290	\$31,797	\$38,904
Civil Engineer	\$55,969	\$59,899	\$56,628	\$55,956	\$65,413
Computer Programmer	\$46,752	\$48,877	\$46,197	\$45,279	\$53,594
Electronics Assembler	\$23,756	\$24,130	\$22,884	\$22,570	\$25,566
Electronics Technician	\$34,346	\$35,345	\$33,391	\$31,748	\$39,081
Engineering Technician, Mechanical	\$38,150	\$39,996	\$37,794	\$36,486	\$44,042
Maintenance Specialist	\$32,494	\$33,450	\$31,603	\$30,092	\$36,943
Machinist General	\$33,889	\$35,107	\$33,170	\$31,723	\$38,748
PC/Microcomputer Specialist	\$47,487	\$50,592	\$47,817	\$46,755	\$55,515
Secretary, Administrative	\$27,012	\$27,456	\$25,977	\$25,217	\$29,579
Analyst, Systems	\$61,289	\$65,413	\$61,843	\$61,099	\$71,401
Tool & Die Maker	\$40,584	\$43,180	\$40,810	\$39,868	\$47,392
Assembler	\$23,756	\$24,130	\$22,884	\$22,570	\$25,566

3. Table 41 provides average and hourly starting wages according to area employers. Complete survey data on salaries is provided in Exhibit B-8 (pages 22-24) in Appendix B.

TABLE 41
ANNUAL SALARIES OF SURVEYED EMPLOYERS
Source: WDG Employer Survey, Fall 2006

Occupation	Responses	Average Annual Starting Salary	Average Hourly Starting Wage
Accountants	21	\$41,906	\$20.15
Accounting clerks/bookkeepers	40	\$23,754	\$11.42
Administrative assistants	45	\$23,680	\$11.38
Building and construction trades	5	\$23,575	\$11.33
CAD drafters	5	\$33,874	\$16.29
Clerical workers with advanced computer skills	29	\$19,652	\$9.45
CNC machine operators	8	\$27,091	\$13.02
Computer operators	10	\$28,919	\$13.90
Computer security specialists	6	\$40,257	\$19.35

TABLE 41, CONTINUED
ANNUAL SALARIES OF SURVEYED EMPLOYERS
 Source: WDG Employer Survey, Fall 2006

Occupation	Responses	Average Annual Starting Salary	Average Hourly Starting Wage
Computer support specialists, technicians	13	\$32,661	\$15.70
Customer service managers	10	\$34,491	\$16.58
Customer service rep. (tele/Internet)	20	\$20,008	\$9.62
Customer service representatives, other	13	\$18,544	\$8.92
Database administrators	8	\$82,951	\$39.88
Electricians	6	\$31,271	\$15.03
Engineers	11	\$48,381	\$23.26
Engineers, mechanical	5	\$48,398	\$23.27
Forklift operators	11	\$18,961	\$9.12
Hand pickers and packagers	9	\$16,564	\$7.96
Machine operators, no setup	8	\$18,802	\$9.04
Machinists/manufacturing mechanic	6	\$31,223	\$15.01
Maintenance mechanics	15	\$26,398	\$12.69
Management trainees	7	\$30,973	\$14.89
Management, experienced	24	\$50,466	\$24.26
Material handling laborers	11	\$19,368	\$9.31
Medical and clinical laboratory technicians	5	\$30,117	\$14.48
Medical records technicians	5	\$18,191	\$8.75
Network systems administrators	14	\$42,511	\$20.44
Network technicians	7	\$38,568	\$18.54
Nurses, licensed practical	12	\$25,016	\$12.03
Nurses, registered	12	\$37,144	\$17.86
Office clerks	22	\$18,908	\$9.09
Physicians	5	\$148,366	\$71.33
Production supervisors	11	\$37,965	\$18.25
Programmer/analysts	11	\$48,215	\$23.18
Radiological technicians	6	\$32,222	\$15.49
Sales representatives	5	\$36,254	\$17.43
Skilled machine trades (general)	6	\$32,429	\$15.59
Systems analysts	8	\$46,841	\$22.52
Therapists, occupational	6	\$43,671	\$21.00
Therapists, physical	7	\$44,554	\$21.42
Truck drivers	6	\$19,288	\$9.27
Unskilled laborers (manufacturing, repair)	9	\$17,063	\$8.20

TABLE 41, CONTINUED
ANNUAL SALARIES OF SURVEYED EMPLOYERS

Source: WDG Employer Survey, Fall 2006

Occupation	Responses	Average Annual Starting Salary	Average Hourly Starting Wage
Warehouse managers	15	\$42,591	\$20.48
Webmaster	5	\$52,294	\$25.14

4. **On average, the wages for which not-employed and underemployed residents are willing to work are low to moderate.** Not-employed residents would be willing to enter the workforce for an average salary of \$23,341 (\$11.22/hr.) and a median salary of \$18,367. Employed residents who consider themselves underemployed would be willing to accept a new position for an average salary of \$39,960 (\$19.21/hr.) and a median salary of \$32,464.
5. **Benefits offered by area employers are strong.** Table 42 shows the percentage of companies offering various benefits. Nearly 94% offer life insurance, and 90.7% offer company-paid health insurance.
- Among not-employed residents that are interested in working, insurance plays a moderate role in whether or not they will accept a job. 29.7% of respondents reported that insurance must be paid for by the employer, and 21.6% indicated that the employer must make insurance available at a reasonable cost. 48.6% indicated that they would accept a job without insurance.

TABLE 42
BENEFITS OFFERED BY AREA COMPANIES

Source: WDG Employer Survey, Fall 2006

Benefit Offered	Responses	% of Companies Offering Benefits
Life insurance (company paid)	96	93.8%
Health insurance (company paid)	97	90.7%
Retirement Plan	95	90.6%
Long term disability	95	76.8%
Dental insurance (company paid)	96	68.8%
Short term disability	95	67.4%
Tuition reimbursement	95	65.6%
Optical insurance (company paid)	95	44.2%
Subsidized daycare program	95	3.2%
On-site daycare program	95	1.1%

OPERATING ENVIRONMENT

1. **The operating environment in Tennessee has favorable elements.** A review of existing labor legislation reveals many elements that are advantageous to employers. See Table 43 and Exhibit D-9.
 - There are no current statewide restrictions stronger than federal in terms of plant closings, ADA legislation, EEO standards, sexual harassment law, or mandated parental leave.
 - Tennessee has solid employment-at-will law, meaning that an employee is hired at will, and that employment can be terminated at the will of either the employer or employee.
 - There are no restrictions on employee drug testing.

TABLE 43
LABOR LEGISLATION IN TENNESSEE
 Source: WDG Database

Labor Legislation	Tennessee
Employment at will?	Yes
If yes, significant restrictions (from employers standpoint)	No
Restrictions on employee drug testing	No
Telephone monitoring restrictions for regulation of productivity (or customer service)	None
Plant Closing Law stricter than Federal?	No
ADA legislation stricter than Federal?	No
Ban on hiring replacement workers during a strike?	No
Striking workers entitled to unemployment insurance?	No
Relatively difficult for an employer to contest and win a workers' comp. claim?	No
Relatively difficult for an employer to contest and win an unemployment ins. claim?	No
Right to Work law in effect?	Yes
EEO hiring standards more restrictive than Federal?	No
Sexual harassment laws more restrictive than Federal?	No
Mandated parental leave legislation more generous than Federal?	No

2. **In 2006, workers' compensation insurance rates are higher in Tennessee relative to the U.S. average.** In 2006, average workers' compensation costs were slightly less than 1% higher in Tennessee than the national average, according to the annual analysis of workers' compensation costs by Actuarial & Technical Solutions of Ronkonkoma, New York. According to Actuarial and Technical Solutions, Tennessee ranked 31 among 45 states evaluated (with 45 being the most expensive). In Table 44, the index indicates the percentage above or below the U.S. average for workers' compensation.

- Tennessee recently enacted a series of workers' compensation insurance reforms that have positively impacted workers' compensation costs. Key elements of this reform include stronger regulation, medical fee schedules that control costs, a refocus of benefits to the most injured workers, and prompt payment requirements.

TABLE 44
WORKERS' COMPENSATION COMPARATIVE COSTS, 2006* (INDEX U.S. AVERAGE=1)**
 Source: Actuarial & Technical Solutions

State	Index	Rank	State	Index	Rank	State	Index	Rank
Arizona	0.446	1	Kansas	0.833	16	Tennessee	1.086	31
Indiana	0.501	2	Nevada	0.850	17	New Hampshire	1.093	32
Arkansas	0.535	3	Georgia	0.888	18	Connecticut	1.115	33
Oregon	0.542	4	Mississippi	0.893	19	New Jersey	1.129	34
Virginia	0.556	5	Nebraska	0.907	20	Oklahoma	1.155	35
Utah	0.606	6	Colorado	0.916	21	Missouri	1.169	36
Massachusetts	0.666	7	Louisiana	0.943	22	Montana	1.224	37
North Carolina	0.687	8	Michigan	0.986	23	New York	1.282	38
South Dakota	0.702	9	Alabama	0.998	24	Texas	1.284	39
South Carolina	0.726	10	Illinois	1.021	25	Florida	1.320	40
Iowa	0.740	11	Rhode Island	1.033	26	Hawaii	1.341	41
Maryland	0.754	12	Minnesota	1.050	27	Delaware	1.671	42
New Mexico	0.780	13	Maine	1.050	27	Vermont	1.854	43
Idaho	0.821	14	Kentucky	1.079	29	Alaska	1.890	44
Wisconsin	0.828	15	Pennsylvania	1.081	30	California	1.990	45

* Ranked from lowest to highest

** Five states are self-insured and not reported in this index

- Since 1990, there have been 62 union certification elections in the Greater Knoxville Region, according to the National Labor Relations Board. Of those, the unions successfully won 32 (51.6%). See Exhibit D-10.
 - In 2005, 5.5% of public and private employees were covered by unions in the Knoxville, TN MSA, compared to 6.6% in Tennessee and 13.7% nationally, indicating a relatively low union presence in the metro area.

QUALITY OF LIFE

1. **There are a number of factors that contribute to the area's excellent quality of life.** See Exhibit D-11 for quality-of-life indicators.
 - The region has a moderate climate. The average annual temperature is 58 degrees Fahrenheit, with an average low in January of 28 degrees Fahrenheit, and an average high in July of 86 degrees Fahrenheit.
 - There are numerous recreational and outdoor activities, including Great Smoky Mountains National Park, seven TVA great lakes of the south, Big South Fork Wilderness Area, a professional baseball team, and a professional ice hockey team.
 - The region has two active symphonies — the Knoxville Symphony Orchestra and the Oak Ridge Symphony. The region is also home to an opera company, three ballet companies, a fine arts museum, and a professional children's dance ensemble.
 - Knoxville hosts the nationally acclaimed Dogwood Arts Festival, which is one of the longest running and largest civic celebrations in North America.
 - Commute times in the region are short. In the nine-county region, over 76% of residents travel less than 30 minutes for employment, compared to 65.5% nationally.
2. **The cost of living in the Knoxville region is low.** According to the Economic Research Institute, the cost of living in the Greater Knoxville Region is only 84.4% of the national average.
 - According to the same source, housing is particularly affordable, with the average cost of a four-bedroom home being 80.5% of the national average.
3. **Crime rates in the Greater Knoxville Region are slightly higher than national rates, but lower than state rates.** In 2003 (the most recent date available), there were 3,980 property crimes per 100,000 residents, compared to 3,517 nationally. There were 473 violent crimes per 100,000 residents in the region, versus 466 nationally.