

S T A T E

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I L L I N O I S

Critical Skill  
Shortages Initiative

**Critical Skill  
Shortages Report**  
on the  
**Transportation, Warehousing  
& Logistics Sector**  
for the  
**Northeast Illinois  
Economic Development  
Region**



Prepared for  
**The Workforce Boards**  
OF METROPOLITAN CHICAGO

Prepared by  
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## Introduction

This report is a component of the Critical Skill Shortages Initiative (CSSI), consisting of several planning and analysis efforts to align regional workforce programs to provide a reliable supply of qualified job seekers for critical skill shortage occupations in key industry sectors. Governor Blagojevich has established ten Economic Development Regions throughout the State with the goal of promoting regional approaches to linking workforce preparation programs with economic development. In the Northeast Economic Development Region (Northeast EDR), the Workforce Boards of Metropolitan Chicago are collaborating to lead the CSSI effort.

Workforce Boards of Metropolitan Chicago is a consortium of nine Workforce Boards covering the City of Chicago and DuPage, Kane/Kendall/DeKalb, Lake, Grundy/Livingston/Kankakee, McHenry, Northern Cook, South and West Cook, and Will counties. This area, with the exception of Livingston County, comprises the Northeast EDR. This report on the critical skill shortage occupations in the Northeast EDR is one of three analyses covering critical economic sectors to Metropolitan Chicago: Healthcare, manufacturing, and transportation, warehousing and logistics.

The CSSI consists of two phases: a planning phase and a training phase. The planning phase is designed to identify the skill shortage occupations in key sectors of the regional economy, the examination of the “root causes” that lead to shortages, and the development of solutions to address those causes through the redirection of both public and private resources.

This report synthesizes a number of data sources to: (1) document the thorough methodology used to identify sectors and critical skill shortage occupations, (2) demonstrate the full engagement of required partners and full support from industry partners in the targeted sectors, (3) describe the rationale for selecting each sector/industry, (4) document the rationale for selecting the critical occupations for each sector/industry, and (5) specify the size and location of the short-term and long-term shortages.

## An Introductory Note on the Broader Context of National Skills Concerns

### Demand – Supply Gaps

National discussion about skills and worker shortages began in the 1980s. Most of the early debate centered on research studies by think tanks and others, exploring demographic changes as they would likely affect the labor force. A general conclusion was that the U.S. would face worker and skills shortages beginning approximately 10 years hence<sup>1</sup>. In the late eighties, the National Center on Education and the Economy released its “America’s Choice: High Skills or Low Wages” report. The logic of this report was that America’s future economic prosperity lies in higher value added economic activity, requiring more sophisticated products and services, and demanding higher skilled workers. These forecasted shortages came to reality, as projected, in the mid-late nineties. They were brought on not only by structural demographic and economic changes as anticipated, but by a boom economy. Today, the issue continues, even in a slower economy. Massive economic restructuring and globalization along with continuing change in age distribution and educational attainment of the workforce point to further challenges for the long haul.<sup>2</sup>

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<sup>1</sup> Hudson Institute, Workforce 2000, 1987

<sup>2</sup> This viewpoint is well developed in the work of the Aspen Institute, Tony Carnevale and others. Anthony Carnevale is Vice President for Assessments, Equity, and Careers at the Educational Testing Service. The author of several books, including *The American Mosaic: An In-depth Report on the Future of Diversity at Work and America* and *The New Economy: How New Competitive Standards are Radically Changing American Workplaces*, Carnevale has been researching and writing about workforce development for many years. Carnevale was appointed by President Clinton as a commissioner to the White House Advisory Committee on Technology and Adult Education and Training, and Chair of the National Commission for Employment Policy, while serving as vice president and director of human resource studies at the Committee for Economic Development.

On the other side of the supply-demand argument are authors<sup>3</sup> who point out that the U.S. labor force is incredibly flexible and, over the long run, adjusts to supply-demand gaps. Cappelli points out that adjustments will occur as new labor supply is added from older workers who prefer to continue to work after their traditional retirement age, disabled workers who are now able to work with the aid of advanced technology, better preparation and inclusion of formerly incarcerated, and ex-welfare recipients into the workforce, etc. In addition, at the margins, so long as the United States keeps an open-door policy on immigration, both low-skill and high-skill labor can be attracted from overseas to correct for near-term imbalances.

Both of these points of view continue as controversies in the skills debate. This report bypasses this “in the long-run argument.” Rather, it acknowledges that as a result of today’s fast-moving and churning economy, skill shortages are bound to occur and if not corrected expeditiously, they hurt local industries’ competitive positions. In other words, critical skill shortages deal with the here and now and require the urgency of immediate solutions. What a state or region must do is to continuously monitor future gaps in critical occupations and to deploy flexible tools to adapt. That, in essence, is the motivation behind the CSSI initiative—to identify today’s gaps, find causes, recommend solutions, and mobilize for collaborative action.

### Regional Differences

Behind national demand-supply gaps, regions across the U.S. vary considerably and accentuate various labor and skills gaps. For the decades, federal policy has recognized, local and regional initiatives as central to solving the nations workforce challenges. The Comprehensive Employment and Training Act (CETA), the Job Training Partnership Act (JTPA) and the Workforce Investment Act (WIA) all engaged local/regional delivery infrastructures. The CSSI project goes one step further by stressing the importance of in-depth regional, economic and workforce analysis in crafting regional workforce solutions. Indeed, the initiative gives practical expression to a statement made nearly a decade ago by Michael Porter of Harvard University: “Metropolitan areas and regions are the locus of competitive advantage.” Consequently, this report reflects the best economic analysis possible, using regional secondary sources of data along with locally-collected field interviews, focus groups, industry councils and existing industry studies. Further, the nine board membership of this coalition enables a truly metro-regional framework for these analyses.

### Specific Industry Challenges

Regardless of whether or not the labor market adjusts to shortages in the long run, the CSSI project recognizes that imbalances within economic sectors are likely to occur, given the rapid economic change affecting the U.S. economy. Quite different growth paths are shaping up for different industries within the Greater Metropolitan Chicago region, leading to different work-site expectations and preparations by both hourly and salaried workers. For example, with respect to the three sectors of this CSSI project, the U.S. manufacturing sector is losing employment, but gaining significantly in productivity. Consequently, pay per worker is increasing alongside a requirement for much higher skills/competencies. Manufacturing is characterized by less demand for frontline production workers and a shift to technician level workers. In the case of transportation, warehousing and logistics, the global segmentation of production is resulting in demand for highly sophisticated supply chain management, requiring a broad range of occupations and skills from software specialists to security engineers and computer-literate schedulers. Healthcare presents a different picture, again. This is an industry in a rapid growth phase due to the aging population and access to ever more advanced technologies/treatments. Healthcare is a growth sector requiring many more workers at all levels, especially those in the clinical, therapeutic, and diagnostic occupations, all of which require significant educational preparation and continuous learning.

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<sup>3</sup> Peter Cappelli is the George W. Taylor Professor of Management at the Wharton School of the University of Pennsylvania in Philadelphia and director of Wharton’s Center for Human Resources and is a research associate for the National Bureau of Economic Research in Cambridge, Massachusetts. He is author of *The New Deal at Work: Managing the Market Driven Workforce*, the first book of its kind to address the ever-changing landscape between employee and employer. Dr. Cappelli has chronicled how the employment field has evolved over the years, and according to many experts, he is the sole academic in the country to monitor this phenomenon.

## Skills Shortages

While scholars differ regarding the degree to which the U.S. faces a worker shortage, both regional differences and industry transformations are resulting in a quite remarkable “re-skilling cycle” in Greater Metropolitan Chicago. Professional, computer and healthcare occupations are most likely to experience skill shortages. Carnevale and Desrochers<sup>4</sup> contend that productivity growth changes the occupational patterns, requiring higher skilled jobs while stretching the pipeline of skilled workers. They further predict that inadequate educational attainment threatens to slow down on productivity growth. Others are more optimistic about productivity growth, as GenX, GenY and the New Millennials achieve higher levels of college attainment. However, the college attainment data is not encouraging. The Aspen Institute points to a slowdown in the growth rate in general post secondary educational attainment and especially at the graduate level. Between 1980 and 2000, the share of the labor force that had a college degree rose from 21.6 percent to 30.2 percent, but according to Aspen Institute, this is expected to rise only to 33.6 percent by 2020<sup>5</sup>. Similarly the fraction of workers with some post-high school education rose by nearly 20 percentage points during the same period, but it is projected to grow just 4 percentage points between 2000 and 2020.

There has been an increase in skill requirements in economy, although the magnitude of the trends is debated. Jobs that require an associate’s degree are expected to grow the fastest, increasing by 32 percent through 2010, followed by jobs that require a bachelor’s degree growing 24 percent according the Hecker<sup>6</sup>. In the global context, this is important not just in absolute terms, but also in relative competitive position for the U.S. to attract new students for the right disciplines, domestically and from overseas. The National Science Foundation points out that the relative attractiveness of the U.S. might erode as living standards rise in developing countries and as other industrialized nations intensify their international recruitment efforts. Foreign graduates may find returning home more attractive than staying in the U.S. after their training, and businesses might locate increasingly sophisticated functions overseas. Consequently, this initiative pays particular attention to ascertaining skill shortages by industry and seeks targeted solutions as needed.

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4 Carnevale A.P. and D.M. Desrochers (April 2002). The Missing Middle: Aligning Education and the Knowledge Economy. Office of Vocational and Adult Education, U.S. Department of Education.

5 Aspen Institute (Jan 2002). Grow-Faster Together or Grow Slowly Apart: How Will America Work in the 21st Century?

6 Hecker DE (2004). Occupational Employment Projecting 2012, Monthly Labor Review Vol 127(2) pp 80 -105.



## Methodology Used to Identify Sectors and Critical Skill Shortage Occupations

The Workforce Boards of Metropolitan Chicago have drawn upon a significant amount of data to assist in the selection of Transportation, Warehousing, and Logistics as a critical sector and in the identification of Transportation, Warehousing, and Logistics occupations for which there are critical shortages. “Critical occupations” are those that are vitally important to the overall health of an industry. Critical occupations are those that experience strong employment demand, provide good wages are critical to industry competitiveness, and are appropriate for targeting for the workforce system. A “critical shortage occupation” is a critical occupation for which there are not enough qualified people to meet the demand, or for which the projected demand is greater than the projected supply. In Transportation, Warehousing, and Logistics, current critical shortage occupations are often commonly identified by high vacancy rates, or lack of skilled labor availability. Projected shortage occupations are based on projected demand increases, which may be due to demographics, new technologies, and processes that require personnel with new skills. The Transportation, Warehousing, and Logistics sector in the U.S. faces major barriers in hiring and retaining workers to keep pace with the tremendous rate of growth of the industry, as well as the ever-increasing levels of technical knowledge required by workers. The critical skill shortage occupations listed here reflect occupations which are currently in-demand by the Transportation, Warehousing, and Logistics sector in the Northeast EDR, as well as around the state and country.

The methodology used to identify these critical occupations and critical shortage occupations specific to the Northeast Economic Development Region includes a review of existing studies, an analysis of secondary data, and the collection and analysis of primary data.

### Review of Existing Studies

Prior to focusing on the Chicago Metropolitan region, researchers conducted a literature review to document the national context of transportation, warehousing and logistics<sup>7</sup>. Due to the expanding global market and the cost saving use of just-in-time inventory management practices, the demand for material movement is rapidly growing, requiring a much larger workforce. At a time when downsizing and outsourcing are becoming standard practice in other sectors, the demand for qualified transportation workers remains robust and is predicted to grow by an average of 23 percent over the next decade.<sup>8</sup> A scan of national workforce studies reveals that there exists both a projected increase in demand and major restructuring in some sectors in order to streamline and keep them profitable. This growth in demand is everywhere; as the country is rebounding from an economic downturn, demand for material movement has sharply increased, along with the already heavy load of international imports and exports. Growth in this industry will be felt across the nation, with larger growth in metropolitan regions with large mass transit systems.

At first glance, transportation worker growth can be largely attributed to individual and corporation movements. Locations of producers are not necessarily local anymore; as many companies move to where they can be most profitable, the distance in which products moves grows. As the population spreads out and moves from cities, goods will also have to move to keep up with demand, growing distribution centers and local freight transportation. However, movements in location only tell part of the story. Erosion and turnover of transportation workers remains a critical factor due to professional and workplace issues related to pay, staffing levels, seasonal workloads, and restructuring due to technology advancements.

Recently, the U.S. Department of Labor, Bureau of Labor Studies published a report entitled *The 2004-05 Career Guide to Industries*. The report predicts that occupations in the transportation and material movement sector will grow at staggering rates. The percent increase over 10 years for production occupations is almost

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<sup>7</sup> For a breakdown of reports and sources referenced, see Appendix A.

<sup>8</sup> Based on Employment of wage and salary workers in truck transportation and warehousing by occupation, 2002 and projected change, 2002-12. An average of all occupations is expected to be 22.7%. <http://www.bls.gov/oco/cg/cgs021.htm>

41 percent; for Packers and Packers the increase is 29.5 percent, and Truck Drivers, Light or Delivery Services are expected to grow at a rate of 25.4 percent. “The number of wage and salary jobs in the truck transportation and warehousing industry is expected to grow 23 percent from 2002 through 2012, compared with projected growth of 16 percent for all industries combined.”<sup>9</sup>

Another published article, *Optimizing Supply Chains* by Ann Moline, reports, “The real value in the technology lies in the ability to integrate every function, including site selection, manufacturing, warehouse and transportation management, saving companies millions and enhancing profitability.” The move towards more profitability and streamlined operations is creating a shift in skill levels for some areas and restructuring with less employees in others.<sup>10</sup>

The literature review confirms the national scope of significant workforce growth in the transportation, warehousing, and logistics industry. Illinois, specifically the Chicago region, is at the center of this growth. Because of Chicago’s centralized location in the Midwest and proximity to Lake Michigan, the Chicago region is the nation’s leading intermodal container port. Along with being a major shipping and trucking destination, Chicago-Cook is the nation’s busiest rail hub. It is served by 21 intermodal facilities and 19 container depots, handling 8.8 million containers daily. In addition, Chicago’s air transport is the largest mode of distribution in the region. Shipping nearly 900 million cargo tons domestically and 700 million cargo tons internationally, combined over 1.5 billion tons of cargo distributed annually from O’Hare airport alone.<sup>11</sup>

*The State of Illinois Manufacturing* discusses the changes in the distribution industry and the effects that larger companies are having on local and suburban retailers. Due to larger retailers like Wal-Mart, local distributors and brokers are consolidating. The growth of employment in the logistics sector will be focused on higher-qualified employees because of the sector’s interest in integrating logistics with technology in order streamline costs to both small and large retailers. “Large companies are also aggressive in demanding low prices, high quality, and integration of supplier data systems with that of the purchasing firm.” The Chicago area has relied heavily on the logistics and distribution sector for many different industry needs. Not only have they relied on international, national, interstate, intrastate, but now more than ever before are they responsible for aiding the growth of the surrounding region.<sup>12</sup>

Finally, *The State of the Workforce Report for the Metropolitan Chicago Region, 2003*, notes that the transportation and distribution remains one of the region’s leading industries above the national average for employment in the sector at 8 percent of the workforce.<sup>13</sup> The move has been slow to restructure the industry due to cost of implementing new software and computers in smaller firms and the lack of qualified workers coming into the industry.

Regional growth projections from the Illinois Department of Employment Security show Trucking & Warehousing growing 13,163 jobs (16 percent) through 2010. These industries will be the fastest-growing in the sector. Railroad Transportation is expected to decline over the next decade. While employment in many positions will be reduced due to restructuring, other positions will still need to be filled with qualified workers as new technology is adopted and large numbers of workers retire.<sup>14</sup>

The review of existing analyses from national, regional, and local levels confirm that transportation, warehousing, and logistics is an industry in need of specific strategies to address the future workforce shortages.

9 The 2004-05 Career Guide to Industries. <http://www.bls.gov/oco/cg/cgs021.htm>

10 Ann Moline. Integrated systems can mean flexibility, savings. January 2002. <http://www.bizsites.com/2002/jan/supply.html>

11 Industry Trends2001. Chicago-Cook Business Center. [http://www.chicagocook.org/b2k/industry/html/logistics\\_leader.html](http://www.chicagocook.org/b2k/industry/html/logistics_leader.html)

12 The State of Illinois Manufacturing. “A Report for the Illinois Manufacturers’ Association” December 2003.

13 The State of the Workforce Report for the Metropolitan Chicago Region, 2003. pg. 21

14 Illinois Department of Employment Security. Local & Interurban Transit. Trucking & Warehousing in 2000, 82,339 jobs in 2010 predicted to have 95,502 a growth of 13,163, at 15.99%. Railroad Transportation in 2000, 11,627 jobs in 2010 predicted to have 10,204 a decline of -1,423, at -12.24%. [http://lmi.ides.state.il.us/projections/msaprofiles/chi\\_ltind.xls](http://lmi.ides.state.il.us/projections/msaprofiles/chi_ltind.xls)



## Analysis of Secondary Data

To assist in their CSSI planning efforts, the Workforce Boards of Metropolitan Chicago have retained a team of local and national consultants to assist with several aspects of the initiative including the collection and analysis of data. An analysis team of researchers from the Hudson Institute Center for Economic Competitiveness performed analyses using Hudson’s proprietary “Jobs, Occupations, Workforce, Education” (JOWE®) database tool. The JOWE® database combines standard secondary employment and earnings/wage data to allow researchers to conduct powerful analyses and make projections. The JOWE® database is designed for data analysis in any industry at the county, state, or national levels. JOWE® provides the following information:

- Industry employment and earnings for any industry at the county, state, or national level
- The occupational profile of any industry: which occupations are employed in each industry
- The number of workers employed in each occupation within any industry
- Hourly wages and annual salaries for each occupation
- A 10-year employment projection for each occupation
- The skills and knowledge a worker in each occupation should possess
- The education level required to perform each occupation
- The means to identify the critical occupations in any industry
- A method to determine the most important job skills and knowledge areas workers need to possess for job performance

JOWE® is comprised of several secondary data sources that are correlated and compiled using specialized formulas. The secondary data sources include:

- ES202, Covered Employment and Wages
- BLS Occupational Employment Survey
- BLS Occupational Employment Survey Occupational Projections
- The Occupational Information Network (O\*Net)

Researchers also used the customized CSSI reports from the Illinois Department of Employment Security as a baseline for comparison with the results generated by JOWE®. This allowed researchers to present their findings with reference to an accepted standard for projections.

## Collection and Analysis of Primary Data

The Illinois Department of Employment Security (IDES) designed a survey to measure job vacancy, educational requirements, required experience, median hourly wages, hiring difficulties and recruitment methods for occupations in the Northeast EDR Transportation, Warehousing, and Logistics sector. The IDES survey of Transportation, Warehousing, and Logistics employers included a list of Transportation, Warehousing, and Logistics occupations about which data was collected. IDES reported findings for full-time, permanent occupations with vacancies in each of the Transportation, Warehousing, and Logistics sub-sectors (transportation services, public warehousing, and wholesale trade). As of April 23, 2004, this survey garnered an approximate 27.6 percent response rate, soliciting responses from 635 businesses with more than 5 employees. Approximately 15 percent of wholesale companies reported vacancies, while 31.2 percent of transportation/warehousing companies reported vacancies.

Through this analysis, IDES identified 24 occupations in transportation and warehousing, and 52 occupations in wholesale/distribution. See Appendix B for the complete IDES survey results. For the purposes of this report, the top 20 in each sub-sector are considered “critical.” To create the lists of critical skill shortage occupations featured later in this report, the top 20 occupations from the Hudson Institute JOWE® methodology and the top 20 occupations<sup>15</sup> from the IDES survey were compiled for each sub-sector. The

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<sup>15</sup> Critical occupations from the IDES survey were measured as the top 20 occupations, ranked by the number of permanent (more than 6 months) vacancies reported.

critical occupations from both the transportation/warehousing and wholesale industries were then compiled. The critical occupations featured in this report, then, are inclusive of the entire Transportation, Warehousing, and Logistics industry in the region. In some cases, both the IDES survey and JOWE<sup>©</sup> generated the same occupations as critical. In this case, the occupation is listed once. Figure 3 on page 22 shows whether occupations were identified by the IDES survey, JOWE<sup>©</sup>, or both.

In addition to the review of existing studies and the analyses of secondary data, Workforce Boards of Metropolitan Chicago also contracted with the Corporation for a Skilled Workforce to conduct focus groups, structured telephone interviews and site visits to obtain additional primary data about this industry and its critical occupations. This diverse primary data collection strategy has garnered some rich information; findings from this process will be included throughout this report.

The focus groups were comprised of representatives from private sector firms, community colleges, Workforce Investment Boards, trade groups, industry associations, Chambers of Commerce and economic development corporations. The focus groups were designed to gather data on several different factors to inform this report but also the root causes and solutions reports. The information most relevant to this report is the data gathered regarding occupations that are difficult to fill.

CSW also conducted an online survey of Transportation, Warehousing, and Logistics businesses—this was particularly helpful in gaining information from those invited to participate in the focus groups who could not attend. This survey collected information similar to that of the focus groups, including information that will be employed to a great degree in the root causes and solutions report.

## Regional Coalition and Industry Partner Engagement

The CSSI initiative in the Northeast EDR has included broad-based involvement from both a geographical basis and interest basis. This current process has a rich foundation of regional collaboration. The strong existing links between the local Workforce Boards, comprising the Workforce Boards of Metropolitan Chicago, and the Manufacturing industry proved to be an efficient and effective mechanism for generating industry involvement throughout the region. In addition to existing links, the Workforce Boards devoted substantial effort to ensure key stakeholders had ample opportunity to participate in identifying the critical occupations in the region's manufacturing sector.

In October of 2003, the Workforce Boards convened three regional sessions over a two day period to share information on the region's response to the CSSI request for grant applications. More than 120 individuals attended from around the region to discuss the stakeholders to be involved, the data sources to be used, and strategies to be pursued. These meetings and various outreach activities pursued by the Workforce Boards' members and staff provided extensive input and engagement in the process from stakeholders throughout the region.

To ensure that industry partners and other stakeholders were able to validate the work of the contractors in identifying the critical occupations for the manufacturing sector, the Workforce Boards designed a meeting the Leadership and Regional Councils on April 14, 2004. This meeting of the Leadership and Regional Councils allowed for discussion concerning the research process and provided some preliminary feedback on the status. This process and the use of the Councils will be continued through each step of the project. For a complete outline of groups participating in this CSSI see Figure 1 on page 11.

1) Leadership Council—The Leadership Council, whose membership is described in Appendix C, met on April 14<sup>th</sup> 2004. Kristin Wolff from the Corporation for a Skilled Workforce (CSW) facilitated conversation about the status of the transportation, warehousing and logistics sector, and gave the Councils some initial feedback from several industry focus groups. The Council then met again on May 24<sup>th</sup>, 2004 and received a progress report on selection of critical occupations for the manufacturing sector..

2) Regional Council—This group met along with the Leadership Council to receive the progress reports and provide feedback on the process. The Regional Council's membership is provided as part of Appendix C.

At the April 14, 2004 meeting, conversation focused on ways in which the group could best participate in the CSSI process. The Leadership Council agreed to act as a sounding board and editor for the Transportation, Warehousing, and Logistics CSSI reports. The Regional Council agreed to assist in the dissemination of Critical Skills Shortage Initiative information and to provide guidance and recommendations to researchers completing the report.

The group discussed to some extent the issues facing the Transportation, Warehousing, and Logistics industry, including the quick pace of technology and difficulties in keeping "on-pace" training programs through local educational institutions.

3) One-Stop Council—This group, whose representation is described in Appendix D, met on April 26, 2004. The group will be responsible for:

- Identify and share best practices in sector strategies
- Assimilate sector strategies and models in the One-Stops
- Support implementation of CSSI solutions

At the meeting, representatives grouped according to their local One-Stops to discuss approaches they are currently taking to implementing sector strategies at the One-Stops. Details from this process are available in the meeting minutes in Appendix D.

4) TWL Sector Council – The Transportation, Warehousing and Logistics Council met on May 10<sup>th</sup>, 2004. Presentations were made by Hudson Institute on preliminary critical occupations

identification and IDES on the job vacancy survey results. The Council then provided input on the preliminary critical occupations list. The council was then briefed on the methodology that will be used for focus groups as well as the root cause identification and regional solutions process. Minutes of this meeting can be found in Appendix E.

5) Community Stakeholder Groups—The group met on April 26, 2004 to become acquainted with the CSSI process. The group also heard about the methodology from Hudson Institute and CSW staff. Preliminary findings from focus groups and early survey results were presented. Minutes from this meeting are included in Appendix F.

Figure 1. – CSSI Participation and Input

*Leadership and Participation Structure*

Leadership Council	
Membership:	Workforce Board Chairs and CLEOs
Responsibilities	Review and provide guidance on CSSI planning grant deliverables: <ul style="list-style-type: none"> <li>• Critical Skill Shortages Report</li> <li>• Root Causes Report</li> <li>• Regional Solutions Report</li> </ul>

Regional Council	
Membership:	Representatives of IDHS, DCEO, IDES, ICCB, Labor, Regional Offices of Education, Economic Development Organizations, and the Private Sector, Community College Presidents, Chairs and Vice Chairs of Industry Councils and One-Stop Council, Foundations, and Workforce Board Chairs
Responsibilities	<ul style="list-style-type: none"> <li>• Assist with the dissemination of CSSI information.</li> <li>• Review &amp; provide guidance on CSSI findings &amp; recommendations.</li> <li>• Support redirection of resources.</li> </ul>

TWL Sector Council	
Membership:	Representatives of the Private Sector, Industry Associations, Summit Action Teams, Economic Development Organizations, Chambers, and Labor
Responsibilities	<ul style="list-style-type: none"> <li>• Assist with data collection to support CSSI research activities</li> <li>• Validate CSSI findings &amp; recommendations</li> <li>• Support development of CSSI reports</li> </ul>

TWL Focus Groups	
Membership:	Area firms (small, medium and large-sized businesses)
Responsibilities	<ul style="list-style-type: none"> <li>Provide “ground-level” information and validation to secondary data</li> </ul>

One-Stop Council	
Membership:	From each Local Workforce Area, one representative for each One-Stop partner
Responsibilities	<ul style="list-style-type: none"> <li>Identify &amp; share best practices in sector strategies</li> <li>Assimilate sector strategies &amp; models in the One-Stops</li> <li>Support implementation of CSSI solutions</li> </ul>

Community Stakeholder Groups	
Membership:	Community Based Organizations, Economic Development Organizations, Chambers of Commerce, the Education for Employment/Tech Prep System, Community Colleges and Universities, Industry Associations, One-Stop partners, Private Sector, Workforce Boards, Elementary and Secondary Education, Legislators, Local Elected Officials, and others
Responsibilities	<ul style="list-style-type: none"> <li>Assist with implementation of CSSI solutions</li> </ul>

The consensus-building process began in March 2004 at the Transportation, Warehousing and Logistics Summit convened by the Workforce Boards and co-sponsored by many area businesses and organizations. The results of the Summit were used to prepare the strategic workforce development plan for the region. The over 250 participants in the Summit included, among others, the following representatives: business leaders, labor, chambers of commerce, education, industry associations and other community stakeholders.

Following a panel discussion, five action groups were convened with experts from the respective topic areas. Topics are listed below. Under each heading are the top action items that emerged from the action team discussions:

- Preparing and Recruiting Qualified Entry-Level Employees
  - Facilitate employer and job training organizations to promote best practices and bridge programs
  - Create a skilled certification through a collaboration of private, public sector and educational institutions
  - Inform employers about One-Stops and other organizations to provide customized training
  - Create a best practices website
  - Implement job profiling regarding suitable skills/job requirements
- Retaining, Upgrading, and Advancing Current Employees
  - Link employee performance to compensation systems
  - Develop common models of soft skills training
  - Certify skills training that is relevant to employer needs
  - Develop models of employee job enrichment programs
  - Provide change in management processes for corporate culture change
- Helping Small Business
  - Develop retention contracts with employees

- Engage employees in strategic planning process
- Promote/inform employers of community-based training programs
- Utilize State and Federal dollars for incumbent worker training
- Develop a centralized website for resources
- Provide Human Resource training and guidance for small businesses
- Developing Critical Skills and Industry Workforce Issues
  - Develop soft skills training (eg, One-Stop center)
  - Implement mentoring and internship programs
  - Compile regional data through surveys by industry associations
  - Foster a seamless workforce development system, grounded in a regional approach
  - Develop a career awareness strategy to connect companies to students

As a result of the CSSI process, the Workforce Boards have sponsored stakeholder meetings and forums across the region, building upon earlier work. These events have included college and community college presidents, target industry leaders, labor, officials from city, state and county government, industry associations, economic development groups, workforce board members and committees, education representatives from the K-12 system, area planning councils, education to careers and tech-prep representatives, proprietary institutions, state agencies, foundations, public policy bodies, one-stop system partners, and community based organizations.

As evidence of widespread support for and a willingness to work with the Workforce Boards of Metropolitan Chicago to identify and address the critical skill shortages of the transportation, warehousing and logistics sector, letters of support were submitted and are provided in Appendix G.



## Target Industry Analysis

### Transportation, Warehousing and Logistics as a Workforce Target

Due to the expanding global market and the cost saving use of just-in-time inventory management practices, the demand for material movement is rapidly growing, requiring a much larger workforce. At a time when downsizing and outsourcing are becoming standard practice in other sectors, the demand for qualified transportation workers remains robust and is predicted to grow by an average of 23% over the next decade.<sup>16</sup> A scan of national workforce studies reveals that there exists both a projected increase in demand and major restructuring in some sectors in order to streamline and keep them profitable. This growth in demand is everywhere; as the country is rebounding from an economic downturn, demand for material movement has sharply increased, along with the already heavy load of international imports and exports.

Illinois, specifically the Chicago region, is at the center of this growth. Transportation, Warehousing and Logistics currently is the fourth largest employment sector in the region, and continues to grow (Figure 2). Because of Chicago's location along Lake Michigan and its location in the Midwest, the Chicago region is the world's leading intermodal container port, nearly twice the size of Los Angeles. Along with being a major shipping and trucking destination, Chicago-Cook is the nation's busiest rail hub. It is served by 21 intermodal facilities and 19 container depots, handling 8.8 million containers daily. In addition, Chicago's air transport is the largest mode of distribution in the region. Shipping nearly 900 million cargo tons domestically and 700 million cargo tons internationally, combined over 1.5 billion tons of cargo distributed annually from O'Hare airport alone.<sup>17</sup> *The State of the Workforce Report for the Metropolitan Chicago Region, 2003*, notes that the transportation and distribution remains one of the region's leading industries above the national average for employment in the sector at 8 percent of the workforce.<sup>18</sup> The move has been slow to restructure the industry due to cost of implementing new software and computers in smaller firms and the lack of qualified workers coming into the industry.

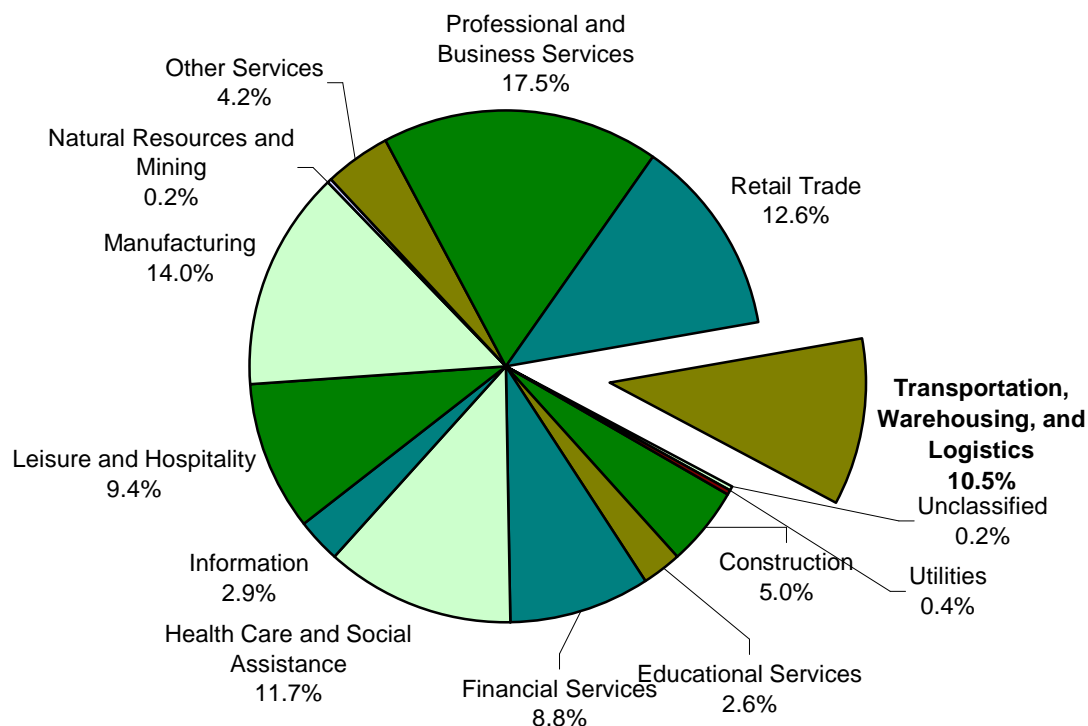
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16 Based on Employment of wage and salary workers in truck transportation and warehousing by occupation, 2002 and projected change, 2002-12. An average of all occupations is expected to by 22.7%. <http://www.bls.gov/oco/cg/cgs021.htm>

17 Industry Trends2001. Chicago-Cook Business Center. [http://www.chicagocook.org/b2k/industry/html/logistics\\_leader.html](http://www.chicagocook.org/b2k/industry/html/logistics_leader.html)

18 The State of the Workforce Report for the Metropolitan Chicago Region, 2003. pg. 21

Figure 2. – 2002 Employment by Industry<sup>19</sup>  
*Northeast Illinois Economic Development Region*



## Analyzing Northeastern Illinois

Competitive Industry Analysis is a means of examining the strengths and weaknesses of the Northeastern Illinois economy in terms of its industries. Each industry is examined from a number of angles to determine its current importance or future potential within the region's economic base. The criteria examined include:

- Regional employment growth
- Total regional employment
- Degree of regional specialization, as indicated by the industry's location quotient
- Gain or loss of regional competitive share, based on the "local factors" coefficient from shift share analysis
- Gain or loss of national competitive share, based on the "industry mix" coefficient from shift share analysis.

The location quotient suggests the degree to which a local economy may "specialize" in an industry. Each industry's location quotient is calculated by comparing the industry's percentage of total regional employment

<sup>19</sup> Source: Employment data for Northeast Economic Development Region, 2003 Quarter 1, provided by Illinois Department of Employment Security.

with the industry's percentage of total national employment. An industry that employs a greater percentage of the workforce locally than nationally would have a location quotient greater than one; conversely, an industry with a location quotient less than one employs a relatively smaller percentage of the labor force at the regional level than at the national.

Shift share analysis attributes regional growth or decline in an industry to three sources: change in the overall national economy, or the “national share”; change in the industry at the national level, or the “industry mix”; and change due to regional effects, the “local factors” share. Looking at an industry through each of these “lenses” allows it to be classified on the regional level as Strong, Lagging, Constrained or Poor, depending on which areas are its relative strengths or weaknesses.

## Results

Target industry analysis is most accurate when the data analyzed are for years that were equivalent points in the business cycle. Thus, this analysis used data from 1989 and 2000, two peak years.

The following results are presented by performance group: strong, lagging, constrained or poor. Descriptions of each group are included in the sections below.

It is important to note that Railroad Transportation, which is likely to be a key logistics industry in the Chicago area, cannot be analyzed by traditional targeted industry analysis since employees do not participate in the federal Unemployment Insurance program, the source for federal employment data.

### Strong Performers

Strong performing industries are those that are growing locally, but also outperforming their own industry nationally. Those industries that are specializations (location quotient greater than one) have developed a large employment presence in the area and continue to thrive. Industries that may not yet be specializations could signal prime emerging industries that may represent part of the region's economic base for the future. The following focus industries are considered strong performers for the region:

SIC	Industry Name	Specialization
473	Freight Transportation Arrangement	√
478	Miscellaneous Transportation Services	√
507	Hardware, Plumbing & Heating Equipment (Wholesale)	√

Like most transportation services industries, Freight Transportation Arrangement has expanded greatly, with employment growing by 69% to approximately 13,000 from 1989 to 2000. The big winner in the region, however, has been Miscellaneous Transportation Services, which includes cargo packing and crating, inspection and weighing, and a variety of other support services incidental to transportation. This industry grew by 254% in the region over the last decade (to a total employment of about 3,300), vastly outpacing the same industry on the national level.

Wholesaling of Hardware, Plumbing and Heating Equipment is a strength of the region as well. However, the industry is a poor performer in the U.S. as a whole, making it a less desirable specialization target.

## Lagging Performers

Lagging performers are those industries that are still showing local growth, but are declining in competitiveness when compared to the industry nationwide. For industries that are considered local specializations, this slippage indicates weakness at the local level that merits special attention. For those industries that are not currently local specializations, most employment growth seen is usually the result of larger economic or industry trends that are not tied to performance within the region. Efforts to bolster these industries to develop them for emerging strengths must be aimed at increasing local competitive advantage.

SIC	Industry Name	Specialization
422	Public Warehousing And Storage	
502	Furniture And Homefurnishings (Wholesale)	√
503	Lumber And Construction Materials (Wholesale)	
504	Professional & Commercial Equipment (Wholesale)	√
509	Miscellaneous Durable Goods (Wholesale)	√
514	Groceries And Related Products (Wholesale)	
516	Chemicals And Allied Products (Wholesale)	√

Several industries are considered lagging behind the nation in performance. Several, including Furniture Wholesaling, Professional and Commercial Equipment Wholesaling, Miscellaneous Durable Goods Wholesaling, and Chemicals and Allied Products Wholesaling are highly concentrated within the region but are growing more slowly in northeastern Illinois than in the rest of the nation. Others, such as Public Warehousing and Storage, Construction Materials Wholesaling, and Grocery Wholesaling, are growing locally but are less concentrated than in the country as a whole, indicating a lack of specialization.

### Poor Performers

Poor performing industries are those that are losing employment both locally as well as competitive share nationally. Overall the growth prospects of these industries are limited. Often these industries will draw the most attention concerning employment loss, but the ability to address these issues locally in the hopes of reversing or halting this decline is dim. Due to overall industry issues nationwide coupled with strong local weaknesses. Unless these industries represent an overwhelming importance to the local economy, resources can best be utilized on stimuli efforts in other industries.

SIC	Industry Name	Specialization
421	Trucking & Courier Services, Excluding Air	
501	Motor Vehicles, Parts, And Supplies (Wholesale)	
505	Metals And Minerals, Except Petroleum (Wholesale)	√
506	Electrical Goods (Wholesale)	√
508	Machinery, Equipment, And Supplies (Wholesale)	√
511	Paper And Paper Products (Wholesale)	√
512	Drugs, Proprietarys, And Sundries (Wholesale)	
513	Apparel, Piece Goods, And Notions (Wholesale)	
517	Petroleum And Petroleum Products (Wholesale)	
518	Beer, Wine, And Distilled Beverages (Wholesale)	
519	Misc. Nondurable Goods (Wholesale)	

Many of these industries, like Trucking and Courier Services, have significant employment (that industry employed 50,125 in 2000, but solid productivity gains have reduced the need for labor in the field, shrinking employment by 2% over 10 years.) Some, like Metals and Minerals Wholesaling, are highly concentrated regionally when compared to the nation. Regardless of the level of current employment, however, the waning employment trends indicate that they should not be relied upon to produce future job growth.

The Workforce Boards of Metropolitan Chicago decided that the major industry groups, which include the industries analyzed above, should be the basis for analysis within the Transportation, Warehousing and Logistics sector. Although it could be argued that poor performing industries should not be a main focus of regional solutions, the TWL sector would be a major exception to the dogma of target industry identification. With increasingly complex manufacturing processes, increasing geographic distribution of supply-chains and the rise of just-in-time delivery, the TWL sector is not only important to the overall performance of the Chicago economy, but due to location, is a keystone in freight movement for the entire country.

Final Target Industry Groups
Railroad Transportation
Trucking and Intercity Courier
Warehousing and Storage
Transportation Services
Wholesale Trade Durable Goods
Wholesale Trade Non-Durable Goods

For complete Target Industry Analysis findings, see Appendix H.





## Identification of Occupations

The occupations analyzed in this report are critical to Northeastern Illinois' Transportation, Warehousing, and Logistics industries. The Transportation, Warehousing, and Logistics industry is made up of the following industries:

### Railroad Transportation

- NAICS 4821 – Rail Transport
- NAICS 4882 – Rail Transport Support

### Trucking and Intercity Courier

- NAICS 4841 – General Freight Trucking
- NAICS 4842 – Specialized Freight Trucking
- NAICS 4921 – Couriers

### Warehousing and Storage

- NAICS 4931 – Warehousing and Storage

### Transportation Services

- NAICS 4884 – Support Activities for Road Transportation
- NAICS 4885 – Freight Transportation Arrangement

### Wholesale Trade Durable Goods

- NAICS 4231 - Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers
- NAICS 4232 - Furniture and Home Furnishing Merchant Wholesalers
- NAICS 4233 - Lumber and Other Construction Materials Merchant Wholesalers
- NAICS 4234 - Professional and Commercial Equipment and Supplies Merchant Wholesalers
- NAICS 4235 - Metal and Mineral (except Petroleum) Merchant Wholesalers
- NAICS 4236 - Electrical and Electronic Goods Merchant Wholesalers
- NAICS 4237 - Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers
- NAICS 4238 - Machinery, Equipment, and Supplies Merchant Wholesalers
- NAICS 4239 - Miscellaneous Durable Goods Merchant Wholesalers

### Wholesale Trade Non-Durable Goods

- NAICS 4241 - Paper and Paper Product Merchant Wholesalers
- NAICS 4242 - Drugs and Druggists' Sundries Merchant Wholesalers
- NAICS 4243 - Apparel, Piece Goods, and Notions Merchant Wholesalers
- NAICS 4244 - Grocery and Related Product Wholesalers
- NAICS 4245 - Farm Product Raw Material Merchant Wholesalers
- NAICS 4246 - Chemical and Allied Products Merchant Wholesalers
- NAICS 4247 - Petroleum and Petroleum Products Merchant Wholesalers
- NAICS 4248 - Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers
- NAICS 4249 - Miscellaneous Nondurable Goods Merchant Wholesalers

Other industry designations are included in the broad definition of the Transportation, Warehousing, and Logistics sector but the above codes have been selected as the ones to receive intense analysis in this project.

The Transportation, Warehousing, and Logistics industry in Northeastern Illinois has been identified as a targeted industry by Workforce Boards of Metropolitan Chicago.

## Critical Occupations Analysis

“Critical occupations” are those that are vitally important to the overall health of an industry. Critical occupations are those that experience strong employment demand, provide good wages, are critical to industry competitiveness, and are appropriate for targeting for the workforce system.

The process by which critical occupations were identified involved primary and secondary data analysis including utilization of the JOWE model, surveys, focus groups, and input from industry experts.

The IDES survey, which measured current “permanent” vacancies in Transportation, Warehousing, and Logistics companies, was utilized to a great extent in the identification of critical occupations. The top 20 occupations, ranked in descending order of the number of vacancies, from the IDES report are considered “critical.”

The JOWE® methodology for identifying critical occupations in targeted industries melded data from several different sources and measured occupations using factors that determine the impact of the occupation on the industry as a whole. The critical occupations model utilizes five secondary data sets<sup>20</sup>:

1. Regional Employment by Industry: Covered Employment and Wages Program, 2003. Illinois Department of Employment Security.
2. Staffing Pattern: Occupational Employment Survey: 2002 National 4-Digit NAICS Industry-Specific Estimates. Bureau of Labor Statistics.<sup>21</sup>
3. Wages: Median Annual Wages in the Northeast Illinois Economic Development Region, 2003 Quarter Three. Provided by the Illinois Department of Employment Security.
4. Projections: Occupational Employment Projections in Chicago PMSA for a base year of 2000 and a projected year of 2010. Illinois Workforce Info Center.<sup>22</sup>
5. Job Zones: Job Zones from the O\*NET 5.1 database. National O\*NET Consortium.<sup>23</sup>

When available, all data was aggregated across the ten-county region. While, to some extent, data at the county level is available, the analysis recognized the fact that economies and workforces, particularly those in metropolitan areas, supercede county lines. Workforces in particular are highly mobile and efforts taken to train workers in one county will affect the entire region.

In measuring critical occupations, four factors are weighed. Each factor contributed to the overall competitive rating of the occupation.

**Magnitude:** The total occupational employment in the industry. This factor measures the current employment demand of the occupation in the industry.

**Annual Wage:** The average annual wage/salary of the occupation in the region. This factor measures the earning strength of occupations in the industry.

**Projections:** The number of annual openings from 2000 to 2010 for each occupation in the region. Projections are not industry-specific. The projected number of job openings includes those generated by industry growth and replacements: workers needed to replace those who have retired, quit, changed careers, etc. This factor measures the future demand of an occupation.

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20 For notes on these data sources, see Appendix I. For a more thorough description of the JOWE® methodology, see Appendix J.

21 Available online at [http://www.bls.gov/oes/oes\\_dl.htm#2002](http://www.bls.gov/oes/oes_dl.htm#2002).

22 Available online at <http://wic.ilworkinfo.com/analyzer/session/occupation.asp?cat=OCC>.

23 Available online at <http://www.onetcenter.org/database.html#download>.

**JobZone Training Levels:** The training or education requirement identified by the US Department of Labor’s Employment and Training Administration. This factor measures the training competitiveness in each occupation; occupations requiring high levels of education and training will ultimately be more difficult to fill.

The total score by which each occupation was ranked is a sum of the above factor scores. To view the complete scoring sheet for critical occupations using the methodology outlined above, see Appendix K. Using the JOWE® model to identify occupations critical to the Transportation, Warehousing, and Logistics sector produced a list of occupations important to the sector, but which are not employed solely within that sector. Examples are CEO’s, customer service representatives, accountants and auditors, general maintenance workers, and financial managers. All of these occupations play a very important supporting role to aspects of the Transportation, Warehousing, and Logistics industry, particularly in meeting the industry’s administrative and business-management needs. For critical occupations identified through JOWE® see Appendix L. For a complete list of industry-specific critical occupations, see Appendix M.

The following table provides a summary of the two components of the critical occupations identification process: JOWE and the IDES Vacancy Survey. The list is sorted by functional occupation group and to the right of the occupation titles is an indication of whether or not the occupation was identified as “critical” according to the JOWE® and/or IDES survey process. The primary data collected by IDES was validated by the qualitative information collected from focus groups facilitated by the Corporation for a Skilled Workforce. The twenty plus occupations identified as “hard to fill” in the focus groups roughly corresponded to the IDES Top twenty list.

Figure 3. – Critical Occupations in Transportation, Warehousing, and Logistics  
*Summary of Secondary and Primary Analysis*

SOC	Occupation Title	JOWE® Results	IDES Vacancy Survey
<b>Management</b>			
111021	General and Operations Managers	ü	ü
112022	Sales Managers	ü	ü
113021	Computer and Information Systems Managers	ü	
113031	Financial Managers	ü	
113061	Purchasing Managers		ü
113071	Transportation, Storage and Distribution Managers	ü	
<b>Business &amp; Financial Occupations</b>			
132011	Accountants and Auditors	ü	ü
<b>Arts, Design, &amp; Media</b>			
273043	Writers and Authors		ü
<b>Building &amp; Grounds</b>			
372011	Janitors and Cleaners	ü	
<b>Sales &amp; Related Occupations</b>			

SOC	Occupation Title	JOWE® Results	IDES Vacancy Survey
412022	Parts Salespersons		ü
412031	Retail Salespersons	ü	
413099	Sales Representatives, Services All Other		ü
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products		ü
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific	ü	
419041	Telemarketers		ü
432011	Switchboard Operators, Including Answering Service		ü
<b>Customer Service &amp; Clerical</b>			
433031	Bookkeeping, Accounting and Auditing Clerks	ü	
434051	Customer Service Representatives	ü	ü
436011	Executive Secretaries and Administrative Assistants	ü	ü
439061	Office Clerks, General	ü	ü
<b>Administrative Production Personnel</b>			
431011	First-Line Managers of Office and Administrative Workers	ü	
435032	Dispatcher, Except Police, Fire and Ambulance		ü
435071	Shipping, Receiving and Traffic Clerks		ü
435081	Stock Clerks and Order Fillers	ü	
<b>Installation, Maintenance, &amp; Repair</b>			
491011	First-Line Managers of Mechanics, Installers and Repairers	ü	
<b>Production</b>			
511011	First-Line Managers of Production and Operating Workers		ü
514033	Grinding, Lapping Machine Tool Setters, Operators		ü
519199	Production Workers, All Other		ü
<b>Transportation &amp; Material Moving</b>			
531031	First-Line Managers of Transportation and Material Moving Vehicle Operators	ü	
533021	Bus Drivers, Transit and Inner City		ü
533022	Bus Drivers, School		ü

SOC	Occupation Title	JOWE® Results	IDES Vacancy Survey
533032	Truck Drivers, Heavy and Tractor-Trailer	Ü	Ü
533033	Truck Drivers, Light or Delivery Services	Ü	Ü
533041	Taxi Drivers and Chauffeurs		Ü
533099	Motor Vehicle Operators, All Other		Ü
534011	Locomotive Engineers	Ü	
534031	Railroad Conductors and Yardmasters	Ü	Ü
534041	Subway and Streetcar Operators		Ü
537051	Industrial Truck and Tractor Operators	Ü	Ü
537062	Laborers and Freight, Stock, and Material Movers, Hand	Ü	Ü
537064	Packers and Packagers, Hand		Ü
<b>Computers &amp; Mathematics</b>			
151021	Computer Programmers	Ü	Ü
151032	Computer Software Engineers, Systems Software	Ü	
151041	Computer Support Specialists	Ü	Ü
151051	Computer Systems Analysts	Ü	
151071	Network and Computer Systems Administrators		Ü
<b>Engineering</b>			
172072	Electronics Engineers, Except Computer		Ü

## Worker Attributes

In any workforce development effort, it is essential to know the level of education and the important skills that workers will need to possess to enter the Transportation, Warehousing, and Logistics sector. Combining information from both primary and secondary data sources, the following pages document the appropriate skills and credentialing for the critical occupations in the Transportation, Warehousing, and Logistics sector.

## Skills and Credentials

The following table illustrates the educational levels of workers in the Northeast EDR's Transportation, Warehousing, and Logistics sector, as well as the government-assigned JobZone educational category of each of the occupations. The educational allocations of these occupations were reached through the IDES survey of several Transportation, Warehousing, and Logistics industries.<sup>24</sup> JobZones are defined below. It is important to note that the IDES survey results delineate the responding employers' required credential for a position. The credentials in this table are not necessarily the same as legal requirements, or those of common conception. Employers are free to require a higher credential than the legally mandated minimum credential. Those differences will be discussed in the Root Causes and Solutions report, which will include a discussion about regulation and policy.

Figure 4. – Educational Attainment & Credentialing  
From Regional Survey and National O\*NET

SOC Code	Occupation	No diploma	HS Diploma/GED	Vocational Training	Associates	Bachelors	Masters	O*Net Job Zone
<b>Management</b>								
111021	General and Operations Managers		13%			87%		5
112022	Sales Managers		6 - 100%		25%	69-100%		4
113021	Computer and Information Systems Managers					100%		5
113031	Financial Managers					100%		4.5
113061	Purchasing Managers				8%	92%		4
113071	Transportation, Storage and Distribution Managers		85%			15%		4
<b>Business &amp; Financial Occupations</b>								
132011	Accountants and Auditors		5%			95%		4

<sup>24</sup> The IDES survey report documents the educational attainment of the current jobs for transportation, warehousing and logistics. Findings from the survey are presented in range form due to variation among each occupation's educational attainment in each of the industries.



SOC Code	Occupation	No diploma	Diploma/GED HS	Vocational Training	Associates	Bachelors	Masters	O*Net Job Zone
<b>Computers &amp; Mathematics</b>								
151021	Computer Programmers		11%	8%		89%		4
151032	Computer Software Engineers, Systems Software				100%			4
151041	Computer Support Specialists		100%					4
151051	Computer Systems Analysts				18%	82%		3
151071	Network and Computer Systems Administrators					100%		4
<b>Engineers</b>								
172072	Electronics Engineers, Except Computer			90%			10%	5
<b>Building &amp; Grounds</b>								
372011	Janitors and Cleaners		100%					1
<b>Sales &amp; Related</b>								
412022	Parts Salespersons	100%				100%		2
412031	Retail Salespersons	60%	40%					2
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific	19%	38-100%		5%	38%		2
413099	Sales Representatives, Services, All Other	37%			100%	63%		
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products		28%			72%		2.5
419041	Telemarketers		100%					1
432011	Switchboard Operators, Including Answering Service		100%					1
<b>Administrative Production Personnel</b>								
431011	First-Line Managers of Office and Administrative Workers	50%	50 - 100%					3
435032	Dispatcher, Except Police, Fire and Ambulance	16%			84%			2
435071	Shipping, Receiving and Traffic Clerks	8 - 44%	56-92%		8% - 100%	22%		1
435081	Stock Clerks and Order Fillers	33%	33%			33%		2
<b>Customer Service &amp; Clerical</b>								

SOC Code	Occupation	No diploma	Diploma/GED HS	Vocational Training	Associates	Bachelors	Masters	O*Net Job Zone
433031	Bookkeeping, Accounting and Auditing Clerks		38 - 67%			33 -62%		2
434051	Customer Service Representatives	91%	9% - 90%		10%			2
436011	Executive Secretaries and Administrative Assistants		50- 100%		35%	15%		4
439061	Office Clerks, General	53%	20- 62%		27 - 38%			2
<b>Installation, Maintenance, &amp; Repair</b>								
491011	First-Line Managers of Mechanics, Installers and Repairers		100%					4
<b>Production</b>								
511011	First-Line Managers of Production and Operating Workers		100%					3
514033	Grinding, Lapping Machine Tool Setters, Operators	16%			84%			1
519199	Production Workers, All Other	100%						
<b>Transportation &amp; Material Moving</b>								
531031	First-Line Managers of Transportation and Material Moving Vehicle Operators							3
533021	Bus Drivers, Transit and Inner City	61%	36%	3%				1
533022	Bus Drivers, School	48%	38%	14%				2
533032	Truck Drivers, Heavy and Tractor-Trailer	43%	43 - 66%	14 - 34%				2
533033	Truck Drivers, Light or Delivery Services	17 - 100%	48%	35%				1
533041	Taxi Drivers and Chauffeurs		75%	25%				1
533099	Motor Vehicle Operators, All Other	100%						
534011	Locomotive Engineers							3
534031	Railroad Conductors and Yardmasters		100%					4
534041	Subway and Streetcar Operators		100%					N/A
537051	Industrial Truck and Tractor Operators	36 - 62%	31 - 55%	7-9%				1
537062	Laborers and Freight, Stock, and Material Movers, Hand	75 80%	20%	25%				1.3
537064	Packers and Packagers, Hand	76%	24%					1

Information on educational requirements for critical occupations is helpful to document trends among occupations and critical points in the education/training system. Job Zone levels are determined by the US Department of Labor's Employment and Training Administration as a measure of the general education and training levels required for job performance for occupations in the Standard Occupational Classification system. This factor measures the training competitiveness in each occupation; occupations requiring high levels of education and training will ultimately be more difficult to fill.

#### JobZone Training Levels:

Level 1 - Requires a high school diploma or GED certificate. May require some formal training to obtain licensing.

Level 2 - Usually requires a high school diploma in addition to some vocational or on-the-job training.

Level 3 - Requires on-the-job training, vocational education or an associate's degree. Some positions may require a bachelor's degree.

Level 4 - Most positions require a 4-year bachelor's degree, but some do not.

Level 5 - Minimum requirement is a bachelor's degree. Some positions may require graduate school, such as Ph.D., MD, JD, etc.

## Documentation of Skills and Important Attributes Analysis

The US Department of Labor's Employment and Training Administration's Occupational Employment Network, O\*Net, is the only available data tool with which one can conduct large scale occupational skills analysis. O\*Net is a survey-based data tool that reports on job attributes and activities that one will be expected to possess and perform during job performance. For the purposes of this project, two data sets were utilized: Knowledge Areas and Skills Areas.

O\*Net profiles 33 Knowledge Areas and 35 Skill Areas, and assigns to these attributes a "level" score, which indicates the proficiency with which the worker needs to possess the attribute. Knowledge areas can be understood to be academic or "hard" skills mainly learned on the job or during training. Skill areas may be understood as traits or "soft" attributes that an employee generally possesses before starting the job, but are required for sufficient job performance.

Both Knowledge Areas and Skill Areas are important for workforce development efforts. When looking at either individual occupations or groups of occupations, it is valuable to determine the types of knowledge and skills each worker will need in order to perform his or her job at a sufficient level; it can assist in the targeting and recruitment of workers in critical occupations and can assist human resources directors in interviewing and subsequently hiring workers with the appropriate knowledge and skill levels. This type of analysis is also helpful in curriculum development efforts. While the attributes profiled through O\*Net are not occupation-specific, curriculum developers may discover attributes required that have been lacking in previous programs. For instance, administrative positions in Transportation, Warehousing, and Logistics require a high degree of competence in clerical and accounting knowledge areas. To ensure that salespersons reach their industry destination, educational institutions may wish to require competency testing in these areas. Likewise, nearly every sales occupation requires a great deal of strength in Customer and Personal Service. Workers must start their jobs knowing how to interact with people. To effectively teach Customer and Personal Service to new sales employees, educational institutions may require more internships or practical experiences.

## Determining Important Attributes for Occupational Groups

Because training efforts may include targeting a group of occupations with a focus on developing career paths, this report includes an analysis of the Important Attributes for occupational groups. Because of the varying capacities of each of the critical occupations, we have completed five separate occupational group attributes analyses:

Important Attributes analysis for a group of occupations takes into account both the level of competence with which occupations are required to perform an attribute, as well as the size of the occupation in the industry. Ultimately, the Important Attributes scores indicate the Knowledge and Skill Areas that require the highest level of competence from the greatest number of workers currently employed in the industry. In curriculum development terms, these attributes will be the academic and training areas in which the greatest number of students should be instructed at the highest levels.

Determining Important Attributes for a group of occupations is a four-step process:

1. Multiply “level” score by occupational industry employment across attributes
2. Compile results from Step One by attribute
3. Rank results from Step Two by attribute, creating a ranked list of attributes
4. Divide all scores in the ranked list by the greatest score in that list, creating an index score, and multiply by 100. The highest possible score will be 100.

The resulting ranking of attributes describes the skill and knowledge requirements for each occupation, or for groups of occupations. As an example, the results for Transportation Services occupations are shown below. For the results for all occupational groups, please see Appendix N.

Figure 5. - Transportation Services Occupations  
*Important Attributes*

Skills Attribute Title	Index Score	Knowledge Attribute Title	Index Score
Operation and Control	100	Transportation	100
Equipment Maintenance	94	Mechanical	90
Operation Monitoring	92	Geography	68
Reading Comprehension	84	Public Safety and Security	58
Repairing	83	Clerical	56
Writing	80	Mathematics	54
Equipment Selection	78	Telecommunications	52
Active Listening	77	Law and Government	51
Troubleshooting	76	Production and Processing	47
Speaking	72	Engineering and Technology	47

## Career Pathways

Career pathways are defined occupational progressions, linked by training and certification programs. They provide a structure for movement between occupations, allowing workers to move into higher-skill, higher-pay careers or to shift into careers that may be more personally fulfilling or in higher demand.

These pathways are in place to educate workers about career options and increased earnings opportunities and to help fill occupational gaps in an industry. Career pathways are important because they define a realistic route from an entry-level position to a position requiring greater responsibility and training. Without career pathways in place, many workers may fail to see opportunities for upward career momentum, increased earnings potential, better quality of life, and a greater sense of career satisfaction. Increased earnings, in turn, drive the economy, leading to even better quality of life for residents of a community.

The purpose of this report is to present information for and processes undertaken by the Northeast EDR in identifying critical skill occupation shortages in the transportation, warehousing and logistics sector. Career progression opportunities and pathways for those occupations will be addressed in a future CSSI report.

## Wages

Prevailing wages are an important indicator of the relative demand of occupations in a regional economy. How regional wages compare with national ones affects supply as well, as comparatively high regional wages will encourage workers in an occupation to move into the area.

### Comparison of 2002 National and Regional Median Wages

In order to make consistent regional wage comparisons to national data, median wages for 2003 quarter three in the Northeast Illinois Economic Development Region were provided by the Illinois Department of Employment Security. These wages were compared to 2002 National wage data from the Occupational Employment Survey (Bureau of Labor Statistics), adjusted to the 2003 levels using the Index of Aggregate Weekly Payrolls from the Current Employment Survey (Bureau of Labor Statistics).

Wages in the study region exceed the national median in several occupations (Figure 6). In the most extreme case, wages for Computer Software Engineers specializing in Software Systems exceed the national wage by \$4.19 per hour. Other occupations outpacing the national median wage include Truck Drivers (Light or Delivery Services), Financial Managers, First-Line Supervisors/Managers of Mechanics, Installer, and Repairers, and Sales Managers. There are some occupations that earn a wage lower than the national median. These include Sales Representative for Wholesale and Manufacturing Technical & Scientific Products and Purchasing Managers. In the most extreme case, wages for Electronics Engineers (Except Computer) are \$3.86 less per hour than the national level.



Figure 6. – Wage Comparisons  
*Northeast EDR v. the Nation*

SOC	Occupation	Study Region Median Wage <sup>25</sup>	National Median Wage <sup>26</sup>	Difference Between Study Region & National Median Wage
<b>Management</b>				
111021	General and Operations Managers	\$35.14	\$33.23	\$1.91
112022	Sales Managers	\$39.04	\$36.55	\$2.49
113031	Financial Managers	\$39.18	\$35.72	\$3.46
113061	Purchasing Managers	\$27.99	\$29.16	-\$1.17
113071	Transportation, Storage, and Distribution Managers	\$28.55	\$29.05	-\$0.50
<b>Business &amp; Financial Occupations</b>				
132011	Accountants and Auditors	\$22.44	\$22.89	-\$0.45
<b>Computers &amp; Mathematics</b>				
113021	Computer and Information Systems Managers	\$42.31	\$41.51	\$0.80
151021	Computer Programmers	\$29.47	\$29.36	\$0.11
151032	Computer Software Engineers, Systems Software	\$40.25	\$36.06	\$4.19
151041	Computer Support Specialists	\$20.74	\$19.04	\$1.70
151051	Computer Systems Analysts	\$32.16	\$30.63	\$1.53
151071	Network and Computer Systems Administrators	\$28.69	\$26.69	\$2.00
<b>Arts, Design, &amp; Media</b>				
273043	Writers and Authors	\$22.55	\$20.84	\$1.71
<b>Building &amp; Grounds</b>				
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	\$10.10	\$8.88	\$1.22
<b>Installation, Maintenance, &amp; Repair</b>				
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	\$26.20	\$23.17	\$3.03

25 Source: Regional Wage Data. Supplied by Illinois Department of Employment Security, 2003 Quarter 3.

26 Source: 2003 National Wage Data forecasted from 2002 Occupational Employment Survey (Bureau of Labor Statistics) data using Index of Aggregate Weekly Payrolls from the Current Employment Survey.

SOC	Occupation	Study Region Median Wage <sup>25</sup>	National Median Wage <sup>26</sup>	Difference Between Study Region & National Median Wage
<b>Engineering</b>				
172072	Electronics Engineers, Except Computer	\$30.20	\$34.06	-\$3.86
<b>Sales Related</b>				
412022	Parts Salespersons	\$11.91	\$11.66	\$0.25
412031	Retail Salespersons	\$9.16	\$8.62	\$0.54
413099	Sales Representatives, Services, All Other			
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	\$26.03	\$27.15	-\$1.12
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	\$21.38	\$20.81	\$0.57
419041	Telemarketers	\$10.05	\$9.52	\$0.53
432011	Switchboard Operators, Including Answering Service	\$11.06	\$10.32	\$0.74
<b>Customer Service &amp; Clerical</b>				
433031	Bookkeeping, Accounting, and Auditing Clerks	\$14.66	\$13.33	\$1.33
434051	Customer Service Representatives	\$13.97	\$12.78	\$1.19
436011	Executive Secretaries and Administrative Assistants	\$16.74	\$16.27	\$0.47
439061	Office Clerks, General	\$11.44	\$10.85	\$0.59
<b>Administrative Production Personnel</b>				
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	\$20.57	\$18.90	\$1.67
435032	Dispatchers, Except Police, Fire, and Ambulance	\$15.66	\$14.75	\$0.91
435071	Shipping, Receiving, and Traffic Clerks	\$12.27	\$11.41	\$0.86
435081	Stock Clerks and Order Fillers	\$9.69	\$9.38	\$0.31
<b>Production</b>				
511011	First-Line Supervisors/Managers of Production and Operating Workers	\$21.40	\$20.91	\$0.49
514033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$13.62	\$12.72	\$0.90
519199	Production Workers, All Other	\$9.02	N/A	N/A

SOC	Occupation	Study Region Median Wage <sup>25</sup>	National Median Wage <sup>26</sup>	Difference Between Study Region & National Median Wage
<b>Transportation &amp; Materials Moving</b>				
531031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	\$22.32	\$20.90	\$1.42
533021	Bus Drivers, Transit and Intercity	\$16.04	\$14.40	\$1.64
533022	Bus Drivers, School	\$13.34	\$10.91	\$2.43
533032	Truck Drivers, Heavy and Tractor-Trailer	\$18.48	\$16.18	\$2.30
533033	Truck Drivers, Light or Delivery Services	\$15.65	\$11.63	\$4.02
533041	Taxi Drivers and Chauffeurs	\$10.62	\$9.03	\$1.59
533099	Motor Vehicle Operators, All Other	\$10.42	N/A	N/A
534011	Locomotive Engineers	N/A	\$23.58	N/A
534031	Railroad Conductors and Yardmasters	N/A	\$21.67	N/A
534041	Subway and Streetcar Operators	N/A	\$23.85	N/A
537051	Industrial Truck and Tractor Operators	\$13.67	\$12.70	\$0.97
537062	Laborers and Freight, Stock, and Material Movers, Hand	\$9.37	\$9.60	-\$0.23
537064	Packers and Packagers, Hand	\$8.52	\$8.13	\$0.39

"N/A": Data for these occupations and/or industries are not available due to suppression. The Bureau of Labor Statistics and state employment data agencies are legally forbidden from disclosing any information that would compromise the confidentiality of reporting firms.

## Size and Location of Projected Shortages

### Regional Employment Projections

The Bureau of Labor Statistics and each state's Labor Market Information agency produce forecasts for future employment by occupation. These projections take into account a variety of economic forces affecting the need for workers in different jobs, making them a vital tool for workforce development. They allow policy makers, educators, and career guidance and training agencies to predict which jobs will be in the greatest demand in coming years, including many which may currently be in high demand. The end beneficiaries are workers, who are given the ability to make confident, fully-informed decisions about which field of work to pursue.

Government projections predict employment over a ten-year horizon, with the most current useable projections looking to 2010. Using annual employment growth rates to estimate job counts in intermediate years allows researchers to develop a more complete picture of the current and future face of the workforce.

Chicago MSA and Kankakee MSA projection data from IDES were compiled and extrapolated in order to be used as a proxy for the region. Employment for 2004 and 2006 was calculated using the annualized growth rate from 2000-2010. From these figures, a 2-year short-term projection (2004-2006) and a 6-year long-term projection (2004-2010) were calculated.

The long-term projection preserves the trends expected in the short-term, with the same occupations among the ten fastest growing. In both short- and long-term projections, computer-related occupations are projected to experience significant growth. In addition, Production Workers, Customer Service Representatives, Sales Managers, Telemarketers, and Dispatchers (Except Police, Fire, & Ambulance) will experience strong growth. For a complete listing of all critical occupations and their short and long term growth projections, see Appendix O.

Figure 7. – Regional Short Term Projections  
*10 Occupations with Largest Forecasted Growth, 2004-2006*

SOC	Occupational Title	Estimated Total Percent Change 2004-2006	Employment Change, 2004-2006
151041	Computer Support Specialists	12%	2611
151071	Network and Computer Systems Administrators	12%	1198
151032	Computer Software Engineers, Systems Software	11%	829
151051	Computer Systems Analysts	9%	2200
113021	Computer and Information Systems Managers	7%	851
519199	Production Workers, All Other	6%	4130
434051	Customer Service Representatives	5%	4139
112022	Sales Managers	5%	892
419041	Telemarketers	5%	732
435032	Dispatchers, Except Police, Fire, and Ambulance	4%	249

Figure 8. – Regional Long Term Projections  
*10 Occupations with Largest Forecasted Growth, 2004-2010*

SOC	Occupational Title	Estimated Total Percent Change 2004-2010	Employment Change, 2004-2010
151041	Computer Support Specialists	42%	8836
151071	Network and Computer Systems Administrators	40%	4042
151032	Computer Software Engineers, Systems Software	38%	2780
151051	Computer Systems Analysts	30%	7217
113021	Computer and Information Systems Managers	22%	2730
519199	Production Workers, All Other	19%	13136
434051	Customer Service Representatives	16%	13048
112022	Sales Managers	15%	2809
419041	Telemarketers	14%	2298
435032	Dispatchers, Except Police, Fire, and Ambulance	13%	777

## Distribution of Shortages

### Intra-regional Disparities Analysis

The Northeast Illinois Economic Development Region can be considered a well-delineated regional economy; therefore, one would expect similar structural characteristics of a regional industry to appear relatively homogeneous throughout the region. However, from a theoretical economic standpoint, employment and wages for occupations vary from location to location because the locations themselves differ. In a perfectly uniform economy, industries would locate evenly throughout, with consistent employment and wage distributions from one place to another. Economies, however, are rarely uniform and never perfect. The number of workers in an occupation and the wages those workers receive is the result of a market transaction and is affected by both supply and demand factors. Industry composition and competition among employers, for instance, are important labor demand factors, while demographics, such as population, age, and education levels in the available labor pool, affect the supply side. Quality of life is important as well: cost of living, transportation, and amenities all affect the composition of labor supply. Because so many variables affect wage and employment disparities in Northeastern Illinois, pinpointing specific causes is beyond the scope of this project. Nevertheless, understanding the forces at work is central to correcting regional wage disparities, and they should not be ignored.

To document this, the project team conducted an intra-regional disparities analysis that attempted to gauge variations for the Transportation, Warehousing, and Logistics critical occupations in terms of wages, occupational growth, and occupational churn (replacements). This data was supplied by IDES at the county level. Critical occupations were identified in the categories of wage, occupational growth and occupation churn to highlight where local factors in the industry may be coming into play.

### Projection Disparities Across Counties: Six Year Projected Growth

The percentage projected growth from 2004-2010 was compared for the ten counties. These percentages were examined to determine if the projected percentage growth differed depending on county, and by how much. Since an average annual growth rate is used to predict employment in 2004 and 2010, by only including growth over the six-year period, (rather than from 2000-2010) less disparity in the percentage growth might be observed. However, some strong disparities do exist. The ten critical occupations that showed the widest range of disparity in projected growth among the counties are presented in Figure 9.

DuPage, Lake, and Kane Counties will need approximately 41-44 percent more Computer Software Engineers (Systems Software) in the Transportation, Warehousing, and Logistics sector by 2010 (DuPage will need 457, Lake will need 188, and Kane will need 152), while Kendall Counties will only see this occupation grow by 22 percent, or four people. Similarly, projected growth for Computer Systems Analysts ranges from 32-35 percent, in DuPage, and Kane County to 15 percent in Kendall and Grundy County. Other occupations that show wide variation across counties in percentage growth through 2010 include Network & Computer Systems Administrators, Computer Programmers, and Computer Support Specialists. Projected employment changes for every Transportation, Warehousing, and Logistics critical occupation from 2004-2010 in each county in the ten county region are included in Appendix P.

Figure 9. – Six Year Growth Forecasts

*Top 10 Occupations with Largest Disparity in Percentage Growth, 2004-2010*

*(Percentage Growth is shown with the actual employment change)*

SOC	Occupation	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will
151032	Computer Software Engineers, Systems Software	37% 1861	25% 10	41% 457	33% 5	41% 188	28% 10	44% 152	22% 4	32% 38	37% 57
151051	Computer Systems Analysts	29% 4763	23% 26	32% 1207	14% 8	29% 538	20% 31	35% 416	14% 7	23% 75	27% 161
151071	Network and Computer Systems Administrators	40% 2704	45% 23	43% 646	33% 8	42% 297	29% 19	48% 218	35% 6	36% 49	41% 95
151021	Computer Programmers	7% 1012	-1% -1	9% 336	1% 1	8% 134	0% 0	12% 129	-6% -2	4% 12	7% 37
151041	Computer Support Specialists	42% 5904	36% 47	42% 1402	40% 19	43% 624	34% 47	46% 455	28% 12	35% 118	41% 212
519199	Production Workers, All Other	19% 8504	6% 21	20% 2314	3% 5	19% 957	6% 25	20% 884	2% 5	10% 119	18% 310
419041	Telemarketers	14% 1480	14% 8	15% 398	2% 1	15% 183	9% 7	17% 145	8% 2	11% 26	14% 53
531031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	10% 347	12% 3	11% 83	13% 2	9% 27	5% 2	9% 16	0% 0	12% 12	8% 15
434051	Customer Service Representatives	16% 8904	13% 51	16% 2121	4% 18	16% 933	10% 62	16% 561	8% 16	12% 143	10% 232
432011	Switchboard Operators, Including Answering Service	-11% -499	-19% -7	-8% -79	-15% -2	-10% -45	-13% -7	-9% -28	-20% -3	-12% -13	-10% -19



### Projection Disparities Across Counties: Two Year Projected Growth

Expected growth from 2004-2006 as a percentage of 2004 employment was also examined by county. When examining this two year period, less disparity in projected percentage growth is present. The widest variation occurs with Computer Programmers, expected to increase by four percent in Kane County (41 jobs), but actually decline by one position, or two percent of the occupation workforce, in Kendall County (Figure 10).

Several of the critical occupations identified here are not forecasted to see positive growth through 2006 in each county. For a list of projected employment changes for every Transportation, Warehousing, and Logistics critical occupation for 2004-2006 see Appendix P.

Figure 10. – Two Year Growth Forecasts

#### Top 10 Occupations with Largest Disparity in Percentage Growth, 2004-2006

(Percentage Growth is shown with the actual employment change)

SOC	Occupations	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will
151021	Computer Programmers	2% 330	0% 0	3% 109	0% 0	3% 43	0% 0	4% 41	-2% -1	1% 4	2% 12
151051	Computer Systems Analysts	9% 1453	7% 8	10% 366	5% 3	9% 164	6% 10	10% 125	4% 2	7% 23	8% 49
151032	Computer Software Engineers, Systems Software	11% 556	8% 3	12% 135	10% 2	12% 56	9% 3	13% 45	7% 1	10% 12	11% 17
519199	Production Workers, All Other	6% 2674	2% 7	6% 724	1% 2	6% 301	2% 8	6% 277	1% 2	3% 38	6% 98
151071	Network and Computer Systems Administrators	12% 802	13% 7	13% 190	10% 2	12% 88	9% 6	14% 64	10% 2	11% 15	12% 28
151041	Computer Support Specialists	12% 1745	11% 14	12% 414	12% 6	13% 184	10% 14	13% 133	8% 4	10% 35	12% 63
419041	Telemarketers	5% 471	4% 3	5% 127	1% 0	5% 58	3% 2	5% 46	3% 1	4% 8	4% 17
432011	Switchboard Operators, Including Answering Service	-4% -173	-7% -3	-3% -27	-5% -1	-3% -16	-5% -3	-3% -10	-7% -1	-4% -5	-3% -6
531031	First-Line Supervisors/Managers of Transportation Vehicle Operators	3% 112	4% 1	4% 27	4% 1	3% 9	2% 1	3% 5	0% 0	4% 4	2% 5
514033	Machine Tool Setters, Operators, and Tenders, Metal and Plastic	0% 7	0% 0	1% 5	N/A N/A	0% -1	-3% -1	1% 1	1% 0	1% 1	0% 0

"N/A": Data for these occupations and/or industries are not available due to suppression. The Bureau of Labor Statistics and state employment data agencies are legally forbidden from disclosing any information that would compromise the confidentiality of reporting firms.

### Annual Openings Due to Growth

Annual openings from growth as a percentage of employment in 2000 were also compared. There does not seem to be large disparities in this data. The most disparity in the percent of yearly openings due to growth is seen in Computer Systems Analysts. A fairly high percentage, or six percent of total employment is due to growth in DuPage and Kane Counties. This is contrasted to Kendall & Grundy County, where only two percent of total employment is seen in growth openings (Figure 11). It should also be noted that some occupations have zero percent or a very low percentage of annual openings due to growth in some counties (Locomotive Engineers is one example). Annual Openings Due to Growth for every critical occupation and as a percentage of total employment in 2000 are included in Appendix P.

Figure 11. – Annual Growth

*Top 10 Occupations with Largest Disparity as a Percentage of 2000 Total Employment*

*(Percentage of 2000 Employment is shown with the number of annual growth openings)*

SOC	Occupations	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will
151051	Computer Systems Analysts	5% 732	4% 4	6% 184	2% 1	5% 83	4% 5	6% 63	2% 1	4% 12	5% 25
534011	Locomotive Engineers	2% 32	0% 0	1% 2	0% 0	2% 1	4% 1	1% 1	0% 0	3% 1	2% 4
151071	Network and Computer Systems Administrators	8% 406	8% 3	8% 97	5% 1	8% 45	6% 3	9% 32	7% 1	6% 7	8% 14
435032	Dispatchers, Except Police, Fire, and Ambulance	2% 86	4% 1	2% 22	0% 0	2% 6	2% 1	3% 5	0% 0	1% 1	1% 3
413099	Sales Representatives, Services, All Other	2% 30	0% 0	2% 9	N/A N/A	3% 4	0% 0	3% 3	N/A N/A	4% 1	2% 1
531031	First-Line Supervisors/Managers of Transportation Vehicle Operators	2% 56	4% 1	2% 13	0% 0	1% 4	0% 0	2% 3	0% 0	2% 2	1% 2
151041	Computer Support Specialists	8% 884	6% 7	8% 210	8% 3	8% 93	6% 7	9% 68	5% 2	6% 18	8% 32
519199	Production Workers, All Other	3% 1341	1% 4	4% 363	1% 1	3% 151	1% 4	4% 139	1% 1	2% 19	3% 49
419041	Telemarketers	2% 236	2% 1	3% 63	0% 0	3% 29	1% 1	3% 23	0% 0	2% 4	3% 9

## Annual Openings Due to Replacements

The number of employee replacements needed in an occupation can have important impacts on total labor demand. Certain jobs tend to have higher employee turnover than others. The annual number of replacements needed for each occupation as a percentage of total employment in 2000 was compared across the counties (Figure 12). In occupations with the highest replacement rates, little disparity exists across counties, except for a few isolated cases. Railroad Conductors and Yardmasters have relatively high replacement rates in DeKalb, McHenry and Will County, for example. However, these rates may be high because there are relatively few Railroad Conductors and Yardmasters employed in the study area, compared to some larger occupations. Annual openings due to replacements for every critical occupation are included in Appendix P.

Figure 12. – Disparities in Average Annual Replacements

### Top 10 Occupations with Largest Disparity as a Percentage of 2000 Total Employment

(Percentage of 2000 Employment is shown with the number of annual replacement openings)

SOC	Occupations	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will
534031	Railroad Conductors and Yardmasters	4% 60	6% 1	4% 7	0% 0	4% 2	4% 1	4% 3	0% 0	5% 2	5% 8
413099	Sales Representatives, Services, All Other	2% 31	0% 0	2% 9	N/A N/A	2% 3	6% 1	2% 2	N/A N/A	4% 1	2% 1
113061	Purchasing Managers	3% 117	3% 1	3% 34	7% 1	3% 17	4% 2	3% 9	4% 1	3% 5	3% 6
172072	Electronics Engineers, Except Computer	2% 41	4% 1	2% 10	0% 0	2% 6	4% 1	2% 3	0% 0	1% 1	1% 1
435032	Dispatchers, Except Police, Fire, and Ambulance	2% 63	4% 1	2% 15	4% 1	2% 5	2% 1	2% 3	0% 0	1% 1	1% 3
531031	First-Line Supervisors/Managers of Transportation Vehicle Operators	2% 69	4% 1	2% 15	0% 0	2% 6	2% 1	2% 4	0% 0	2% 2	2% 4
432011	Switchboard Operators, Including Answering Service	3% 145	2% 1	3% 30	6% 1	3% 15	3% 2	3% 10	6% 1	3% 4	3% 6
533099	Motor Vehicle Operators, All Other	2% 47	4% 1	2% 13	0% 0	2% 7	2% 1	2% 3	0% 0	2% 2	2% 3
113021	Computer and Information Systems Managers	2% 125	2% 1	2% 28	4% 1	2% 13	1% 1	2% 8	3% 1	2% 3	2% 4
534041	Subway and Streetcar Operators	2% 13	0% 0	3% 2	N/A N/A	2% 1	0% 0	3% 1	N/A N/A	0% 0	3% 1

### Median Hourly Wage Disparity Across Counties

The county median hourly wage was calculated as a percentage above or below the state median wage for each critical occupation. This measure of variation from the state wage was then compared across counties. The goal is to identify if there are occupations that receive a wage significantly higher than the state wage in certain counties and significantly lower in other counties (Figure 13).

In the Transportation, Warehousing, and Logistics sector, this analysis shows there are large wage disparities across counties in many occupations. First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators show the widest range of median range disparity among these critical occupations. These individuals earn a surprising \$58.95 per hour in Kane County, in comparison with the state wage of \$21.69. However, in Kankakee County, this occupation only earns \$17.89, or 18 percent less than the state wage. Writers and authors for the Transportation, Warehousing, and Logistics sector also have a wide range of median wages across the counties. They are paid the most in Kane County, \$40.42 per hour, or 111 percent more than the state median wage, and the least in DuPage County, at \$19.26 per hour (even with the median wage for the state). In some cases, wage disparity of this magnitude results because one county stands out from the rest with a much higher or lower wage. However, in this region, wages for the critical occupations in many counties widely differ from the state median. No readily discernible pattern was noticed within one county. For example, no county consistently stands out as the “best paying” or “worst paying” across all critical occupations. In Grundy and Kendall County, wages for several occupations were unavailable. Without this information, it is unknown if more or less wage disparity is occurring than what is presented. For median hourly wage county comparisons for all critical occupations, see Appendix P.

Figure 13. – Median Wage Comparisons  
10 Occupations with the Largest Wage Disparity

(Percentage above or below state median wage is shown with the actual wage)

SOC	Occupation	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will	Illinois
531031	First-Line Supervisors/Managers of Transportation Vehicle Operators	3% \$22.40	N/A N/A	6% \$23.06	N/A N/A	4% \$22.64	-18% \$17.89	172% \$58.95	N/A N/A	-7% \$20.11	-26% \$16.13	
273043	Writers and Authors	20% \$23.00	N/A N/A	1% \$19.26	N/A N/A	13% \$21.65	N/A N/A	111% \$40.42	N/A N/A	N/A N/A	N/A N/A	\$19.13
412031	Retail Salespersons	7% \$9.35	6% \$9.25	1% \$8.79	10% \$9.57	5% \$9.19	-11% \$7.79	-2% \$8.51	96% \$17.08	4% \$9.10	12% \$9.79	\$8.72
533099	Motor Vehicle Operators, All Other	-10% \$8.80	N/A N/A	4% \$10.15	N/A N/A	69% \$16.55	13% \$11.04	88% \$18.41	N/A N/A	-11% \$8.70	N/A N/A	\$9.78
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	4% \$23.65	38% \$31.27	2% \$23.05	57% \$35.51	-26% \$16.85	-2% \$22.27	-1% \$22.42	-8% \$20.96	73% \$39.18	8% \$24.58	\$22.67
151032	Computer Software Engineers, Systems Software	-5% \$36.52	-13% \$33.45	14% \$43.58	N/A N/A	52% \$58.27	N/A N/A	-23% \$29.38	N/A N/A	-32% \$26.03	N/A N/A	\$38.32
111021	General and Operations Managers	14% \$33.64	24% \$36.50	18% \$34.75	-34% \$19.61	12% \$32.94	-24% \$22.53	1% \$29.70	-5% \$27.88	42% \$41.86	4% \$30.62	\$29.50
533033	Truck Drivers, Light or Delivery Services	-3% \$14.07	11% \$15.99	31% \$18.96	N/A N/A	-15% \$12.32	-12% \$12.71	-13% \$12.64	-43% \$8.23	-4% \$13.89	-12% \$12.76	\$14.45
519199	Production Workers, All Other	-9% \$7.07	N/A N/A	24% \$9.63	N/A N/A	11% \$8.66	N/A N/A	7% \$8.30	62% \$12.55	59% \$12.38	28% \$9.91	\$7.77
533022	Bus Drivers, School	0% \$12.71	21% \$15.36	52% \$19.19	N/A N/A	5% \$13.33	-19% \$10.20	12% \$14.14	N/A N/A	N/A N/A	-7% \$11.81	\$12.66

"N/A": Data for these occupations and/or industries are not available due to suppression. The Bureau of Labor Statistics and state employment data agencies are legally forbidden from disclosing any information that would compromise the confidentiality of reporting firms.

### Entry-Level Hourly Wage Disparity Across Counties

Entry hourly wages for the identified critical occupations were also examined. Like for median hourly wage, the entry hourly wage was calculated as a percent above or below the state entry wage for each critical occupation. This measure against the state wage was then compared across counties. Occupations with wide disparity from the state wage include those with the widest range of values. These occupations usually receive an entry wage significantly higher than the state entry wage in certain counties and significantly lower in other counties (Figure 14).

Five of the occupations that are among the ten occupations showing the widest median wage disparity across the counties also show a wide entry wage disparity:

- Motor Vehicle Drivers, All Other
- School Bus Drivers
- First line Supervisors/Managers of Mechanics, Installers, and Repairers

This indicates that the wage disparity persists over time with these occupations. Occupations among the ten with the widest wage disparity upon entry that do not appear in the top ten most disparate occupations at the median wage level include,

- Grinding, Lapping, Polishing, & Buffing Machine Operators
- Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products
- First Line Supervisors/Managers of Office & Administrative Support Workers
- Dispatchers, Except Police, Fire & Ambulance
- Financial Managers

For entry hourly wage county comparisons for all Transportation, Warehousing, and Logistics critical occupations, see Appendix P.

Figure 14. – Entry Wage Comparisons  
10 Occupations with the Largest Wage Disparity

(Percentage above or below state median wage is shown with the actual wage)

SOC	Occupation	Cook	DeKalb	DuPage	Grund	Lake	Kankakee	Kane	Kendall	McHenry	Will	Illinois
533099	Motor Vehicle Operators, All Other	-7% \$6.25	N/A	0% \$6.70	N/A	66% \$11.14	-3% \$6.50	125% \$15.09	N/A	24% \$8.30	N/A	\$6.72
533022	Bus Drivers, School	13% \$9.56	24% \$10.50	76% \$14.91	N/A	35% \$11.49	-26% \$6.32	20% \$10.16	N/A	N/A	14% \$9.67	\$8.49
514033	Machine Tool Setters, Operators, and Tenders, Metal and Plastic	1% \$9.48	N/A	2% \$9.58	N/A	6% \$9.89	N/A	-4% \$8.96	N/A	-10% \$8.41	81% \$16.94	\$9.36
414012	Sales Reps, Wholesale and Mfg, Except Tech & Scientific Products	3% \$12.55	7% \$13.03	14% \$13.89	78% \$21.72	22% \$14.80	-10% \$10.96	21% \$14.69	N/A	17% \$14.25	10% \$13.41	\$12.17
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	9% \$13.44	67% \$20.55	10% \$13.53	-14% \$10.53	-4% \$11.82	-11% \$10.87	-1% \$12.15	28% \$15.71	14% \$14.01	-6% \$11.50	\$12.28
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	-3% \$14.28	63% \$23.97	28% \$18.86	-3% \$14.27	3% \$15.14	-4% \$14.14	-16% \$12.32	33% \$19.53	56% \$22.95	15% \$16.84	\$14.68
435032	Dispatchers, Except Police, Fire, and Ambulance	-4% \$8.98	N/A	19% \$11.12	N/A	45% \$13.55	2% \$9.53	20% \$11.20	-33% \$6.26	10% \$10.32	9% \$10.14	\$9.34
113021	Computer and Information Systems Managers	9% \$27.17	-17% \$20.73	5% \$26.20	N/A	29% \$32.05	1% \$25.08	5% \$26.16	27% \$31.47	-25% \$18.62	-46% \$13.31	\$24.85
412031	Retail Salespersons	6% \$6.92	13% \$7.40	-2% \$6.42	-4% \$6.24	11% \$7.22	-6% \$6.10	5% \$6.83	66% \$10.83	6% \$6.94	2% \$6.64	\$6.52
113031	Financial Managers	13% \$24.73	16% \$25.34	5% \$22.97	49% \$32.42	9% \$23.88	-23% \$16.72	6% \$23.21	9% \$23.73	15% \$25.05	7% \$23.41	\$21.82

"N/A": Data for these occupations and/or industries are not available due to suppression. The Bureau of Labor Statistics and state employment data agencies are legally forbidden from disclosing any information that would compromise the confidentiality of reporting firms.



## Conclusion

The Workforce Boards selected the transportation, warehousing and logistics sector, and more specifically, the industry groups within the figure below, as one of the three shortage industries in which to focus planning efforts because:

- The freight transportation industry is expected to experience substantial growth within the next 20 years as exports plus imports grow from approximately 20 % of Gross Domestic Product to near 35%.
- The rise of just-in-time logistics and geographic dispersion of company supply chains will continue to fuel demand for industries supporting the movement of goods and services. Metro Chicago already demonstrates industry strength in this area.
- U.S. Intermodal traffic, of which Chicago plays a key geographic role, is expected to continue a strong growth trend well into the future

Figure 15. – Final Industry Groups  
*Selected by Workforce Boards*

Final Target Industry Groups
Railroad Transportation
Trucking and Intercity Courier
Warehousing and Storage
Transportation Services
Wholesale Trade Durable Goods
Wholesale Trade Non-Durable Goods

A two-pronged approach was used to identify critical shortage occupations within the transportation, warehousing and logistics sector. First, IDES conducted an employer survey of the selected transportation, warehousing and logistics industry groups. Second, the Workforce Boards contracted with Hudson Institute to apply its JOWE© database to transportation, warehousing and logistics occupations in the region. Both approaches were compared and contrasted with validation and feedback from industry representatives and local stakeholders.

Stakeholder representation in the selection of critical occupations took two forms. First, on behalf of the Workforce Boards, Corporation for a Skilled Workforce held a series of focus groups and individual employer interviews on transportation, warehousing and logistics workforce issues. Topics for the focus groups included the identification of critical occupations. Second, members of the Transportation, Warehousing and Logistics Council and the Leadership and Regional Councils reviewed the combined lists and offered additional feedback.

The list of critical occupations is presented in two forms: Tier 1 and Tier 2. Tier 2 is the base list used for analysis throughout this report. It is made up of the top 20 occupations from the Hudson analysis and the top 20 occupations from the IDES Survey for each subsector, transportation/warehousing and wholesale trade. The transportation/warehousing and the wholesale trade lists were combined for the final list, made up of 47 occupations defined to six-digit level in the SOC code, which catalogued below under 12 organization

functions. While targeting of specific 6- digit occupations may be found desirable in the follow-on solutions phase, most action would focus on the broader functional categories and career pathways identified in a parallel study by the Corporation for a Skilled Workforce. The Tier 2 list serves as base reference not only for the Workforce Boards but for partner organizations which can influence select organization functions through programs and policies. For example, the education sector can influence the quality and supply of workers for such functions as management engineering and computers.

Tier 2 Critical Occupations	
<b>Management</b>	
111021	General and Operations Managers
112022	Sales Managers
113031	Financial Managers
113061	Purchasing Managers
113071	Transportation, Storage, and Distribution Managers
<b>Business &amp; Financial Occupations</b>	
132011	Accountants and Auditors
<b>Computers &amp; Mathematics</b>	
113021	Computer and Information Systems Managers
151021	Computer Programmers
151032	Computer Software Engineers, Systems Software
151041	Computer Support Specialists
151051	Computer Systems Analysts
151071	Network and Computer Systems Administrators
<b>Arts, Design, &amp; Media</b>	
273043	Writers and Authors
<b>Building &amp; Grounds</b>	
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners
<b>Installation, Maintenance, &amp; Repair</b>	
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers
<b>Engineering</b>	
172072	Electronics Engineers, Except Computer

Tier 2 Critical Occupations	
<b>Sales Related</b>	
412022	Parts Salespersons
412031	Retail Salespersons
413099	Sales Representatives, Services, All Other
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
419041	Telemarketers
432011	Switchboard Operators, Including Answering Service
<b>Customer Service &amp; Clerical</b>	
433031	Bookkeeping, Accounting, and Auditing Clerks
434051	Customer Service Representatives
436011	Executive Secretaries and Administrative Assistants
439061	Office Clerks, General
<b>Administrative Production Personnel</b>	
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers
435032	Dispatchers, Except Police, Fire, and Ambulance
435071	Shipping, Receiving, and Traffic Clerks
435081	Stock Clerks and Order Fillers
<b>Production</b>	
511011	First-Line Supervisors/Managers of Production and Operating Workers
514033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic
519199	Production Workers, All Other
<b>Transportation &amp; Materials Moving</b>	
531031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators
533021	Bus Drivers, Transit and Intercity

Tier 2 Critical Occupations	
533022	Bus Drivers, School
533032	Truck Drivers, Heavy and Tractor-Trailer
533033	Truck Drivers, Light or Delivery Services
533041	Taxi Drivers and Chauffeurs
533099	Motor Vehicle Operators, All Other
534011	Locomotive Engineers
534031	Railroad Conductors and Yardmasters
534041	Subway and Streetcar Operators
537051	Industrial Truck and Tractor Operators
537062	Laborers and Freight, Stock, and Material Movers, Hand
537064	Packers and Packagers, Hand

However, for practical and strategic purposes a narrower, more manageable action list makes more sense to the Workforce Boards of Metropolitan Chicago as they seek to work on joint projects with region-wide impact. This list, Tier 1, was arrived at by narrowing the organization functions to those directly related to production/operations. This same production focus was applied in the Healthcare CSSR. If Metro Chicago is not competitive in servicing cross-country freight, for example, which has been its forte for much of the 20<sup>th</sup> century, business will go elsewhere and so might many other support functions related to transportation, warehousing and logistics. Technology is transforming the transportation, warehousing and logistics sector -- automation, radio frequency identification (RFID) and geographic information systems (GIS), to name a few. The feedback from the focus groups indicates that this industry is looking for well-prepared, motivated workers to learn along with new developments in operations. One area in which Workforce Boards are well-equipped to partner with the other agencies and the private sector is in assessment, placement and training for production/direct operations jobs. Further, since transportation, warehousing and logistics operations are widely distributed across the Metro Chicago landscape many participating Workforce Areas would benefit.

Tier 1 was arrived at by narrowing down to the organization functions to the 7 most related to direct operations. In the Table above these are: transportation, storage and distribution managers; computer-related; select areas of engineering; customer service; administrative production personnel; production; and transportation and materials moving. This resulted in a list of 22 six –digit occupations.

Tier 1 Critical Occupations	
<b>Management</b>	
113071	Transportation, Storage, and Distribution Managers
<b>Computers &amp; Mathematics</b>	
113021	Computer and Information Systems Managers

Tier 1 Critical Occupations	
151021	Computer Programmers
151032	Computer Software Engineers, Systems Software
151041	Computer Support Specialists
151051	Computer Systems Analysts
151071	Network and Computer Systems Administrators
<b>Engineering</b>	
172072	Electronics Engineers, Except Computer
<b>Customer Service &amp; Clerical</b>	
434051	Customer Service Representatives
<b>Administrative Production Personnel</b>	
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers
435032	Dispatchers, Except Police, Fire, and Ambulance
435071	Shipping, Receiving, and Traffic Clerks
<b>Production</b>	
514033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic
<b>Transportation &amp; Materials Moving</b>	
531031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators
533032	Truck Drivers, Heavy and Tractor-Trailer
533033	Truck Drivers, Light or Delivery Services
533099	Motor Vehicle Operators, All Other
534011	Locomotive Engineers
534031	Railroad Conductors and Yardmasters
534041	Subway and Streetcar Operators
537051	Industrial Truck and Tractor Operators
537062	Laborers and Freight, Stock, and Material Movers, Hand

The next step in the CSSI project is to determine the root causes for shortages in these organization functions and critical occupations, then to craft regional solutions.

## Appendix A: Summary of Reports and Studies

### Workforce Studies

Workforce 2020 - Work and Workers in the 20th Century, Richard W. Judy and Carol D'Amico, Hudson Institute, 1997

*State of the Workforce Report for the Grundy Livingston Kankakee Workforce Region*, Richard W. Judy and Jane M. Lommel, Workforce Associates, Inc. February 16, 2004

The State of the Workforce Report for the Metropolitan Chicago Region, The Workforce Boards of Metropolitan Chicago, October 2003

Lake County State of the Workforce “How is Lake County Doing?”, The Lake County Workforce Board

*State of the Workforce: McHenry County*, Prepared for the McHenry County Workforce Investment Board by the Corporation for a Skilled Workforce, July 2003

The State of the Workforce Brief: River Valley – DeKalb, Kane and Kendall Counties, The River Valley Workforce Investment Board, May 2003

Will County State of the Workforce 2003, The Workforce Board of Will County

The State of the Workforce Report, 2003 Executive Summary, The Workforce Board of Northern Cook County

*Regional Partnerships for Economic & Workforce Development*, Linda J. Kaiser, Esq., Dr. Bill McMillan, American Association of Community Colleges Workforce Development Institute, January 29, 2004.

### Economic Development Reports

*Kankakee County Community Assessment*, URS TPAP Szatan & Associates Ronald J. Bussey, October 2003

Lake County, Illinois: Target Industry Analysis & Competitive Assessment, Deloitte & Touche LLP and Prager Company, November 20, 2002

### Industry Trends

The State of Illinois Manufacturing: A Report for the Illinois Manufacturers' Association. Center for Labor and Community Research. December 2003.

*Transportation and Logistics Cluster*. Illinois Department of Commerce and Economic Opportunity. [http://www.illinoisbiz.biz/tech/tech\\_tran\\_log.html#3](http://www.illinoisbiz.biz/tech/tech_tran_log.html#3)

Competitive T: America's Next Revolution in Transportation, Hudson Institute, <http://www.competitivet.com/>

U.S. Department of Labor, Bureau of Labor Statistics, <http://www.bls.gov/>

*Metropolitan Chicago's Food Manufacturing Industry, A Statistical Profile*. Candy Institute/Food Chicago a program of Center for Labor and Community Research.

*Transportation and Distribution*. World Business Chicago. [http://www.worldbusinesschicago.com/whychi/landscape/trans\\_dist.asp#a](http://www.worldbusinesschicago.com/whychi/landscape/trans_dist.asp#a)

*Industry Trends 2001*. Chicago-Cook Business Center [http://www.chicagocook.org/b2k/industry/html/logistics\\_leader.html](http://www.chicagocook.org/b2k/industry/html/logistics_leader.html)

*Creating A Manufacturing Career Path System in Cook County*, Chicago Federation of Labor and the Center for Labor and Community Research. December 2001.

*Freight Transportation Policy*. C. Michael Walton, Ph.D., P.E. The University of Texas at Austin.

<http://itre.ncsu.edu/ITREmain/TFF/downloads/TFF-Walton-FreightPres.pdf>



*2004 Annual Meeting.* Transportation Research Board, National Academy of Sciences.

*Cycles in the Transportation Sector and the Aggregate Economy* <http://www.albany.edu/~klahiri/TRB2004.pdf>

*Integrated Systems Can Mean Flexibility, Savings.* Optimizing Supply Chains. Ann Moline. January 2002.  
<http://www.bizsites.com/2002/jan/supply.html>

## Appendix B: IDES Survey Methodology & Results

### Survey Design

The Illinois Department of Employment Security conducted a survey of the Northeast Economic Development Region of Illinois to measure the duration, nature, extent and labor supply constraints associated with job vacancies in five targeted industry sectors:

nondurable manufacturing, durable manufacturing, wholesale trade, transportation and warehousing, and railroads.

The surveyed region comprises nine Local Workforce Areas: Lake County Workforce Investment Board; McHenry County Workforce Investment Board; River Valley Workforce Investment Board; DuPage Workforce Board; Cook County Workforce Investment Board; The Workforce Board of Northern Cook County; Chicago Workforce Board; Workforce Investment Board of Will County; and Grundy, Livingston, Kankakee

Workforce Board. IDES coordinated with Brandt Information Services, Inc. (BISI), which solicited employer responses, recorded the results, created a survey results database, and transmitted the results database back to IDES.

The questionnaire asked employers for their perceptions of past business and employment conditions (six months ago) and expectations for future conditions (six months from now). Employers were also asked whether they are willing to be contacted by their Local Workforce Boards to participate in an employer focus group to examine the causes of job vacancies in their industry. The survey also posed questions concerning job vacancies at the firm. Employers with at least one job vacancy were prompted to list the specific occupation of the vacancy and the count of openings (whether permanent or seasonal and full-time or part-time). Then, for each occupation with a job vacancy the questionnaire requested information on:

- duration of vacancy- less than 30 days, 31-60 days, 61-90 days, more than 90 days, and don't know;
- minimum education requirement- no diploma, high school/GED, vocational training/certification, 2-year degree, bachelor's degree, and advanced degree;
- minimum experience requirement- no experience, some experience, experience in related field, and experience in this occupation;
- starting hourly or annual wage;
- benefits- no benefits, health insurance, paid sick leave, paid vacation, and retirement benefits;
- hiring difficulty- internal corporate policy, applicant's technical skills, applicant's work readiness skills, labor availability and other; and,
- effective recruitment method- newspaper, Internet, schools/colleges, public employment agencies, private employment services, hire from within, referrals, and other.

Occupations were given by Standard Occupational Classification (SOC) coding structure.

## Methodology

IDES designed the sample using three stratification criteria: geography, industry sector and firm employment size. First, firms are assigned a county designation based on the physical location of the worksite or business. Next, they are assigned to an industry sector. The Workforce Boards of Metropolitan Chicago (WMBC) designated five sectors for this study: nondurable manufacturing, durable manufacturing, wholesale trade, transportation and warehousing, and railroads. Finally, within each industry sector, the sample stratifies firms by six categories of employment size: 5-9, 10-19, 20-49, 50-99, 100-249, and 250 or greater. IDES set the total sample size at approximately 5,300 firms to reflect the geographic and industry detail required for the reliable estimation of job vacancy results.

The sample selection for the metropolitan Chicago firms is based on the Neyman Allocation method, a method recommended by the US Bureau of Labor Statistics. This method optimally allocates sample units to the cell strata in the case where the stratification criteria vary greatly in size. The survey requires such optimization because of variation in the size of workforce areas and industry sectors in metropolitan Chicago. The Neyman method involves the random selection of firms within each of the aforementioned six employment-size categories. BISI achieved an overall response rate of 70% or more in each of the industry sectors.

Workforce Boards of Metropolitan Chicago: Job Vacancy Sample Selection  
(number of survey respondents)

Local Workforce Area	Non Durable Manufacturing	Durable Manufacturing	Wholesale Trade	Transportation, Warehousing, & Logistics	Total
Lake County	58	74	88	14	234
McHenry County	42	57	25	10	134
River Valley	104	99	60	26	289
DuPage County	110	199	180	75	564
Northern Cook County	96	204	205	54	559
City of Chicago	184	177	152	89	602
Southern Cook County	133	211	149	75	568

Will County	34	38	32	25	129
Grundy, Livingston, Kankakee	27	24	26	20	97
Total	788	1083	917	388	3176

The total number of complete surveys returned to IDES was 3,176. The breakdown by industry sector shows the greatest number of responses in durable manufacturing (1,083 surveys) followed by wholesale trade (917 surveys) and nondurable manufacturing (788 surveys). Not surprisingly, this pattern is replicated in the number of sample firms. Transportation/warehousing constituted only twelve percent in the sample and a similar amount among respondent firms.

Area: Workforce Boards of Metropolitan Chicago Industry Sector: Wholesale Trade  
Full-Time Job Vacancies

Job Titles	Number of Vacancies (Percent Shortage)	Duration of Vacancy					Educational Requirement					Experience Required					Median Hourly Wage Offer	Benefits					Hiring Difficulties					Recruitment Method				
		Less than 30 days	31 to 60 days	61 to 90 days	91 to 180 days	More than 180 days	None	High School Grad	Some Postsecondary	2 year degree	4 year degree	Advanced degree	None	1 year	2 years	3 years		4 years	None	Health Insurance	Life Insurance	Pension	Retirement Savings	Unemployment Insurance	Other	None	Internal Promotion	Employee Referral	Job Postings	Recruitment Agency	Other	
Customer Service Representatives	105	56%	34%	10%			90%		10%				9%	34%	50%	10%	\$12.88	7%	80%	82%	60%	74%	26%	26%	26%	23%	22%	12%	3%			
Licensed Practical Nurses	86			100%					100%						100%		\$16.83	0%	100%	100%	100%	100%	100%		100%							
Registered Nurses	86			100%					100%						100%		\$16.83	0%	100%	100%	100%	100%	100%		100%							
Electronics Engineers, exc Computer	83	100%					90%			10%					100%		\$19.23	0%	100%	100%	100%	100%	90%	10%						10%		
Therapists, All Other	69			100%					100%						100%		\$24.04	0%	100%	100%	100%	100%	100%		100%							
Grind/Polish Mach Tool Setters/Opers	69	84%	16%				16%		84%					16%		84%	\$10.00	0%	100%	100%	100%	100%								16%		
Tellermasters	40	85%	15%					100%						85%	15%		\$11.00	0%	100%	100%	100%	100%								15%		
Sales Reps, Wholesale/Manufacturing	37	84%		16%				100%						84%	16%		\$17.31	8%	73%	65%	65%	92%	8%	46%	5%	1%	22%	14%		22%		
Shipping Receiving & Traffic Clerks	37	30%	70%						92%					30%	70%		\$11.00	0%	100%	100%	100%	100%						59%	32%	8%		
Production Workers, All Other	35	100%					100%										\$8.00	0%	100%	100%	0%	100%								100%		
Packers and Packagers, Hand	33	100%					76%	24%						42%	6%	52%	\$10.50	52%	42%	42%	42%	48%	76%	18%	6%					48%		
Sales Managers	32	63%	25%	13%					60%		25%	69%		16%	6%	78%	\$33.42	0%	84%	86%	94%	100%	22%	28%	19%	28%			25%	9%	16%	
Truck Drivers, Heavy Tractor/Trailer	32	78%	22%						100%					78%	22%		\$20.00	0%	78%	94%	72%	100%	22%	6%	13%				6%	66%		
1st-Line Svcs/Mgrs, Prod/Oper Wkrs	29	100%							100%					31%	5%	64%	\$18.27	14%	86%	86%	86%	86%	14%	14%	72%				41%			
Sales Reps, Whls/Mltg Tech/Prod	29	100%							100%								N/A	0%	100%	100%	100%	100%										
All Others	26	100%							100%								N/A	0%	100%	100%	100%	100%										
Purchasing Managers	24	92%	8%						8%	92%				9%	8%		\$19.23	0%	92%	85%	85%	100%	8%							8%		
Computer Support Specialists	24	100%					100%										\$16.00	0%	100%	100%	100%	100%										
Network/Computer Sys Administrators	22	100%							100%								\$36.06	0%	100%	100%	100%	100%										
Industrial Truck & Tractor Operators	22	100%					36%	55%	9%					50%	50%		\$8.00	0%	91%	91%	91%	91%	32%	45%	23%					4%		
Bookkeeping/Accounting/Auditing Clerks	21	100%							38%		62%			48%	34%	19%	\$16.83	0%	81%	86%	86%	100%	19%	19%	62%					14%		
Accountants and Auditors	21	100%							5%		95%			5%	38%	14%	\$18.99	0%	100%	62%	62%	100%	52%	10%	38%					43%		
Mechanical Engineering Technicians	20	100%		100%			100%							100%			\$15.00	0%	100%	100%	100%	100%										
Executive Secretaries & Admin Assts	20	100%							50%	30%	15%			15%	80%	35%	\$17.00	43%	67%	65%	59%	100%	10%	25%	15%					50%		
Computer Programmers	19	89%	11%						11%		89%			89%	11%		N/A	0%	100%	11%	11%	100%									89%	
Computer Sftwr Engrs, Applications	19	100%							100%					100%			\$28.85	0%	100%	53%	53%	100%									47%	
Computer Systems Analysts	17	100%							18%	82%				100%			\$25.48	0%	82%	0%	0%	100%									82%	
Receptionists & Information Clerks	17	100%							88%	12%				12%	20%	59%	\$10.50	0%	29%	88%	71%	100%	18%	71%	12%					12%		
General and Operations Managers	15	60%		27%	13%				13%	60%				13%	60%	27%	\$32.45	0%	87%	53%	40%	100%	13%	40%	47%					67%		
Office Clerks, General	15	100%					53%	20%		27%				53%	20%		\$14.28	0%	73%	100%	73%	100%	53%	20%	27%					53%		
Transportation, Storage & Dist Mgrs	13	69%		31%					85%		15%			62%	38%		\$14.00	0%	92%	85%	85%	100%	85%	15%	31%	46%				8%	15%	
Financial Managers	13	100%							100%					23%	77%		\$28.85	0%	100%	100%	100%	100%									23%	
Laborers & Freight/Stockmovers, Hand	10	100%					80%	20%						80%	20%		\$7.00	0%	80%	100%	80%	100%	20%	80%								
Parts Salespersons	10	100%					100%							100%			\$6.50	0%	100%	100%	100%	100%										
Truck Drivers, Light/Delivery Servs	10	100%					100%							100%			\$6.50	0%	100%	100%	0%	0%										
Marketing Managers	10	80%	20%						100%					80%	20%		\$33.17	0%	70%	70%	70%	100%	50%	50%						60%		
1st-Line Svcs/Mgrs, Ret Sales Wkrs	10	20%	60%	20%			20%	20%	60%					20%	60%	20%	\$14.69	0%	100%	80%	40%	100%	40%	20%	40%					60%		
Outdoor Power Eqpt & Small Eng Mchs	9	100%					100%							100%			\$10.00	0%	100%	100%	100%	100%	100%									
Management Analysts	9	100%							100%					100%			\$33.65	0%	100%	67%	67%	100%	67%	33%	33%					33%		
Stock Clerks and Order Fillers	9	100%					33%	33%						67%	33%		\$9.00	0%	67%	100%	67%	100%	67%	33%						67%		
Inspectors/Testers/Sorters/Weighers	8	100%					75%	25%						25%	75%		\$15.00	0%	25%	0%	0%	100%								100%		
Engineering Technicians, exc Drafters, AO	8	100%												100%			\$19.23	0%	100%	100%	100%	100%										
Numerical Tool/Proc Control Programs	7	100%					100%							100%			\$14.00	0%	100%	100%	100%	100%	100%									
Cutting/Blanking Mach Setters/Opers	7	100%					100%							100%			\$10.00	0%	100%	100%	100%	100%										
Employment/Recruitment/Placement Specs	7	71%	29%						100%					100%			N/A	0%	100%	29%	29%	100%									71%	
Med Records & Health Info Technicians	7	100%							100%					100%			N/A	0%	100%	100%	100%	100%	100%									
Helpdesk-Production Workers	7	100%					100%							100%			\$11.00	43%	67%	67%	67%	67%										
Pharmacists	6	50%		50%					100%					43%	57%		\$38.46	0%	100%	50%	50%	100%	50%							50%		
Graphic Designers	6	33%	67%						100%					100%			\$16.83	0%	100%	67%	67%	100%									33%	
1st-Line Svcs/Mgrs, Offcln/DnlySuppWkrs	6	100%					50%	50%						100%			\$15.37	0%	100%	100%	100%	100%	50%									
Payroll and Timekeeping Clerks	6	100%							100%					100%			\$16.83	0%	100%	67%	67%	100%									33%	
Financial Analysts	6	100%							100%					100%			\$16.83	0%	100%	60%	60%	100%									40%	
Market Research Analysts	6	60%	40%				60%			40%				60%		40%	\$22.12	0%	100%	100%	100%	100%	60%	40%	40%					40%		
Sales Representatives, Services, AO	6	100%							100%					100%			\$21.63	0%	100%	60%	60%	100%									40%	
Electrical Engineers	6	100%							100%					100%			\$21.63	0%	100%	100%	100%	100%	100%									
1st-Line Svcs/Mgrs, Helpers/Laborers	6	100%					60%	40%						100%			\$17.79	0%	60%	100%	100%	100%	40%	60								

**Area: Workforce Boards of Metropolitan Chicago      Industry Sector: Transportation/Warehousing/Logistics**  
**Full-Time Job Vacancies**

Job Titles	Number of vacancies Permanent (full-time)	Duration of Vacancy					Educational Requirement					Experience Required					Median Hourly Wage Offered	Benefits					Hiring Difficulties					Recruitment Method						
		0-30 days	31-60 days	61-90 days	> 91 days	Don't know	No diploma	High school/GED	Voc. training/certification	2+ year degree	Bachelor's degree	Advanced degree	No experience required	Some work experience	Exp in related field	Exp in this occupation		No benefits offered	Health Insurance	Paid sick leave	Paid vacation	Retirement benefits	Labor availability	Applicant's basic skills *	Applicant's technical skills *	Internal corporate policy	Other	Referrals word of mouth	His/Her own	Priv. Emp. Services ***	Public Emp. Agencies	School/College	Internet	Newspaper
Truck Drivers, Heavy/Tractor/Trailer	593	80%	1%	7%	8%	4%	43%	43%	14%				3%	42%	19%	36%	\$15.93	1%	73%	88%	46%	95%	30%	48%	10%	12%	59%					37%		
Bus Drivers, Transit and Intercity	67	19%		61%	19%		61%	36%	3%						81%	19%	\$10.00	0%	36%	100%	100%	100%	61%		22%	16%	39%					61%		
Bus Drivers, School	58	100%					48%	38%	14%				38%	48%	3%	10%	\$9.50	38%	48%	14%	62%	62%	48%		14%	38%	14%			38%		48%		
Industrial Truck & Tractor Operatr	29	38%	62%				62%	31%	7%					24%	76%		\$9.00	0%	86%	100%	100%	100%		62%	38%		7%					93%		
Dispatchers, exc Police, Fire & Amb	25	100%					16%			84%				84%		16%	\$10.00	0%	16%	16%	16%	100%		84%	16%		16%	84%					100%	
1st-Line Svcs/Mgrs, Prod/Oper Wkrs	25		100%					100%						100%			\$19.71	0%	100%	100%	100%	100%		100%										
Office Clerks, General	24	100%						62%		38%				29%	38%	33%	\$12.00	21%	71%	79%	79%	79%		17%	75%	8%	54%				13%	33%		
Customer Service Representatives	23	100%					91%	9%					9%	91%			\$14.42	0%	100%	100%	100%	100%	91%	9%		9%	91%					9%		
Truck Drivers, Light/Delivery Svcs	23	52%		17%	30%		17%	48%	35%					30%	17%	52%	\$14.00	26%	48%	57%	35%	74%			91%	9%	74%					17%	9%	
Sales Representatives, Services, AO	19	100%					37%				63%				100%		\$15.38	0%	100%	100%	100%	100%			37%	63%						37%		
Shipping Receiving & Traffic Clerks	16	44%		56%			44%	56%					56%		44%		\$10.98	0%	100%	100%	100%	100%			44%	56%	100%							
Railroad Conductors and Yardmasters	13	100%						100%							100%		\$20.00	0%	100%	100%	0%	100%	100%										100%	
Motor Vehicle Operators, All Other	12	100%					100%							100%			N/A	100%	0%	0%	0%	0%	100%										100%	
Accountants and Auditors	9	22%				78%		22%		78%			22%	78%			\$8.50	22%	78%	78%	78%	78%	78%	22%			100%							
Switchboard Oper., Inc Answering Serv	9	100%					100%						100%				\$7.50	100%	0%	0%	0%	0%		100%			100%							
Writers and Authors	9	100%					100%						100%				N/A	0%	100%	100%	100%	100%			100%								100%	
Parts Salespersons	9	100%								100%					100%		\$16.83	0%	0%	100%	100%	100%	100%	100%		100%		100%						
Subway and Streetcar Operators	8	100%					100%						100%				\$13.46	0%	100%	100%	100%	100%		100%									100%	
Taxi Drivers and Chauffeurs	8	100%						75%	25%					25%	75%		\$6.50	25%	50%	50%	75%	75%		25%	50%	25%	75%						25%	
Laborers & Freight/StockMovers, Hand	8	50%	50%				75%		25%				25%	25%	50%		\$11.50	0%	75%	75%	25%	100%		75%		25%	100%							
Procurement Clerks	7	100%					100%										\$11.06	0%	100%	100%	100%	100%	100%				100%		100%					
Mechanical Engineering Technicians	6	100%					100%						100%				\$9.50	0%	100%	100%	0%	100%	100%			100%							100%	
Receptionists & Information Clerks	6	33%			67%		100%							33%	67%		\$10.50	0%	67%	100%	33%	100%		100%								33%	67%	
Cargo and Freight Agents	6	67%		33%			67%		33%				67%	33%			\$13.22	0%	100%	100%	100%	100%	67%		33%				67%		33%			
1st-Line Svcs/Mgrs, Ofc/AdmSuppWkrs	5	100%					100%							100%			\$8.50	0%	0%	100%	0%	100%			100%		100%							
Transportation Workers, All Other	4	100%					100%							100%			\$9.50	0%	100%	100%	0%	100%	100%				100%							
Bookkeeping/Accounting/Auditing Clerks	3	100%					67%			33%				67%	33%		\$12.02	0%	100%	100%	100%	100%			33%	67%	100%							
Bus/Truck Mechanics & DieselEng Specs	2	100%						100%									\$12.00	0%	100%	100%	100%	100%				100%								
Compnsatr/Bnfts & JobAnalysis Specs	2	100%						100%									\$12.02	0%	100%	100%	100%	100%	100%				100%							
Inspectors/Testers/Sorters/Weighers	2	100%						100%						100%			\$8.50	100%	0%	0%	0%	0%			100%		100%							
Financial Specialists, All Other	2				100%					100%							N/A	0%	100%	100%	100%	100%			100%					100%				
Food Batchmakers	2	100%					100%						100%				\$7.50	0%	0%	100%	0%	0%		100%									100%	
General Maintenance & Repair Works	2	100%					100%						100%				\$9.00	0%	100%	100%	100%	100%	100%			100%		100%						
Captains/Mates/Pilots, Water Vessel	2	100%					100%										\$26.44	0%	100%	100%	100%	100%				100%							100%	
Helpers-Carpenters	2				100%		100%							100%			N/A	0%	100%	100%	100%	100%	100%				100%							
Sales Managers	2				100%					100%							N/A	0%	100%	100%	100%	100%	100%				100%		100%					
Biling/Posting Clerks & Mach Opers	2	100%					100%							100%			\$13.50	0%	100%	100%	0%	100%			100%		100%							
Order Clerks	2	50%					100%							100%			\$10.00	0%	0%	100%	100%	100%		100%			100%							
Sales Reps, Wholesale/Manufacturing	1		100%				100%										\$19.23	0%	100%	100%	100%	100%		100%			100%							
Credit Authorizers/Checkers/Clerks	1	100%					100%										N/A	0%	100%	100%	100%	100%		100%										
Executive Secretaries & Admin Assts	1	100%					100%							100%			\$20.00	0%	100%	100%	100%	100%		100%										
Management Analysts	1	100%								100%							\$38.46	0%	100%	100%	100%	100%	100%											
Emer Med Technicians & Paramedics	1		100%							100%							N/A	0%	100%	100%	100%	100%	100%		100%									100%

\* (language, reading, work ethic); \*\* (math, computer, supervisory, problem solving); \*\*\* (private employment services/staffing agencies)

## Appendix C: Leadership and Regional Councils Members and Meeting Minutes

### Leadership Council

<b>Name</b>	<b>Title</b>	<b>Organization</b>
Rita Athas	Director of Regional Programs, Office of the Mayor	City of Chicago
Nancy Clawesome	Director	UBS Financial Services
The Honorable Richard M. Daley	Mayor	City of Chicago
Al Friedman	President	Friedman Properties
B.J. Walker	Chief of Human Infrastructure, Office of the Mayor	City of Chicago
Michael Johl	DuPage County Workforce Board Chair	United Parcel Service
Robert Schillerstrom	DuPage County Board Chair	DuPage County
Sandy Erschen	Branch Manager	Manpower
Karl Kruse	Chairman, Kankakee County Board	Kankakee County
Paul Nelson	Grundy County Board Chair	Grundy County
Suzi Schmidt	Lake County Board Chair	Lake County
Arnie Silberman	Lake County Workforce Board Chair	A.D. Silberman & Associates
Virginia Peschke	McHenry County Board	McHenry County
Sandra Pierce	McHenry County Workforce Board Chair	Phoenix Woodworking
Michael Tryon*	McHenry County Board Chair	McHenry County
David Carlquist	North Cook Workforce Board Chair	IBM Corporation
Steve Fallek	V.P. Strategic Planning	Zurich North America Insurance Group
George VanDusen	Mayor	Village of Skokie
John Church	Chairman, Kendall County Board	Kendall County
Chris Manheim	River Valley Workforce Board Chair	Elgin Chamber of Commerce
Michael McCoy	Kane County Board Chair	Kane County
Dennis Sands	Chairman, DeKalb County Board	DeKalb County
James Eldridge, Jr.	CAO, Bureau of Administration	Cook County
Dennis J. Irvin	South and West Cook Workforce Board Chair	Highland Community Bank
John H. Stroger	Cook County Board President	Cook County
John Crowe	Will County Workforce Board Co-Chair	Sprint PCS
Joseph Mikan	Will County CEO	Will County
Deb Teuteberg	Will County Workforce Board Co-Chair	Nicor Gas

### Regional Council

<b>Name</b>	<b>Title</b>	<b>Organization</b>
Carol Adams	Secretary	Illinois Department of Human Services

Gretchen Alexander	Executive Director	West Cook ISC
Rita Athas	Director of Regional Programs	Office of the Mayor, City of Chicago
Tom Balanoff	President	Service Employees International Union Local 1
Marguerite Boyd	President	Truman College
Thomas Centowski	Regional Superintendent	Grundy/Kane ROE
Lori Clark		DCEO
Gwendolyn Clemons	Director, Planning and Economic Development	Cook County Planning and Economic Development
Kathie Collins	Economic Development Coordinator	Village of Bartlett
Tom Cuculich	Director of Economic Development	DuPage County
Sharon Dixon		
Patricia Doherty-Wildner	Vice President	Community and Economic Development Association
Lynn DuBajic		Yorkville Economic Development Corporation
Arne Duncan	CEO	Chicago Public Schools
Richard Duran	Regional Superintendent	Will County ROE
Donald Englert	Regional Superintendent	McHenry County ROE
Steve Fallek	V.P. Strategic Planning	Zurich North America Insurance Group
Margot Fennelly	Deputy Superintendent	Suburban Cook ROE
Mike Finnegan		Kankakee County Economic Development Council
Dennis Gannon	President	Chicago Federation of Labor
Nester Garcia		Kane County ROE
John Greuling	President and CEO	Center for Economic Development Joliet/Will County
Diana Grossi	Executive Director	South Cook ISC
Josh Grozdin		DuPage County Economic Development
Barbara Habschmidt	Executive Director	North Cook ISC
Ashref A. Hasim	President	Blackstone Group
Sarah Hawker	VP for Workforce Development	Illinois Community College Board
Manny Hoffman		State Farm Insurance
Roger Hopkins		DeKalb Economic Development Council
Tom Howard		International Union of Operating Engineers, Local 399
Robert Ingrassia	Regional Superintendent	Suburban Cook ROE
Chuck Jenrich	VP, US Operations	GBJD Registrars
Candice King		DuPage Federation
Anne Ladky	Executive Director	Women Employed
Shirlanne Lemm	President	Greater O'Hare Association
Sheila Lyne, RSM	Chief Executive Officer	Mercy Hospital and Medical Center
Jeff May	Executive Director	Grundy/Kendall ROE



Therese McMahon	Deputy Director, Bureau of Workforce Development	Department of Commerce and Economic Opportunity
Bill McMillan	Associate Vice Chancellor of Occupational Programs	City Colleges of Chicago
Janice Miller	Education to Careers	Kankakee County ROE
Gilbert Morrison, Jr.	Regional Superintendent	DeKalb County ROE
Nancy Norton Ammer		Grundy County Economic Development Council
Paul O'Connor	Executive Director	World Business Chicago
Ian Ostergaard		LaSalle Bank Corporation
Walter Packard	President	McHenry County College
Edward Paesel	Executive Director	South Suburban Mayors and Managers
Kay Pangle	Regional Superintendent	Kankakee County ROE
Karen Patel	President	McHenry County Economic Development Corporation
Don Petkus	President and CEO	Enterpriz Cook County
Sylvia Ramos	President	Daley College
J.D. Ross	President	Joliet Junior College
Darlene Ruscitti	Regional Superintendent	DuPage ROE
Brenda Russell	Director	Illinois Department of Employment Security
Carrie Simmons	Director of Operations	World Business Chicago
Whitney Smith	Senior Policy Associate	Chicago Jobs Council
Don Turner	President Emeritus	Chicago Federation of Labor
John Vrba	Administrator	HCR Manor Care
Robert Wharton	Executive Director	Community Economic Development Association
Roycalee Wood	Regional Superintendent	Lake County ROE
Dave Young	President	Lake County Partners

The Workforce Boards of Metropolitan Chicago

Minutes for Regional Council & Leadership Council Meeting, April 14, 2004

Hyatt Regency, 151 East Wacker Drive, Chicago, IL 60601 9 a.m. to 11 a.m.

### Welcome and Introductions

The meeting welcome was given by Deb Teuteberg, Nicor Gas, who is Co-Chair of the Workforce Board for Will County. Participants introduced themselves to the group. The meeting purpose was to provide an overview of the Critical Skills Shortages Initiative (CSSI) project and clarify the role of the Leadership and Regional Councils in this effort. The Hudson Institute, Thomas P. Miller Associates, Metropolitan Chicago Healthcare Council (MCHC), and Corporation for a Skilled Workforce were there to clarify the process being used for the Northeast Region and to provide a summary of analyses completed with preliminary findings for Healthcare, Manufacturing, Transportation/Warehousing/ Logistics. Next steps and future dates would also be given.

### Overview of the Critical Skill Shortages Initiative (CSSI)

A slide showed the 10 regions in Illinois followed by the Northeast Region's coalition of 9 workforce boards, which is unique throughout the United States in terms of number of boards working together. The Northeast Region contains 68 percent of Illinois' workforce and 65 percent of Illinois' employers as well as 17 of the state's 48 community colleges. The CSSI goal is to align regional workforce programs to provide a reliable supply of qualified job seekers for critical skill shortage occupations that pay a good wage and provide benefits. Key sectors identified for Illinois are healthcare, manufacturing, and transportation, warehousing and logistics. The Illinois Department of Commerce and Economic Opportunity will provide financial incentives to voluntarily redirect resources toward the creation and design of education and training programs that will address critical skill shortages. Healthcare is targeted for early completion dates of reports which identify occupations with skill shortages (April 21), identify root causes (June 1), and apply for training grant funds (June 18) which would help support (distributed August 1) the redirection of resources to close gaps in the supply qualified applicants to critical skill shortage occupations. Similar planning phase reports and application for Manufacturing and Transportation, Warehousing, and Logistics (Transportation, Warehousing, and Logistics) are due June 4, July 16, with application for training funds on October 31 and receipt on January 1. September 30 is due date for a Regional Solutions report. Regional solutions should realign existing public and private resources to meet short term and long term needs. Regional solutions should include a broad network of public and private organizations and training providers.

### Role of Leadership and Regional Councils

Pat Fera, Will County Workforce Board, explained the regional consortium via a slide of concentric circles with CSSI in the center and the Leadership Council as the closest circle followed by Regional Council, Industry Sector Councils, and Community Organizations/Stakeholders. The Leadership Council will review and provide guidance for deliverable reports: Critical Skill Shortages, Root Causes, and Regional Solutions. The Regional Council will assist in dissemination of CSSI information as well as providing guidance on findings/recommendations and supporting redirection of resources.

### Review of Process/Key Activities

Graham Toft of the Hudson Institute emphasized that the process is intended to engage leaders to collaborate on a combined front. Funding is intended to 'seed' some partnerships that might not have happened without the process. We are looking for ways in which we find solutions to our problems. A slide showing a 2 pronged approach for arriving at findings in this planning phase include:

- statistical analysis of secondary data from federal, state, county, and community or industry studies (He described how Hudson's JOWE® database is set up to do this;
- qualitative analyses of practitioner input via interviews, surveys, and focus groups.

Graham asked participants to send his team any known studies/data regarding growth patterns and employment opportunity. Council members can send information to the Hudson Institute team via Jan Etzkorn, Regional Coordinator (Jetz66@aol.com)

#### Manufacturing & Transportation, Warehousing & Logistics

Kristin Wolff of Corporation for a Skilled Workforce (CSW) said that the plan for these sectors included 30 focus groups – 10 for each sub-sector employers and 5 for employees in each sector. These will be in a mix of geographic and sub sectors. She mentioned that Transportation, Warehousing, and Logistics has fewer professional associations and thus is less organized. And that manufacturing and parts of Transportation, Warehousing, and Logistics are looking at different crises, such as, downsizing. In the April 12 Tooling and Manufacturing Association (TMA) Focus Group, there were small companies concerned about mergers or who had merged with another company already – causing decisions about equipment and technology to be made by company components not in the Chicago area. Globalization and reduction of staff are now occurring in small companies. This translates into their difficulty in communicating training and education needs to Community Colleges. One manufacturer said, “My industry is changing and I don’t know what the long term looks like.” With new robotic equipment, another says, we may be able to run our plant with 5 people rather than 30. Another story line Kristin relayed to the group was the comment, “We train our own people – but we are having difficulty finding people who apply and are trainable. We need someone who is literate and can become a problem solver with technical expertise. It is a shift from just setting up equipment – set-up is easy – to knowing what to do when a problem occurs.” Another participant supported Kristin’s focus group data saying that in his experience in trying to set up training for Transportation, Warehousing and Logistics, “Our local Warehousing and Logistics people can’t specify their needs. Security and technology are quickly changing the nature of their jobs.” Regarding a meeting (April 19) with Community College presidents a participant commented that the colleges can’t be expected to build programs with expensive techniques and technology without knowing how many will attend for how long. Industry is in such turmoil that they don’t know. Because they cannot articulate their needs in advance, there is not enough information for a community college to set up a curriculum to solve their immediate needs when those needs occur. A new ‘demand articulation approach’ may be a solution for manufacturing and Transportation, Warehousing, and Logistics (i.e. our standard process of expressing need, training needs assessment, prediction of training needs). A comment was made about an apprenticeship type program being helpful.

#### Key Dates and Next Steps

- April 21 Healthcare Critical Skills Shortages Report
- May 24 Leadership & Regional Councils meeting, 1-3 pm
  - § This meeting precedes the Root Causes Report for Healthcare (due June 1)
  - § and the Manufacturing/Transportation, Warehousing, and Logistics Report on Critical Skill Shortages (due June 4)
- Next joint Council Meetings are June 28 9-11 am & September 23 1-3 pm
- June 15 Leadership Council 12-2 pm
  - § Also October 14 12-2 pm

#### Regional Input Forums

- April 26 1-4 pm
- May 14 10-12 noon
- June 7 9-11 am
- August 12 1-3 pm Manufacturing
- August 13 1-3 pm Transportation, Warehousing and Logistics

Pat Fera, Will County Workforce Board, adjourned the meeting and thanked participants.

The Workforce Boards of Metropolitan Chicago  
Critical Skill Shortages Initiative  
Northeast Economic Development Region

Minutes

Leadership Council

&

Regional Council Meeting

May 24, 2004

1:00 p.m. to 3:00 p.m.

The Mid-Day Club

21 South Clark St., 56<sup>th</sup> Floor

Chicago, IL

#### Summary of Agenda

Time	Topic
1:00-1:15	Welcome and Introductions
1:15-1:40	Summary of Root Causes and Solutions for Healthcare
1:40-1:50	Prioritization Assignment
1:50-2:00	Break
2:00-2:50	Critical Occupations and Skills Shortages Manufacturing and TWL
2:50-3:00	Conclusions, Next Meeting, and Adjourn

#### Welcome and Introductions

Sr. Shelia Lyne, RSM, CEO, Mercy Hospital & Medical Center

Sr. Shelia welcomed attendees and outlined the purposes of the meeting:

To present findings regarding root causes and proposed solutions in the Healthcare Sector

To present findings regarding critical skill shortage occupations in the Manufacturing Sector and the Transportation, Warehousing and Logistics Sector

### *Healthcare Findings*

Dr. Graham Toft, Senior Fellow, The Hudson Institute

Dr Toft reviewed the Root Cause Methodology, and the Root Cause Checklist

#### Methodology

- Hudson's Root Causes Checklist
- Review of national literature
- Review of prior local studies
- Review of focus group transcripts
- Building Consensus
  - § May 10: Healthcare Solutions Council
  - § May 14: Stakeholders Forum
  - § May 18: Healthcare Council

#### Root Cause Checklist

- § Supply-Side Demographics
  - § Basic Occupational Demographics
  - § Worker Migration
  - § Productive Aging and Other Underemployed Groups
- § Supply-Side Institutional Factors
  - § Access and Completion
  - § Advancement: Career Ladder Uncertainties and Silos
  - § Financial Sources
- § Demand-Side Factors
  - § The Skills Needed/Skills Preparation Gap
  - § Changing Skill Requirements.
- § Motivational and External Factors
  - § Occupational Opportunities Awareness
  - § Attributes of Place
- § Work Environment

It was noted that the healthcare field has changed over time; now the focus is on non-patient care and RN's have less time with patients due to paperwork. Regulations are very limiting.

Dr. Toft then listed other potential root causes and the state requirements for the Root Causes Report.

§ Other potential root causes

- § Healthcare still seen as “voc tech” and students and their families don’t understand the needed amount of science and math
- § Lack of productivity gains on the demand-side - needs further study
- § Undefined career ladders, especially for the advancement of individuals who do not want to leave patient care
- § Lack of basic preparedness of students to begin healthcare training without intensive remedial work. Without the prerequisite skills, a two-year degree process becomes much longer and seemingly undoable to the trainee.
- § Regulatory issues that either contribute to the shortage or prevent creative solutions.
- § Barriers to the training process, including transportation and childcare
- § Changing neighborhood demographics in terms of immigrant and minority populations. Hard for educators and providers to keep up with these ethnic changes that are going on at a faster rate.
- § Shorter hospital stays lead to less time for a full clinical experience
- § Need to look at alternative clinical areas to complete the educational experience
- § No social validation for the profession - a disconnect between values?
- § Shorter hospital stays, more services are being provided at home, causes changes in employment.
- § Individuals interested in training programs have a difficult time getting information on quality programs.

It was noted that some employers are trying to deal with workplace issues by implementing flexible scheduling, etc. to become the employer of choice. There seems to be creative ways and a myriad of potential solutions.

§ State Requirements for Root Causes Report

§ Comprehensive Methodology

- § Employer recruitment and retention.
- § Education and training capacity and student completion/placement.
- § Student/Worker career awareness and access.

§ Regional Coalition and Industry Partner Engagement.

- § All required regional coalition partners were given the opportunity to provide input.
- § The identification and analysis of root causes was conducted on a regional basis.
- § Industry partners were fully involved in the analysis and validation of findings and conclusions on root causes.

Dr. Toft reviewed the eight proposed ideas for solutions and the overall prioritization results and strategies.

Ideas

1. “It Pays To Go To School” Initiative
2. Initiate a faculty shortage study
3. Development of healthcare portal
4. Launch marketing campaign
5. “More Opportunities from Within Healthcare” Initiative
6. High school healthcare career academies
7. Develop regional work readiness strategy
8. Strategies to improve workplace environment

Results and examples from Healthcare Council meeting on May 18, 2004

- § Workplace Environment (19 votes)
  - § Comprehensive core strategies to improve job satisfaction
  - § Incentives to keep more experienced employees
- § Career Progression (18 votes)
  - § Career ladders and lattices
  - § “More Opportunities from Within Healthcare”
- § Resources, Awareness, Information (13 votes)
  - § Healthcare portal
  - § High school healthcare career academies
  - § Marketing campaign
- § Student Support (10 votes)
  - § “It Pays to Go to School”
  - § Scholarships, childcare, and transportation support
- § Expansion of producer capacity to meet demand (9 votes)
  - § Partnerships to increase faculty
  - § Faculty shortage study
- § Center for Healthcare (8 votes)
- § Work redesign (4 votes)
- § Increasing the pool (4 votes)
- § Career/School readiness (3 votes)
- § Development of more efficient work systems (3 votes)
- § Partnerships to improve quality of training and education (2 votes)
- § Better use of technology education for workforce (1 vote)
- § Regulatory reform (1 vote)

It was noted that it is difficult to get the group to prioritize; prioritization depends on who is at the meetings. The Critical Skill Shortages Initiative process is moving at a very fast pace. Scoring is not set in stone.

Dr. Toft asked the attendees of the meeting to do a two-part assignment:

1. List the top three most important ideas (out of the eight proposed ideas) to move healthcare industry forward
2. Personally state what “you” would like to see done (the one most important idea)

There was a ten minute break while the results were tallied.

Dr. Toft reviewed the description of solutions, methodology, and engagement of stakeholders for the Manufacturing and Transportation, Warehousing, & Logistics Sectors.

#### Description

- § The report fully describes each solution and identifies which of the root causes the solution addresses
- § The report provides the rationale for each solution and the evidence that the solution is feasible and has the potential to address the short-term and /or long-term shortages (i.e., it will work).
- § The report estimates the contribution of each solution to reducing the short-term and/or long-term shortages.

#### Methodology

- § Review of existing studies
- § Analysis of secondary data
  - § ES-202, IDES, OES, O\*NET, JOWE©
- § Primary data collection & analysis
  - § IDES Employer Survey
  - § Regional Focus Groups and Interviews conducted by CSW

#### Engagement

- § Leadership Council
  - § Workforce Board Chairs and Chief Local Elected Officials
- § Regional Council
  - § Representatives of IDHS, DCEO, IDES, ICCB, Labor, Regional Offices of Education, Economic Development Organizations, and the Private Sector, Community College Presidents, Chairs and Vice Chairs of Industry Councils and One-Stop Council, and Workforce Board Chairs



- § Industry Councils
  - § Representatives of the Private Sector, Industry Associations, Summit Action Teams, Economic Development Organizations, and Chambers
    - Manufacturing Council
    - Transportation / Warehousing / Logistics Council
- § One Stop Council
  - § From each Local Workforce Area, one representative for each One-Stop partner
- § Stakeholder Groups
  - § Community Based Organizations, Economic Development Organizations, Chambers of Commerce, the Education for Employment/Tech Prep System, Community Colleges and Universities, Industry Associations, One-Stop partners, Private Sector, Workforce Boards, Elementary and Secondary Education, Foundations, Legislators, Local Elected Officials, and others

Dr. Toft reviewed the targeted industries in the Manufacturing Sector and the Transportation, Warehousing, and Logistics Sector. He then provided the working definition of critical skill occupations.

#### Target Industries

- § Non-Durable Goods Manufacturing
  - § Food & Kindred Products
  - § Printing, Publishing and Allied Production
  - § Chemical & Allied Products
  - § Petroleum and Coal Production
  - § Rubber & Miscellaneous Plastics
- § Durable Goods Manufacturing
  - § Primary Metals
  - § Fabricated Metal Products
  - § Industrial Machinery & Equipment
  - § Electrical Equipment
  - § Electronics Equipment
  - § Medical Equipment & Supplies
- § Transportation, Warehousing & Logistics
  - § Railroads

- § Trucking and Intercity Courier
- § Warehousing and Storage
- § Transportation Services
- § Wholesale Trade Durable Goods
- § Wholesale Trade Non-Durable Goods

#### Critical Skill Occupations

- § Critical Skill Occupations are vitally important to the overall health of an industry.
- § They are specifically defined as:
  - § Having strong employment demand
  - § Providing good wages
  - § Being critical to industry competitiveness
  - § Are appropriate for targeting for the workforce system.

A question was raised as to how good wages are defined. Dr. Toft responded that approximately \$25,000.00/year would be a “family livable” wage. He was also asked if it would be possible to split the tiers into entry level and family wages.

#### Conclusions

A combination of primary analysis, secondary analysis, and validation developed the Tier Structure.

##### § Tier I

- § Consists of the top twenty critical occupations from each list—The Hudson Institute and IDES—ranked in them in terms of overall analysis score (for Hudson-identified occupations) or total vacancies (IDES occupations).
- § Durables and Non-durables Manufacturing are combined into one final list, and Transportation, Warehousing, and Wholesaling are in another.

##### § Tier II

- § Includes occupations identified as critical by either Hudson or the IDES study, but not included in the Tier One grouping. Many of these occupations are vital, but only to one or two industries; others are important across many industries, but to a lesser extent.

Ensuring the economic future of the region means utilizing every effective public policy tool to:

- § Increase the size of the workforce
- § Enhance skills

A comment was made that the manufacturing industry is becoming more productive - *wages are increasing, but numbers of workers are decreasing.*

Dr. Toft asked that if anyone knew of any persons or groups that might have insight on root causes, to contact Jan Etzkorn at [jetz66@aol.com](mailto:jetz66@aol.com).

Nancy Krier, Healthcare Industry Specialist, announced the preliminary results from the assignment to list the top three most important ideas (out of the eight proposed ideas) to move healthcare industry forward and personally state what attendees would like to see done.

#### Results (Ranking)

1. Initiate a faculty shortage study
2. Workplace environment
3. “It Pays to go to School”
4. More opportunities in healthcare
5. Work readiness

Dr. Toft reviewed the next steps and next meetings. He thanked everyone for attending.

#### Next Steps:

- § Determine the root causes in the Manufacturing Sectors and Transportation, Warehousing, and Logistics (TWL) Sector.
- § Conduct regional strategic examination of solutions and resources to combat the issues.

#### Next Meeting Dates:

Leadership Council & Regional Council

June 28, 2004 – The Mid-Day Club

9:00a.m.-11:00a.m.

Agenda: To finalize Root Cause Reports for Manufacturing and TWL

Participants were asked to stay in touch with the ongoing CSSI effort in the Northeast Region by visiting the web site of the Workforce Boards of Metropolitan Chicago, at <http://www.workforceboardsmetrochicago.org/>

For questions about CSSI in general, they were instructed to contact Jan Etzkorn, [jetz66@aol.com](mailto:jetz66@aol.com)

The meeting was adjourned at 3:00p.m.

Attendance

Leadership & Regional Council Meeting - 5/24/04				
Sal.	First Name	Last Name	Title	Company/Org.
Ms.	Karen	Bellak		WBMC
Dr.	Marguerite	Boyd	President	Truman College
Ms.	Lori	Clark		DCEO
Ms.	Donna	Clay	DHS	Representing DR Carol Adams
Dr.	Pat	Coleman	Director of Adult Education & Workforce Services	McHenry County College
Ms.	Patricia	Doherty-Wildner	Vice President	Community & Economic Development Association
Ms.	Elisabeth	Dunbar	Executive Director	Grundy ILivingston Kankakee Workforce Board
Ms.	Martha	Eldredge Heck		
Ms.	Jan	Etz Korn		
Mr.	Steve	Fallek		
Ms.	Margot	Fennelly	Deputy Superintendent	Suburban Cook ROE
Ms.	Pamela	Fettes	Executive Director	River Valley WIB
Ms.	Susan	Flessner	Administrative Manager	Workforce Services Division of Will County
Ms.	Darlene	Forte	IDHS	Representing DR Carol Adams
Mr.	Al	Friedman	President	Friedman Properties
Mr.	Jim	Giblin	Industry Specialist	WBMC
Ms.	Joanna	Greene		Chicago WFB
Ms.	Cynthia	Greenleaf	Director of Partnerships	Chicago Public Schools
Ms.	Anne	Hogan		Cook County WIB
Ms.	Linda	Kaiser	Executive Director	Chicago WFB
Ms.	Nancy	Krier	Industry Specialist	WBMC
Mr.	Karl	Kruse	Chairman, Kankakee County Board	Kankakee County
Ms.	Anne	Ladky	Executive Director	Women Employed
Sr.	Sheila	Lyne, RSM	Chief Executive Officer	Mercy Hospital and Medical Center
Ms.	Mary Beth	Marshall		DuPage County WFB
Mr.	Carl	Martens	Director	McHenry County WIB
Dr.	Bill	McMillan	Associate Vice Chancellor of Occupational Programs	City Colleges of Chicago
Ms.	Janice	Miller	Education to Careers	Kankakee County ROE
Dr.	John	Miller	Director, H.R., Field Operations	Amtrak
Mr.	Preston	Morgan	Sr. Director, Workforce Development	Illinois Community College Board
Mr.	Ian	Ostergaard		LaSalle Bank Corporation
Ms.	Karen	Patel	President	McHenry County Economic Development Corporation
Ms.	Mary	Pepperl	President	WFB Northern Cook County
Ms.	Virginia	Peschke	McHenry County Board	WFB Northern Cook County McHenry County
Mr.	Murat	Philippe	Senior Consultant	HR Solutions
Ms.	Brenda	Russell	Director	Illinois Department of Employment Security
Mr.	Arnie	Silberman	Lake County WFB Chair	A.D. Silberman & Associates
Ms.	Whitney	Smith	Senior Policy Associate	Chicago Jobs Council
Ms.	Chris	Stevens	Manager	Lake County Workforce Investment Board
Mr.	Graham	Toft	Senior Fellow	The Hudson Institute
Ms.	Jarese	Wilson	Office of the Budget	City of Chicago



## Appendix D: One-Stop Council Meeting Minutes

The Workforce Boards of Metropolitan Chicago

Minutes from One-Stop Council Meeting

April 26, 2004

11:00 am - 12:00 noon

The Hyatt Regency Chicago

151 East Wacker Drive Chicago, IL 60601

Welcome and Introductions

Joe Kilbride, meeting facilitator, welcomed participants and outlined the purposes of the session:

- § Clarify the role of the One Stop Council in the Northeast Economic Development Region's Critical Skill Shortages Initiative (CSSI).
- § Allow participants to share approaches for implementing Sector Strategies in the One Stops.
- § Announce co-chairs.
- § Clarify next steps.

Kilbride explained this is the first meeting of the One-Stop Council for the Northeast Economic Development Region's Critical Skill Shortages Initiative (CSSI), and reviewed the agenda:

Time	Topic
11:00-11:10	Welcome and Introductions
11:10-11:15	Overview of the Critical Skills Shortages Initiative Clarify role of One-Stop Council in this effort
11:15-11:45	Breakout Activity: Workforce Areas Sharing One Stop Approaches Used to Implement Sector Strategies
11:45-11:55	Announcement of Co-Chairs
11:55-12:00	Conclusion, Key dates, including next meeting

Participants introduced themselves.

Overview of CSSI

Joe Kilbride provided an overview of the Critical Skill Shortages Initiative. He explained that participants received a packet of information, including handouts with all powerpoint slides, plus the Regional State of the Workforce Report. The overview of CSSI included the following points:

- § The Governor has designated 10 areas as Economic Development Regions through state's Department of Commerce and Economic Opportunity (DCEO)
- § Northeast Economic Development Region is the EDR for metropolitan Chicago.
- § A coalition of nine Workforce Boards in the region are charged with addressing critical skill shortages by redirecting resources and applying for funds to fill gaps.

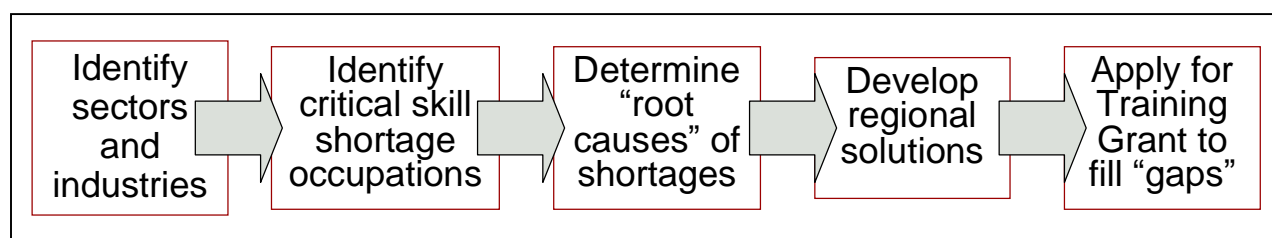
These Workforce Boards and the areas they cover were reviewed as summarized below:

Name of Workforce Board	Workforce Area Covered
Chicago Workforce Board	City of Chicago
Cook County Workforce Investment Board	South and West Suburban Cook County

DuPage County Workforce Board	County of DuPage
Grundy Livingston Kankakee Workforce Board	Counties of Grundy, Livingston, and Kankakee
Lake County Workforce Investment Board	County of Lake
McHenry County Workforce Investment Board	County of McHenry
River Valley Workforce Investment Board	Counties of DeKalb, Kane, and Kendall
The Workforce Board of Northern Cook County	North and Northwest Suburban Cook County
Workforce Investment Board of Will County	County of Will

The Goal of CSSI is to align regional workforce programs to provide a reliable supply of qualified job seekers for critical skill shortage occupations that pay a good wage and provide benefits.

Major steps in the planning phase were reviewed as summarized below.



- § Sectors and industries (sub-sectors) will be identified. Previous regional activities, including Community Audits and Industry Summits have been instrumental in this phase. For the Northeast region, three preliminary target sectors have been identified. These are:
  - Healthcare
  - Manufacturing
  - Transportation/Warehousing/Logistics
- § Within each identified sector, critical skill shortage occupations will be identified.
- § Root Causes for these shortages will be examined, and Solutions will be developed to address identified root causes. Solutions will be achieved by re-directing local resources and programs to address employer and workforce needs.
- § DCEO (Dept. of Commerce and Economic Opportunity) will provide financial incentives for the EDRs that re-align resources within existing programs to address employer and workforce needs.

At key steps in the planning phase, reports will be submitted to DCEO.

- § Timelines for Healthcare reports are as follows:
  - Critical Skill Shortages report, submitted April 21, 2004
  - Root Causes/ Regional Solutions Report, due June 1, 2004
  - Grant application, due June 18, 2004.
  - DCEO to award funds by August 1, 2004
- § Timelines for reports to be submitted for both Manufacturing and Transportation/Warehousing/Logistics are as follows:
  - Critical Skill Shortages report, due June 4, 2004
  - Root Causes report, due July 16, 2004
  - Regional Solutions report, due Sept. 30, 2004
  - Grant application, due October 21, 2004.
  - DCEO to award funds by January 1, 2005

After local remedies are exhausted there will likely be "gaps" in the regional strategy. To fill some of the unmet needs and provide an incentive to regions to participate in this initiative, DCEO funds will be made available on a competitive basis for solutions/training activities. Successful applications will:

- § Demonstrate re-direction of resources/programs
- § Make a strong case for the need to address "gaps" in the Northeast Economic Development region.
- § Include solutions developed with input from a broad range of stakeholders. To involve industry participants and other stakeholders, a structure has been established. The membership and responsibilities for the following councils were explained:
  - Leadership Council – including Workforce Board Chairs and CLEOs (Chief Local Elected Officials) or their representatives
  - Regional Council– including Representatives of IDHS, DCEO, IDES, ICCB, Labor, Regional Offices of Education, Economic Development Organizations, and the Private Sector, Community College Presidents, Chairs and Vice Chairs of Industry Councils and One-Stop Council, and Workforce Board Chairs
  - Sector Councils– including representatives of Private Sector, Industry Associations, Summit Action Teams, Economic Development Organizations, and Chambers. The following sector councils have been established in the NE region:
    - Healthcare
    - Manufacturing
    - Transportation/Warehousing/Logistics
- § One-Stop Council– including representative for One-Stop partner from each Local Workforce Area. This is the first meeting of the One Stop Council. Its responsibilities will include:
  - Identify and share best practices in sector strategies
  - Assimilate sector strategies and models in the One-Stops
  - Support implementation of CSSI solutions

#### Sharing Approaches to Implement Sector Strategies in the One Stops

Participants were asked to group according to local workforce area/One-stop and briefly discuss approaches they are currently using/plan to use to implement sector strategies in the one-stops. A summary of the reports from these breakout activities follows.

#### Northern Cook Partners

- Completed an extensive business planning process, which led to establishment of dedicated Business & Employer Service teams. These teams have been:
  - § Gathering information about business and employer needs
  - § Developing relationships within targeted sector
  - § Sharing the employer databases of various partner agencies
  - § Piloting "virtual" one stop for youth... to get them information about occupations in critical sectors

#### South and Southwest Suburban Cook County Partners

- Had previously established a task force to work with healthcare sector, including St.. James Hospital.
- South/southwest regional advisory councils include these sectors
- West suburban Cook county is working on healthcare program
- Have included healthcare in their 2004 RFP from task force



- Account Executives have been contacting Transportation/Warehousing/Logistics and Manufacturing employers

#### Will County Partners

- One –stop in planning phase. Have:
  - § Aligned business services staff by sector
  - § Revised their ITA policy to meet goals of Workforce Report & CSSI
  - § Community College partners have developed short-term training to meet needs of these sectors

#### DuPage County Partners

- Mary Beth Marshall has been involved in the Healthcare summit. Since then have been working with Community College to find more participants for clinical sites for healthcare training.
- DuPage TechPrep and Vocational Education working with Youth Council to reach out to counselors in order to get students interested in manufacturing.
- The IETC Business Services team is working with the targeted sectors.

#### River Valley Workforce Area Partners

- Working to strengthen economic development linkages throughout the area, with Elgin, Kendall County, etc.
- Broadening its reach by extending itself to additional partners, and identifying resources of the various partners
- Responding to employer requests to improve basic skills (essential skills)... have developed soft skills program, i.e., computer skills, job seeking/retention skills... includes a Spanish speaking component... have kicked it off to employers who host these sessions, invite other employers, and have sent their workers.
- Elgin has targeted the same three sectors... held some forums for these industries, partnered on healthcare career awareness event, educating youth and adults about a broad array of jobs/careers in healthcare beyond nursing.
- Realigned Business Teams with WIB person to focus on targeted sectors
- In Transportation, working with Rockford airport, Rochelle railroad

#### Chicago Partners

- Have established 5 Business Service teams
- Pilsen one example. It has been divided into industry cluster teams.
- Business Services team at Daley College currently has collaborative partnership:
  - § Their marketing materials reflect all 5 business teams.
  - § Looking at one-stop business partnerships and examine by sector. Approached Daley College to establish local job fair, which has grown into city-wide job fair to be held June 5.
  - § Conducting workshops in conjunction with this event. Students can take courses/workshops by employment services team on resume writing, etc.

#### Lake County One Stop Partners

- Have 2 business service teams, one healthcare, one manufacturing.
- Been successful by focusing on mid-sized companies.
- Also formed job seeker team, which is exploring ways to better focus our services on sectors. Held joint meeting and have identified possibilities such as:
- Funnelling job candidates
  - § Women in trades fair

- § Targeting recruitment days in the center
- § Website will focus on these teams also

#### McHenry County Partners

- Working with WIA youth programs, aligning them with sectors
- Employer relations team also focused on these sectors
- New hospital announced in Crystal Lake. Will be working with Mercy Hospital (if the city of Crystal Lake grants approval for the hospital to be built).
- McHenry County College – private service provider. Working to increase training opportunities for healthcare.
- At one stop will target industries with info/marketing.
- Job Club has businesses from each sector come and talk to potential employees.

At future sessions, we intend to do more planning and sharing around sector based strategies.

## Appendix E: Industry Council Meeting Minutes

These minutes will be provided by the Workforce Boards

Attendance

TWL Council Meeting- 5/10/04				
Sal.	First Name	Last Name	Title	Company/Org.
Mr.	Lew	Dibert	Manager of Distribution	Republic of Windows & Doors, Inc.
Dr.	Bob	Ginsburg	Director	Center on Work and Community Development
Mr.	Greg	Glotsbach	Employment Supervisor	UPS
Mr.	Rob	Hoffman	Director of Business Development	World Business Chicago
Ms.	Terry	Irby	Dean, Division of Adult & Family Services	Joliet Junior College
Ms.	Carole	Ko	Project Coordinator	Mayor's Office of Workforce Development
Ms.	Cathy	McGee	Regional Director Human Resource	Burlington Northern Santa Fe
Mr.	Bill	McMillan	Occupational Programs	City Colleges of Chicago
Mr.	John	Miller	Operations	Amtrak
Ms.	Sandra	Mol		Joliet Junior College
Ms.	Mary	Posing		Kankakee Community College
Mr.	Ray	Prendergast	Mfg. Program Manager	Chicago Public Schools
Mr.	Thomas	Price	Director Corporate Services	Joliet Junior College
Mr.	Herbert	Prince	Workforce Planning Manager	UPS
Ms.	Brenda	Roland	Instructional Coordinator in Adult Education	Joliet Junior College
Mr.	John F.	Rowan	President and CEO	General Warehouse & Transportation Co., ROACO, LLC
Mr.	Nehemiah	Sherrod		Joliet Junior College
Ms.	Carrie	Simmons	Director of Operations	World Business Chicago
Mr.	Patrick	Smith	Job Developer	Chicago Federation of Labor, Workers Assistance Committee

## Appendix F: Stakeholder Forum Meeting Minutes

The Workforce Boards of Metropolitan Chicago

Minutes from Stakeholder Forum

April 26, 2004

1:00 - 4:00 pm

The Hyatt Regency Chicago

151 East Wacker Drive Chicago, IL 60601

These minutes have been edited to include only information pertaining to the Transportation, Warehousing, and Logistics sector.

### Welcome and Introductions

Mike Johl, chair of the DuPage Workforce Board, welcomed everyone in attendance, thanked them for coming and challenged everyone to keep in mind the interdependence of all workforce areas as this regional Critical Skill Shortages Initiative (CSSI) moves forward.

Joe Kilbride, facilitator for the meeting, outlined the purposes of the session:

- § Provide an overview of the Critical Skill Shortages Initiative (CSSI).
- § Clarify the process being used in the Northeast Economic Development Region for identification of critical shortage occupations, root causes, and solution development.
- § Provide a summary of analyses planned and completed, and preliminary findings for Healthcare, Manufacturing, Transportation/Warehousing/Logistics.
- § Clarify next steps.

Kilbride explained this is the first stakeholder meeting for the Northeast Economic Development Region's Critical Skill Shortages Initiative (CSSI), and reviewed the agenda for the session:

• Time	• Topic	• Presenter
1:00-1:10	Welcome	Mike Johl, chair of the DuPage Workforce Board
1:10-1:25	Overview of Critical Skill Shortages Initiative	Joe Kilbride
1:25-1:40	Process for Northeast Region Planning Phase	Graham Toft, Hudson Institute
1:40-1:50	Inventory of Producers	Scott Hutcheson, Thomas P. Miller & Associates
	Assessment of Policies & Regulations	
1:50-2:00	Career Progression Analysis	Kristin Wolff, Corporation for a Skilled Workforce
	Awareness & Perception Analysis	
• Sector: Healthcare		
2:00-2:05	Review timeline/milestones for Healthcare	Joe Kilbride

2:05-2:15	Job Vacancy/Hard to Fill Job Survey	Gary Drain, Metropolitan Chicago Healthcare Council
2:15-2:30	Employer Focus Groups, Incumbent Worker Surveys and Focus Groups	Murat Philippe, HR Solutions
2:30-3:00	Summary of Healthcare Critical Skill Shortages Report	Shane Burkhardt, Hudson Institute
<ul style="list-style-type: none"> <li>• Sector: Manufacturing</li> <li>• Sector: Transportation/Warehousing/Logistics</li> </ul>		
3:00-3:05	Review timeline/milestones for these sectors	Joe Kilbride
3:05-3:15	Job Vacancy/Hard to Fill Job Surveys for these sectors	Bruce Bernardi, Illinois Dept. of Employment Security
3:15-3:30	Employer Focus Groups, Incumbent Worker Surveys and Focus Groups	Kristin Wolff, Corporation for a Skilled Workforce
3:30-3:45	Review of Overall Process for developing Critical Skill Shortages Reports for these sectors	Shane Burkhardt, Hudson
3:45-3:55	Conclusion, Key dates	Joe Kilbride

The Executive Directors from the nine Workforce Boards that are the consortia for the region's CSSI effort introduced themselves:

- § Anne Hogan, Cook County Workforce Investment Board
- § Carl Martens, McHenry County Workforce Investment Board
- § Chris Stevens, Lake County Workforce Investment Board
- § Elisabeth Dunbar, Grundy Livingston Kankakee Workforce Board
- § Linda Kaiser, Chicago Workforce Board
- § Mary Pepperl, The Workforce Board of Northern Cook County
- § Pamela Fettes, River Valley Workforce Investment Board
- § Pat Fera, Workforce Investment Board of Will County
- § Ray Marchiori, DuPage County Workforce Board

#### Overview of CSSI

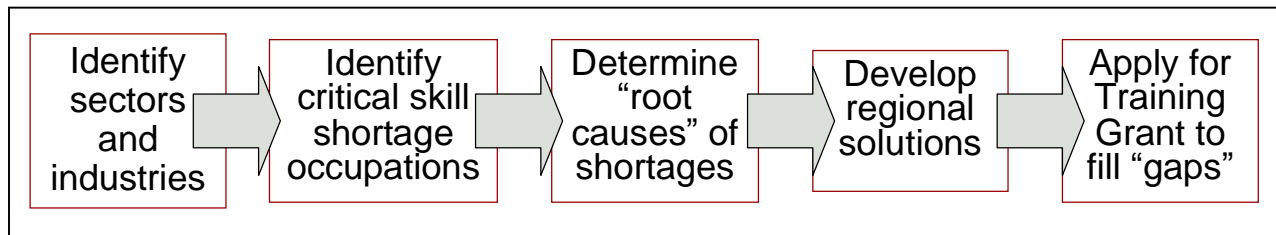
Joe Kilbride provided an overview of the Critical Skill Shortages Initiative. He explained that participants received a packet of information, including handouts with all powerpoint slides, plus the Regional State of the Workforce Report.

The overview of CSSI included the following points:

- § The Northeast Economic Development Region is the EDR for metropolitan Chicago.
- § Economic statistics for this region characterize its significant impact on the state overall.
- § The Goal of CSSI is to align regional workforce programs to provide a reliable supply of qualified job seekers for critical skill shortage occupations that pay a good wage and provide benefits.

- § The approach is to begin at a macro-level by identifying employer needs for certain critical shortage occupations within key industries and sub-sectors, and to understand the root causes of these shortages.
- § Solutions will be achieved by re-directing local resources and programs to address employer and workforce needs.
- § DCEO (Dept. of Commerce and Economic Opportunity) will provide financial incentives for the EDRs that re-align resources within existing programs to address employer and workforce needs.

Major steps in the planning phase were reviewed as summarized below.



§ Sectors and industries (sub-sectors) will be identified. Previous regional activities, including Community Audits and Industry Summits have been instrumental in this phase. For the Northeast region, three preliminary target sectors have been identified. These are:

- Healthcare
- Manufacturing
- Transportation/Warehousing/Logistics

§ Within each identified sector, critical skill shortage occupations will be identified.

§ Root Causes for these shortages will be examined, and Solutions will be developed to address identified root causes.

At key steps in the planning phase, reports will be submitted to DCEO.

§ Timelines for Healthcare reports are as follows:

- Critical Skill Shortages report, submitted April 21, 2004
- Root Causes/ Regional Solutions Report, due June 1, 2004
- Grant application, due June 18, 2004.
- DCEO to award funds by August 1, 2004

§ Timelines for reports to be submitted for both Manufacturing and Transportation/Warehousing/Logistics are as follows:

- Critical Skill Shortages report, due June 4, 2004
- Root Causes report, due July 16, 2004
- Regional Solutions report, due Sept. 30, 2004
- Grant application, due October 21, 2004.
- DCEO to award funds by January 1, 2005

As the grants will be awarded based upon a competitive process, Kilbride explained that successful applications will:

§ Demonstrate re-direction of resources/programs

§ Make a strong case for the need to address “gaps” in the Northeast Economic Development region.

§ Develop solutions based upon input from a broad range of stakeholders. To involve industry participants and other stakeholders, a structure has been established. The membership and responsibilities for the following councils were explained:

- Leadership Council – including Workforce Board Chairs and CLEOs (Chief Local Elected Officials) or their representatives
- Regional Council– including Representatives of IDHS, DCEO, IDHS, ICCB, Labor, Regional Offices of Education, Economic Development Organizations, and the Private Sector, Community College Presidents, Chairs and Vice Chairs of Industry Councils and One-Stop Council, and Workforce Board Chairs

- Sector Councils– including representatives of Private Sector, Industry Associations, Summit Action Teams, Economic Development Organizations, and Chambers. The following sector councils have been established in the NE region:
  - § Healthcare
  - § Manufacturing
  - § Transportation/Warehousing/Logistics
- One-Stop Council– including representative for One-Stop partner from each Local Workforce Area.
- Stakeholder Forums, such as this for interested groups including:
  - Community Based Organizations
  - Economic Dev. Organizations
  - Foundations
  - Chambers of Commerce
  - Education for Employment/Tech Prep System
  - Community Colleges and Universities
  - Industry Associations
  - One-Stop partners
  - Private Sector
  - Workforce Boards
  - Elementary and Secondary Education
  - Legislators
  - Local Elected Officials

Question: Will the report submitted April 21 be available on web site?

Answer: All reports will be made available on the web site as soon as possible after they are submitted to DCEO. The website address is [www.WorkforceBoardsMetroChicago.org](http://www.WorkforceBoardsMetroChicago.org)

#### Northeast Economic Development Region's Process/Key Activities

Introduction of Graham Toft, Hudson Institute, to review the process/key activities being used in the Northeast Region. Hudson will gather key information from multiple sources and use it to produce the reports that must be submitted to DCEO for the CSSI initiative.

Graham Toft, Hudson Institute (following is a summary of Dr. Toft's remarks)

- § The CSSI is an exciting and innovative initiative by the state of Illinois
- § The need for this has been discussed for years, but we clearly something different in today's economic, whether you call it the "new" economy, or innovation-economy, or high-tech economy. It requires new skills from the workforce.
- § The regional nature of the project is exciting, especially for the Northeast Economic Development region, because of the size and diversity of its economy.
- § The project will utilize a two-pronged approach, including both primary data from practitioners in the various sectors, and secondary data from economic and other databases, including Industry projections, Occupational projections, New hires data, ES 202 data, Dunn & Bradstreet data, local economic research, etc.
- § Hudson will utilize its proprietary data platform JOWE© (Jobs, Occupations, Wages, and Education) for statistical analyses of these various data sources.
- § If participants know of additional research, reports, or data that may be helpful, or know of individuals or organizations that you feel should be included in surveys and/or focus groups, Hudson requests that these be provided.



Q: What is the mechanism for providing input?

A: Contact Jan Etzkorn, [jetz66@aol.com](mailto:jetz66@aol.com) with information and/or questions.

Q: There are many young African-american ex-offenders in Chicago. How will this population be included in this study ?

A: This project focuses on the demand side of workforce issues for the entire Chicago Metropolitan Region. Specifically it is to identify occupational skill shortages (aka occupational demand) within the Region in three key sectors: Healthcare, Manufacturing, and Transportation/Warehousing/Logistics. The supply side of this equation can be addressed through specific solutions identified for the root causes of occupational skill shortages, which may include solutions targeted to specific populations.

- § A variety of contractors are being used to perform both primary and secondary research. Some of these activities include:
  - § Job Vacancy / Hard to Fill Jobs Surveys
  - § Employer Focus Groups
  - § Inventory of Producers
  - § Incumbent Worker Surveys & Focus Groups
  - § Career Awareness & Perception Analysis
  - § Assessment of Policies & Regulations
  - § Career Progression Analysis
- § Each of these contractors presented a brief summary of the process they will be using and the findings to-date, where available.

Kristin Wolff, Corporation for a Skilled Workforce (CSW)

CSW will complete the Career Progression Analysis, and Career Awareness and Perception Analysis. Wolff briefly described the process that will be used for each.

- § The Career Progression Analysis will look at how workers move up, at ways to encourage talent and develop a “new look” for career path analysis. It will include research on national, regional, and local business in the target sectors. Several key reports will be aggregated and analyzed as part of this effort. Three reports will be produced.
  - § Strategies to Address Skill and Knowledge Requirements
  - § Career Progression Scenarios in Critical Occupations/Industries
  - § Actions to Address Skill Shortage Occupations
- § The Career Awareness and Perception analysis will explore how people find out about work, how to get that work, and how to progress within an industry. CSW will conduct approximately 9 focus groups with a variety of populations who are seeking jobs. .CSW will be reporting back at various points on the findings of this effort.

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Q: There are over 100,000 students out of school. Could another focus group be added to include this at-risk group?

A: One focus group is being done at alternative school, which should include this population. Any specific information you may have on career awareness, career progression, or incumbent workers related to a specific population should be sent to Jan Etzkorn. [Jetz66@aol.com](mailto:Jetz66@aol.com)

Q: Will these reports be published?

A: All reports will be made available on the web site after they are complete at [www.WorkforceBoardsMetroChicago.org](http://www.WorkforceBoardsMetroChicago.org)

Manufacturing Sector and Transportation/Warehousing/Logistics Sector

As the projects for these sectors have later timelines, these activities are at an earlier stage.

Timelines for both Manufacturing and Transportation/Warehousing/Logistics are as follows:

- § Critical Skill Shortages report, due June 4, 2004
- § Root Causes report, due July 16, 2004
- § Regional Solutions report, due Sept. 30, 2004
- § Grant application, due October 21, 2004.
- § DCEO to award funds by January 1, 2005

For both these sectors, the following activities are underway:

- § Illinois Dept. of Employment Security has begun Job Vacancy/Hard to Fill Job Surveys
- § CSW has begun Employer Focus Groups, and will do Incumbent Worker surveys and focus groups.
- § Hudson will be preparing reports for these sectors.

Each was briefly described by the contractor.

Bruce Bernardi, Illinois Dept. of Employment Security

Bruce described the approach DES is taking to complete Job Vacancy surveys for Manufacturing (both durable and nondurable), Wholesale trade, and Transportation and Warehousing.

- § Employers have been identified by NAIC code
- § Surveys have been distributed to over 5300 employers and will be collected until the end of April.
- § As of April 23, the response rate is above 50 percent. The target is 60 percent.
- § The final report will be submitted May 20, 2004. This final report will provide information for the entire region, and provide breakdowns by local workforce areas.
- § DES has already delivered a list of employers who have indicated a willingness to participate in focus groups.

Q: Are all 10 counties included in the sample and what percent of total employers are by county?

A: Yes, all 10 counties are included in the study. The final report will provide breakdowns by local workforce areas, but that information is not available today. All reports submitted will be posted on the Metro Region website at [www.WorkforceBoardsMetroChicago.org](http://www.WorkforceBoardsMetroChicago.org). Please check there for the full reports and analysis.

Q: Is the survey done?

A: No, responses are being accepted until April 30, 2004.

Kristin Wolff, Corporation for a Skilled Workforce

CSW will also conduct focus groups and worker surveys for these sectors.

- § The plan is to complete 5 employer focus groups in manufacturing, and 5 in transportation/warehousing/logistics. These will provide a mix of sub-sectors and regions. Some structured interviews will also be completed with employers.
- § Surveys are being done using both on-line and written forms.
- § Data collection is to be completed by May 30. The analysis and report are to be completed by early June.
- § The initial focus groups have included firms with sizes ranging from 8-3,000 employees. 2/3 are between 100-1,000. These indicate:
  - Larger firms hiring less, smaller hiring more
  - 60 percent regularly use “alternative labor”
  - 20 occupations identified as “hard-to-fill”, many entry- and senior-level, fewer in middle (pay \$7-\$40/hr)
  - Referrals and newspapers primary recruiting resources—but employers uncertain which are most effective?

- Talent—availability and skills both challenges
- Long tenures are the norm (retention less of a problem)
- Most jobs require only GED or HS, though more education/experience is preferred
- Fewer women than men
- Proportion of immigrants growing
- § Though very preliminary, some “themes” are emerging from the early focus groups with employers, such as:
  - Profound uncertainty, and a hint of optimism
  - “The Image Problem” remains... Not new, but worse
  - Wanted: Employees with Workplace Basics! (then math – 5-6<sup>th</sup> grade basic math skills, reading, ESL, safety, technology, cultural competence, and skills related to specific occupation)
  - Short-term needs different than long-term needs
  - Enormous range of strategies for attracting & keeping workers
  - Struggle: *craft* vs. *job* (expectations)
  - Wholly inadequate “pipelines”
  - Confusion about roles and responsibilities for investing in next generation. Apprenticeships an area of tension.

Shane Burkhardt, Hudson Institute

Shane Burkhardt of the Hudson Institute returned to briefly describe the process Hudson will use to develop reports for these sectors.

The Critical Skill Shortages Report is due June 4, 2004. It will involve:

- § Review of Plans & Studies
- § Targeted Industry Validation
- § Assimilation with Primary Data
  - Focus Groups & Surveys (CSW)
  - Industry Group
- § JOWE© Analysis
- § Determination of Critical Occupations
- § Validation by industry representatives

The Root Causes Report is due July 16, 2004. It will involve an examination of underlying trends and systemic causes of shortages within the region.

Q: Will causes and solutions be specific to occupations?

A: Yes and No. Depending upon the cause, solutions may be unique to an occupation, or generic to many different occupations. For example, if lack of transportation is an issue for one occupation, it will likely be a cause for many others. Other causes might be much more occupation-specific, e.g., satisfaction with the job, competitive wage levels, shift schedules that do not allow opportunities to take additional training, etc.

Q: Will the Manufacturing study look at portability of skills, i.e., those which can be transferred to different employers?

A: This study will include input from a variety of reports and sources, many of which are likely to address this issue, including O\*Net, which is a national survey completed by workers, plus the employee and employer focus groups.

Q: What about national skills standards? There is an industry trend toward certification, such as ACT WorkKeys. Has skill certification come up in focus groups?

A: Assessment and certification approaches in general have come up in Employer focus groups. Specific assessment standards and/or approaches will be considered as appropriate, when solutions are identified and selected.

## Key Dates

- The schedule for upcoming Stakeholder Forums was announced. Some of these Forums will be focused on specific target sectors, as indicated below:

May 14	Stakeholder Forum 10-12 noon	Healthcare	The Hyatt Regency Chicago (Crystal Ballroom-West Tower) 151 East Wacker Drive Chicago, IL 60601
June 7	Stakeholder Forum 9-11 am	Healthcare Manufacturing Transportation/ Warehousing/ Logistics	The Hyatt Regency Chicago (Regency D-West Tower) 151 East Wacker Drive Chicago, IL 60601
August 12	Stakeholder Forum 1-3 pm	Manufacturing	The Conference Center UBS Tower One North Wacker, 2 <sup>nd</sup> Floor Chicago, IL 60606
August 13	Stakeholder Forum 1-3 pm	Transportation/ Warehousing/ Logistics	The Conference Center UBS Tower One North Wacker, 2 <sup>nd</sup> Floor Chicago, IL 60606

Others are TBD (To Be Determined), possibly October 5 for Manufacturing and Transportation/ Warehousing/ Logistics.

## Closing

Kilbride mentioned the Industry Sector-based Curricula being developed by TPMA with input from a working group of one-stop partners and others. A handout was provided to those interested. This online learning module for one-stop partners and executive staff to learn about the dynamics of the manufacturing and healthcare sectors is scheduled to be available by June 30, 2004. Contact Jan Etzkorn, jetz66@aol.com to be notified when curricula goes “live”.

Participants were asked to stay in touch with the ongoing CSSI effort in the Northeast Region by visiting the web site of the Workforce Boards of Metropolitan Chicago, at [www.WorkforceBoardsMetroChicago.org](http://www.WorkforceBoardsMetroChicago.org)

For questions about CSSI, contact Jan Etzkorn, jetz66@aol.com

Participants were thanked for their time and attention.

The meeting was adjourned at 3:50 p.m.

## Appendix G: Letters of Support

## Appendix H: Findings from Targeted Industry Analysis

## Transportation, Warehousing and Logistics<sup>27</sup>

Strong Performer - current strength, good national industry performance

SIC	Industry Name	Industry Employment (2000)	Percent Employment Change (1989-2000)	Location Quotient (2000)	Industry Mix (1989-2000)	Local Factors (1989-2000)
473	Freight Transportation Arrangement	13308	69.1%	2.100	0.337	0.128
478	Miscellaneous Transportation Services	3268	254.1%	1.873	1.590	0.724

Strong Performer - current strength, poor national industry performance

SIC	Industry Name	Industry Employment (2000)	Percent Employment Change (1989-2000)	Location Quotient (2000)	Industry Mix (1989-2000)	Local Factors (1989-2000)
507	Hardware, Plumbing & Heating Equipment	15262	21.7%	1.452	-0.113	0.104

Lagging Performer - high priority retention target

SIC	Industry Name	Industry Employment (2000)	Percent Employment Change (1989-2000)	Location Quotient (2000)	Industry Mix (1989-2000)	Local Factors (1989-2000)
502	Furniture And Homefurnishings	7956	0.9%	1.377	-0.103	-0.114
504	Professional & Commercial Equipment	44195	14.5%	1.421	-0.010	-0.071
509	Miscellaneous Durable Goods	14103	3.9%	1.264	-0.128	-0.059
516	Chemicals And Allied Products	7582	13.2%	1.422	0.002	-0.096

Poor Performer - prospects limited due to local weaknesses

SIC	Industry Name	Industry Employment (2000)	Percent Employment Change (1989-2000)	Location Quotient (2000)	Industry Mix (1989-2000)	Local Factors (1989-2000)
505	Metals And Minerals, Except Petroleum	14067	-9.3%	2.658	-0.128	-0.191
506	Electrical Goods	26704	-5.2%	1.385	-0.094	-0.184
508	Machinery, Equipment, And Supplies	34472	-16.5%	1.243	-0.206	-0.185
511	Paper And Paper Products	14098	-3.8%	1.573	-0.038	-0.226

Lagging Performer - prospects limited due to weak base and declining competitiveness

SIC	Industry Name	Industry Employment (2000)	Percent Employment Change (1989-2000)	Location Quotient (2000)	Industry Mix (1989-2000)	Local Factors (1989-2000)
422	Public Warehousing And Storage	7830	47.1%	1.153	0.579	-0.334
503	Lumber And Construction Materials	6736	0.6%	0.705	0.009	-0.229
514	Groceries And Related Products	30626	5.6%	0.991	-0.111	-0.059

Poor Performer - prospects limited overall

SIC	Industry Name	Industry Employment (2000)	Percent Employment Change (1989-2000)	Location Quotient (2000)	Industry Mix (1989-2000)	Local Factors (1989-2000)
421	Trucking & Courier Services, Ex. Air	50125	-1.9%	0.939	-0.125	-0.120
501	Motor Vehicles, Parts, And Supplies	15679	-2.1%	0.911	-0.097	-0.150
512	Drugs, Proprietarys, And Sundries	7198	-7.9%	0.837	0.169	-0.474
513	Apparel, Piece Goods, And Notions	4085	-17.9%	0.577	-0.177	-0.228
517	Petroleum And Petroleum Products	1941	-63.7%	0.391	-0.514	-0.349
518	Beer, Wine, And Distilled Beverages	5585	-1.1%	1.036	-0.121	-0.116
519	Misc. Nondurable Goods	17006	-2.2%	0.948	-0.094	-0.155

## Appendix I: Notes on Analysis Data Sources

### Critical Occupations Analysis:

#### Staffing Pattern:

Disclosure issues at the county and PMSA (Primary Metropolitan Statistical Area) geographic level prohibited use of region-specific staffing patterns, which identify the percentage of an industry occupied by a particular occupation. Furthermore, Illinois Department of Employment Security (IDES) was unable to release a full set of statewide staffing patterns due to data confidentiality laws. As the Chicago metropolitan region tends to mirror a national industry mix, it was determined that variance between a national staffing pattern and regional staffing pattern would not have a significant impact on critical occupation findings.

Industry-specific occupational employment is determined by compiling regional employment by industry data and national staffing patterns. The product of this compilation will be referred to as “Magnitude,” and is a measure of the employment demand of an occupation in the industry. Magnitude is identified by Standard Occupational Classification code, or SOC, a classification system for occupations established by the federal government. All occupational analysis in this report will be conducted according to SOC.

Source: Occupational Employment Survey: 2002 National 4-Digit NAICS Industry-Specific Estimates. Bureau of Labor Statistics. Available online at [http://www.bls.gov/oes/oes\\_dl.htm#2002](http://www.bls.gov/oes/oes_dl.htm#2002).

#### Regional Employment by Industry:

Regional employment by industry is available from ES-202 covered wage data administered by both IDES and U.S. Dept. of Labor. This data set is available at the county level, and has been aggregated across the EDR region. Because of disclosure issues and project timing, Hudson Institute utilized data from the Minnesota IMPLAN group, which adjusts industry employment to overcome disclosure issues. IDES did supply 2003 ES-202 data aggregated at the regional level (to avoid disclosure issues). Due to project deadlines, this data was not received in time to employ in the analysis, but will be used for the remaining CSS analysis.

Source: Covered Employment and Wages Program, 2002. Bureau of Labor Statistics; statistical adjustment performed by Minnesota IMPLAN Group, Inc.

#### Wages:

The wages measured in the critical occupation analysis are regional-level. The wages are not industry-specific, meaning that the wages listed for Registered Nurses are not specific to hospitals or clinics; these wages are an average of Registered Nurse wages across all industries in which that occupation is employed. Wages correspond to the SOC.

Source: Median Annual Wages in the Northeast Illinois Economic Development Region, 2003 Quarter Three. Provided by the Illinois Department of Employment Security.

#### Job Zones:

O\*Net, the US Department of Labor’s Employment and Training Administration database, identifies the general education and training levels required for job performance for each occupation in the Standard Occupational Classification system.

Source: Job Zones from the O\*NET 5.1 database. National O\*NET Consortium. Available online at <http://www.onetcenter.org/database.html#download>.

#### Projections:

The IDES provided occupational projections for the Chicago PMSA for the years 2000 through 2010. The projections include a growth rate for the occupation across the ten-year period, and the total number of jobs opening each year as a result of industry growth and replacement needs (retirement, turnover, etc.). The



project team understands the state is requiring 10 year projections, but are unable to meet that requirement as IDES may not release 2002 – 2012 projections until third-quarter 2004. Projection data is organized by SOC.

Source: Occupational Employment Projections in Chicago PMSA for a base year of 2000 and a projected year of 2010. Illinois Workforce Info Center. Available online at <http://wic.ilworkinfo.com/analyzer/session/occupation.asp?cat=OCC>.

## Appendix J: Methodology for Selection of Critical Occupations

The occupations analyzed in this report are critical to Northeastern Illinois' manufacturing industries. The Transportation, Warehousing, and Logistics sector is made up of the following industries:

### Railroad Transportation

NAICS 4821 – Rail Transport

NAICS 4882 – Rail Transport Support

### Trucking and Intercity Courier

NAICS 4841 – General Freight Trucking

NAICS 4842 – Specialized Freight Trucking

NAICS 4921 – Couriers

### Warehousing and Storage

NAICS 4931 – Warehousing and Storage

### Transportation Services

NAICS 4884 – Support Activities for Road Transportation

NAICS 4885 – Freight Transportation Arrangement

### Wholesale Trade Durable Goods

NAICS 4231 - Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers

NAICS 4232 - Furniture and Home Furnishing Merchant Wholesalers

NAICS 4233 - Lumber and Other Construction Materials Merchant Wholesalers

NAICS 4234 - Professional and Commercial Equipment and Supplies Merchant Wholesalers

NAICS 4235 - Metal and Mineral (except Petroleum) Merchant Wholesalers

NAICS 4236 - Electrical and Electronic Goods Merchant Wholesalers

NAICS 4237 - Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers

NAICS 4238 - Machinery, Equipment, and Supplies Merchant Wholesalers

NAICS 4239 - Miscellaneous Durable Goods Merchant Wholesalers

### Wholesale Trade Non-Durable Goods

NAICS 4241 - Paper and Paper Product Merchant Wholesalers

NAICS 4242 - Drugs and Druggists' Sundries Merchant Wholesalers

NAICS 4243 - Apparel, Piece Goods, and Notions Merchant Wholesalers

NAICS 4244 - Grocery and Related Product Wholesalers

NAICS 4245 - Farm Product Raw Material Merchant Wholesalers

NAICS 4246 - Chemical and Allied Products Merchant Wholesalers

NAICS 4247 - Petroleum and Petroleum Products Merchant Wholesalers

NAICS 4248 - Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers

NAICS 4249 - Miscellaneous Nondurable Goods Merchant Wholesalers

The Transportation, Warehousing, and Logistics sector in Northeastern Illinois has been identified as a targeted industry by Workforce Boards of Metropolitan Chicago. This assessment has been verified independently by Hudson Institute through additional target industry analysis. Findings from this analysis are available in this report.

### 1. Critical Occupations Analysis

“Critical occupations” are those that are vitally important to the overall health of an industry. Critical occupations are those that experience strong employment demand, provide good wages, are critical to industry competitiveness, and are appropriate for targeting for the workforce system.

WORKFORCE BOARDS OF METROPOLITAN CHICAGO has access to two sets of critical occupations generated by different methods. One is the Hudson Institute’s analysis of critical occupations conducted for this report. The other is an analysis by IDES for their survey of manufacturing employers in the region. Hudson’s analysis identified 20 critical occupations, while IDES’s research identified 20 critical occupations in each sector.

Hudson Institute’s methodology for identifying critical occupations in targeted industries melds data from several different sources and measures occupations using factors that determine the impact of the occupation on the industry as a whole. The critical occupations model utilizes five secondary data sets:

Regional Employment by Industry: Covered Employment and Wages Program, 2002. Bureau of Labor Statistics; statistical adjustment performed by Minnesota IMPLAN Group, Inc.

1. This data set is available at the county level, and has been aggregated across the 10-county region. Because of disclosure issues, Hudson Institute utilized data from the Minnesota IMPLAN group, which adjusts industry employment to overcome disclosure issues. This data set is the most complete available for this level of geography. This data is also more recent than that available through the IDES, from which data was initially sought. It is available online at [http://www.bls.gov/oes/oes\\_dl.htm#2002](http://www.bls.gov/oes/oes_dl.htm#2002).

2. Disclosure issues at the county and PMSA geographic level prohibited use of region-specific staffing patterns, which identify the percentage of an industry occupied by a particular occupation. In addition, because the industry data utilized in the study is organized by 4-digit NAICS (North American Industry Classification System), staffing patterns corresponding to NAICS were needed. Staffing patterns were not available for either the region or state using NAICS.

3. Industry-specific occupational employment is determined by compiling regional employment by industry data and national staffing patterns. The product of this compilation will be referred to as “Magnitude,” and is a measure of the employment demand of an occupation in the industry. Magnitude is identified by Standard Occupational Classification code, or SOC. All occupational analysis in this report will be conducted according to SOC.

Wages: Median Annual Wages in the Northeast Illinois Economic Development Region, 2003 Quarter Three. Provided by the Illinois Department of Employment Security.

4. The wages measured in the critical occupation analysis are regional-level. The wages are not industry-specific, meaning that the wages listed for Registered Nurses are not specific to hospitals or clinics; these wages are an average of Registered Nurse wages across all industries in which that occupation is employed. Wages correspond to the SOC.

Projections: Occupational Employment Projections in Chicago PMSA for a base year of 2000 and a projected year of 2010. Illinois Workforce Info Center. Available online at <http://wic.ilworkinfo.com/analyzer/session/occupation.asp?cat=OCC>

5. The IDES provided occupational projections for the Chicago PMSA for the years 2000 through 2010. The projections include a growth rate for the occupation across the ten-year period, and the total number of jobs opening each year as a result of industry growth and replacement needs (retirement, turnover, etc.). Projection data is organized by SOC.

Job Zones: Job Zones from the O\*NET 5.1 database. National O\*NET Consortium. Available online at <http://www.onetcenter.org/database.html#download>.

6. O\*Net, the US Department of Labor's Employment and Training Administration database, identifies the general education and training levels required for job performance for each occupation in the Standard Occupational Classification system.

When available, all data is aggregated across the ten-county region. While, to some extent, data at the county level is available, the analysis recognizes the fact that economies and workforces, particularly those in metropolitan areas, supercede county lines. Workforces in particular are highly mobile and efforts taken to train workers in one county will affect the entire region.

In measuring critical occupations, four factors are weighed. Each factor contributes to the overall competitive rating of the occupation.

Magnitude: The total occupational employment in the industry. This factor measures the current employment demand of the occupation in the industry.

To apply scores for Magnitude, the average of all occupational employment in the industry was determined. Scores were given according to distribution above the mean.

- a) Returns falling below the mean received a score of zero
- b) Returns falling between the mean and .5 standard deviation above the mean received a score of six
- c) Returns falling between .5 standard deviation and one standard deviation above the mean received a score of seven
- d) Returns falling between one standard deviation and 1.5 standard deviation above the mean received a score of eight
- e) Returns falling between 1.5 standard deviation and two standard deviation above the mean received a score of nine
- f) Returns falling above two standard deviation above the mean received a score of 10

Annual Wage: The average annual wage/salary of the occupation in the region. This factor measures the earning strength of occupations in the industry.

To apply scores for Annual Wages, the average of all wages in the industry was determined. Scores were given according to distribution above the mean

- a) Returns falling below the mean received a score of zero
- b) Returns falling between the mean and one standard deviation above the mean received a score of three.
- c) Returns falling between one standard deviation and two standard deviations above the mean received a score of four
- d) Returns falling above two standard deviations above the mean received a score of five
  - (1) Scores for wages were not highly distributed because, while higher wages do contribute to the overall health of the industry and economy, they do not necessarily imply the "critical-

ness” of an occupation. For example, the highest paid occupations in the Transportation, Warehousing, and Logistics industry are executives, yet few would argue that either of those occupational groups are “critical” in terms of recruiting efforts. However, those occupations which earn very little money may not be critical either, as they require very little training and may be easily filled.

Projections: The number of annual openings from 2000 to 2010 for each occupation in the region. Projections are not industry-specific. The projected number of job openings includes those generated by industry growth and replacements: workers needed to replace those who have retired, quit, changed careers, etc. This factor measures the future demand of an occupation.

To apply scores for Projections, the average of all projected job openings in each occupation was determined. Scores were given according to distribution above the mean.

- a) Returns falling below the mean received a score of zero
- b) Returns falling between the mean and .5 standard deviation received a score of one
- c) Returns falling between .5 standard deviation and one standard deviation received a score of two
- d) Returns falling between one standard deviation and 1.5 standard deviation received a score of three
- e) Returns falling between 1.5 standard deviation and two standard deviations received a score of four
- f) Returns falling above two standard deviations received a score of five

- (1) Projections scores were not highly weighted because many occupations have exceptionally high employment in the Transportation, Warehousing, and Logistics industry and as such, will have exceptionally high annual job openings. However, smaller occupations that are very hard to fill but do not have high numbers of annual openings may be just as critical to the industry.

JobZone Training Levels: The training or education requirement identified by the US Department of Labor’s Employment and Training Administration. This factor measures the training competitiveness in each occupation; occupations requiring high levels of education and training will ultimately be more difficult to fill.

To apply scores for JobZone Training Levels, the level indicated was simply utilized as a score. Thus, a JobZone level of 5 received 5 points.

- Level 1 - Requires a high school diploma or GED certificate. May require some formal training to obtain licensing.
- Level 2 - Usually requires a high school diploma in addition to some vocational or on-the-job training.
- Level 3 - Requires on-the-job training, vocational education or an associate’s degree. Some positions may require a bachelor’s degree.
- Level 4 - Most positions require a 4-year bachelor’s degree, but some do not.
- Level 5 - Minimum requirement is a bachelor’s degree. Some positions may require graduate school, such as Ph.D., MD, JD, etc.

The total score by which each occupation was ranked is a sum of the above factor scores. The total number of points possible was 25.

Z-statistics were calculated for the Total Score for each occupation. Those occupations with a Z-statistic of greater than 0.8427 are considered critical.

## 2. Documentation of Skills and Important Attributes Analysis

The US Department of Labor’s Employment and Training Administration’s Occupational Employment Network, O\*Net, is the only available data tool with which one can conduct large scale occupational skills analysis. O\*Net is a survey-based data tool that reports on job attributes and activities that one will be expected to possess and perform during job performance. For the purposes of this project, two data sets were utilized: Knowledge Areas and Skills Areas.

O\*Net profiles 33 Knowledge areas and 35 Skill areas, and assigns to these attributes a "level" score, which indicates the proficiency which with the worker needs to possess the attribute. Knowledge areas can be understood to be academic or "hard" skills mainly learned on the job or during training. Skills areas may be understood as traits or "soft" attributes that an employee generally possesses before starting the job, but are required for sufficient job performance.

Both Knowledge Areas and Skills Areas are important for workforce development efforts. When looking at either individual occupations or groups of occupations, it is valuable to determine the types of knowledge and skills each worker will need in order to perform his or her job at a sufficient level; it can assist in the targeting and recruitment of workers in critical occupations and can assist human resources directors in interviewing and subsequently hiring workers with the appropriate knowledge and skill levels. This type of analysis is also helpful in curriculum development efforts. To combat worker shortages, educational institutions in the area may begin offering programs to encourage students to go into these occupations or programs to train incumbent workers up the career ladder. While the attributes profiled through O\*Net are not occupation-specific, curriculum developers may discover attributes required that have been lacking in previous programs.

### 3. Determining Important Attributes for Occupational Groups

Because training efforts may include targeting a group of occupations with a focus on developing career paths, this report includes an analysis of the Important Attributes for occupational groups. Because of the varying capacities each of the critical occupations, we have completed four separate occupational group attributes analyses:

- § Business, Financial and Administrative Occupations
- § Mechanical Occupations
- § Administrative Production Occupations
- § Transportation Occupations

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Important Attributes analysis for a group of occupations takes into account both the level of competence with which occupations are required to perform an attribute, as well as the size of the occupation in the industry. Ultimately, the Important Attributes scores indicate the Knowledge and Skill Areas that require the highest level of competence from the greatest number of workers currently employed in the industry. In curriculum development terms, these attributes will be the academic and training areas in which the greatest number of students should be instructed at the highest levels.

Determining Important Attributes for a group of occupations is a four-step process:

1. Multiply "level" score by occupational industry employment across attributes
2. Compile results from Step One by attribute
3. Rank results from Step Two by attribute, creating a ranked list of attributes
4. Divide all scores in the ranked list by the greatest score in that list, creating an index score, and multiply by 100. The highest possible score will be 100.

## Appendix K: Critical Occupation Scoring Sheets

### Transportation & Warehousing

occ_code	occ_title	Employment	Employment SCORE	Mean Annual Wage	wage SCORE	2000-2010 proj annual %	Annual Pct Change SCORE	2000-2010 proj annual total growth + rep	Annual Total Change SCORE	Job Zone	Job Zone SCORE
111021	General and Operations Managers	1751.7	7	89314	5	1.2	0	2405.0	5	5	5
533032	Truck Drivers, Heavy and Tractor-Trailer	23425	10	40247	3	1.8	0	2118.0	5	1.5	2
439061	Office Clerks, General	2968.5	9	24633	3	1.4	0	3377.0	5	2	2
434051	Customer Service Representatives	1673.4	7	31349	3	2.5	0	2695.0	5	2	2
537062	Laborers and Freight, Stock, and Material Movers, Hand	11947	10	20775	0	1.1	0	3612.0	5	1.3	2
132011	Accountants and Auditors	446.61	6	53159	4	1.4	0	1077.0	2	4	4
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	687.86	6	53171	4	0.3	0	1631.0	4	2	2
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	1456.1	7	44768	4	0.7	0	1170.0	2	3	3
436011	Executive Secretaries and Administrative Assistants	517.15	6	36550	3	1.0	0	1307.0	3	4	4
533033	Truck Drivers, Light or Delivery Services	6711.5	10	32374	3	1.4	0	990.0	2	1	1
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	451.48	6	22758	3	1.4	0	2841.0	5	1	1
435081	Stock Clerks and Order Fillers	2931	8	21574	0	0.4	0	2271.0	5	1.5	2
534011	Locomotive Engineers	1355.2	7	49460	4	1.9	0	80.0	0	4	4
534031	Railroad Conductors and Yardmasters	1684.1	7	\$44,451	4	-0.5	0	83.0	0	4	4
537051	Industrial Truck and Tractor Operators	5029.1	10	30625	3	1.0	0	450.0	1	1	1
113071	Transportation, Storage, and Distribution Managers	1130.1	6	64039	4	1.4	0	161.0	0	4	4
433031	Bookkeeping, Accounting, and Auditing Clerks	1283.3	7	31845	3	0.4	0	1161.0	2	2	2
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	443.02	6	57228	4	1.3	0	393.0	0	4	4
531031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	1792.8	7	48008	4	1.6	0	182.0	0	3	3
111011	Chief Executives	263.08	0	142019	5	1.5	0	1339.0	3	4.5	5
291111	Registered Nurses	2.8198	0	51536	4	1.9	0	2811.0	5	4	4
435071	Shipping, Receiving, and Traffic Clerks	2434	8	27071	3	0.6	0	767.0	1	1	1



436014	Secretaries, Except Legal, Medical, and Executive	730.17	6	31741	3	-0.1	0	868.0	2	2	2
493031	Bus and Truck Mechanics and Diesel Engine Specialists	1630	7	39888	3	0.9	0	244.0	0	3	3
499042	Maintenance and Repair Workers, General	672.9	6	36418	3	0.5	0	647.0	1	3	3
531021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	1142.6	6	41527	4	1.0	0	141.0	0	3	3
113031	Financial Managers	179.46	0	88657	5	1.7	0	870.0	2	4.5	5
412011	Cashiers	454.34	6	17072	0	1.0	0	5403.0	5	1	1
433021	Billing and Posting Clerks and Machine Operators	738.89	6	30214	3	0.5	0	455.0	1	1.7	2
435011	Cargo and Freight Agents	1869.6	7	32487	3	0.1	0	43.0	0	2	2
435032	Dispatchers, Except Police, Fire, and Ambulance	1717.6	7	35362	3	2.0	0	216.0	0	2	2
493043	Rail Car Repairers	593.29	6	33767	3	-0.4	0	23.0	0	3	3
514121	Welders, Cutters, Solderers, and Brazers	387.77	6	33889	3	1.8	0	607.0	1	2	2
534021	Railroad Brake, Signal, and Switch Operators	705.8	6	\$46,086	4	-8.0	0	52.0	0	1.5	2
113021	Computer and Information Systems Managers	97.528	0	92160	5	3.4	0	609.0	1	5	5
151031	Computer Software Engineers, Applications	5.6396	0	69751	4	6.7	0	1483.0	3	4	4
231011	Lawyers	10.817	0	113356	5	1.3	0	478.0	1	5	5
434151	Order Clerks	766.49	6	27005	3	-1.0	0	295.0	0	2	2
537064	Packers and Packers, Hand	1671.1	7	19009	0	1.4	0	1323.0	3	1	1
112022	Sales Managers	226.55	0	90226	5	2.4	0	684.0	1	4	4
119041	Engineering Managers	28.426	0	90595	5	0.5	0	209.0	0	5	5
151051	Computer Systems Analysts	48.467	0	69856	4	4.4	0	1283.0	3	3	3
412031	Retail Salespersons	348.96	0	22872	3	0.8	0	5207.0	5	2	2
435021	Couriers and Messengers	574.1	6	23703	3	-0.9	0	155.0	0	1	1
474061	Rail-Track Laying and Maintenance Equipment Operators	371.78	6	26739	3	-3.0	0	11.0	0	1	1
112021	Marketing Managers	90.775	0	86837	5	2.5	0	385.0	0	4	4
113011	Administrative Services Managers	153.52	0	54331	4	1.9	0	576.0	1	4	4
131111	Management Analysts	42.879	0	84941	5	1.9	0	406.0	0	4	4
132051	Financial Analysts	9.6476	0	63368	4	1.8	0	271.0	0	5	5
151021	Computer Programmers	133.57	0	63422	4	1.2	0	711.0	1	4	4
151071	Network and Computer Systems Administrators	75.37	0	62524	4	5.8	0	638.0	1	4	4
172041	Chemical Engineers	2.8198	0	69679	4	-0.6	0	29.0	0	5	5
172071	Electrical Engineers	8.4594	0	68102	4	0.3	0	88.0	0	5	5
172072	Electronics Engineers, Except Computer	2.8198	0	66554	4	1.5	0	119.0	0	5	5
172111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	203.32	0	57382	4	0.9	0	17.0	0	4.3	5
273042	Technical Writers	1.99	0	51442	4	2.0	0	95.0	0	5	5
299010	Occupational Health and Safety Specialists and Technicians	22.659	0	47156	4	2.1	0	50.0	0	5	5
339032	Security Guards	180.53	0	22418	3	3.7	0	2194.0	5	1	1



413031	Securities, Commodities, and Financial Services Sales Agents	12.287	0	94945	5	1.5	0	365.0	0	3.5	4
419031	Sales Engineers	11.472	0	67206	4	0.5	0	93.0	0	5	5
472031	Carpenters	77.305	0	46802	4	0.8	0	868.0	2	2.8	3
492095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	4.3268	0	43750	4	-0.3	0	13.0	0	5	5
532011	Airline Pilots, Copilots, and Flight Engineers	25.544	0	145862	5	0.2	0	139.0		4	4
112011	Advertising and Promotions Managers	16.985	0	77109	4	2.6	0	193.0	0	4	4
112031	Public Relations Managers	4.9832	0	72572	4	3.0	0	114.0	0	4	4
113040	Human Resources Managers	111.26	0	80115	4	1.7	0	415.0	0	4	4
113051	Industrial Production Managers	26.817	0	76585	4	0.1	0	122.0	0	4	4
113061	Purchasing Managers	33.528	0	65178	4	-0.4	0	191.0	0	4	4
119011	Farm, Ranch, and Other Agricultural Managers	2.8198	0	44781	4	0.9	0	29.0	0	4	4
119021	Construction Managers	32.432	0	78209	4	1.6	0	211.0	0	4	4
119141	Property, Real Estate, and Community Association Managers	2.8198	0	64413	4	1.4	0	230.0	0	4	4
131021	Purchasing Agents and Buyers, Farm Products	5.6396	0	50542	4	0.5	0	20.0	0	4	4
131023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	63.245	0	49955	4	0.7	0	179.0	0	4	4
131032	Insurance Appraisers, Auto Damage	3.8934	0	44018	4	1.6	0	20.0	0	4	4
131041	Compliance Officers, Except Agriculture, Construction, Health and Safety, and Transportation	43.929	0	52704	4	0.8	0	87.0	0	3.5	4
131051	Cost Estimators	81.263	0	52342	4	1.7	0	283.0	0	4	4
131073	Training and Development Specialists	84.701	0	52198	4	2.0	0	263.0	0	4	4
132031	Budget Analysts	19.826	0	52443	4	1.9	0	108.0	0	4	4
132041	Credit Analysts	2.8198	0	48253	4	0.7	0	70.0	0	4	4
151041	Computer Support Specialists	123.12	0	45211	4	6.0	0	1387.0		4	4
151061	Database Administrators	50.094	0	58423	4	4.8	0	275.0	0	4	4
151081	Network Systems and Data Communications Analysts	17.121	0	63193	4	5.7	0	263.0	0	4	4
152031	Operations Research Analysts	23.457	0	63607	4	1.9	0	76.0	0	4	4
172051	Civil Engineers	20.127	0	63591	4	1.0	0	191.0	0	4	4
172061	Computer Hardware Engineers	5.6396	0	70185	4	2.1	0	29.0	0	4	4
172112	Industrial Engineers	38.176	0	64547	4	-0.3	0	78.0	0	4	4
172141	Mechanical Engineers	8.4594	0	64866	4	0.8	0	293.0	0	4	4
173013	Mechanical Drafters	2.8198	0	42580	4	0.7	0	64.0	0	4	4
173023	Electrical and Electronic Engineering Technicians	39.865	0	43292	4	1.7	0	289.0	0	4	4
191010	Agricultural and Food Scientists	2.8198	0	56572	4	0.3	0	14.0	0	4	4
193021	Market Research Analysts	14.468	0	45981	4	1.6	0	164.0	0	4	4
232011	Paralegals and Legal Assistants	2.1634	0	43594	4	1.6	0	110.0	0	4	4
251194	Vocational Education Teachers, Postsecondary	3.013	0	43198	4	2.0	0	61.0		4	4
271021	Commercial and Industrial Designers	5.6396	0	52470	4	1.4	0	27.0	0	4	4

271024	Graphic Designers	5.6396	0	42583	4	2.5	0	213.0	0	4	4
273031	Public Relations Specialists	21.296	0	41569	4	3.2	0	269.0	0	4	4
291051	Pharmacists	22.752	0	74725	4	1.7	0	350.0	0	4	4
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	33.499	0	60723	4	0.4	0	501.0	1	2.5	3
434171	Receptionists and Information Clerks	290.42	0	22683	3	1.9	0	1390. 0	3	2	2
471011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	165.68	0	53067	4	1.0	0	321.0	0	3.5	4
472011	Boilermakers	16.226	0	55375	4	0.6	0	30.0	0	4	4
472061	Construction Laborers	35.572	0	41329	3	3.2	0	1566. 0	3	2	2
472111	Electricians	117.98	0	51026	4	1.7	0	747.0	1	3	3
472152	Plumbers, Pipefitters, and Steamfitters	25.998	0	63586	4	1.0	0	430.0	1	3	3
492022	Telecommunications Equipment Installers and Repairers, Except Line Installers	47.28	0	47675	4	-1.2	0	33.0	0	3.2	4
493011	Aircraft Mechanics and Service Technicians	2.4574	0	51746	4	1.5	0	197.0	0	3.7	4
493023	Automotive Service Technicians and Mechanics	238.53	0	39055	3	1.8	0	982.0	2	2.5	3
499021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	40.753	0	50023	4	1.6	0	83.0	0	3.5	4
499044	Millwrights	9.2912	0	45696	4	0.1	0	70.0	0	4	4
499051	Electrical Power-Line Installers and Repairers	11.279	0	\$49,569	4	-0.4	0	102.0	0	4	4
499097	Signal and Track Switch Repairers	337.65	0	\$42,129	4	-1.4	0	5.0	0	4	4
511011	First-Line Supervisors/Managers of Production and Operating Workers	261.84	0	47697	4	0.1	0	657.0	1	3	3
514111	Tool and Die Makers	2.8198	0	45547	4	-0.2	0	155.0	0	4	4
515021	Job Printers	5.6396	0	36785	3	0.2	0	50.0	0	5	5
518093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	11.787	0	48649	4	-0.2	0	16.0	0	3.3	4
535021	Captains, Mates, and Pilots of Water Vessels	7.3722	0	54679	4	0.1	0	8.0	0	4	4
537061	Cleaners of Vehicles and Equipment	418.9	6	18366	0	2.2	0	503.0	1	1	1
131022	Wholesale and Retail Buyers, Except Farm Products	33.838	0	51096	4	-0.6	0	140.0	0	3	3
131031	Claims Adjusters, Examiners, and Investigators	15.993	0	41245	3	1.5	0	223.0	0	3.5	4
131071	Employment, Recruitment, and Placement Specialists	74.026	0	49375	4	1.5	0	193.0	0	3	3
131072	Compensation, Benefits, and Job Analysis Specialists	35.133	0	52314	4	1.4	0	102.0	0	3	3
173026	Industrial Engineering Technicians	5.6396	0	41872	4	0.5	0	60.0	0	3	3
351012	First-Line Supervisors/Managers of Food Preparation and Serving Workers	8.4594	0	27280	3	1.3	0	611.0	1	3	3

371011	First-Line Supervisors/Managers of Housekeeping and Janitorial Workers	19.771	0	36939	3	1.1	0	242.0	0	3.5	4
373011	Landscaping and Groundskeeping Workers	28.121	0	22483	3	2.7	0	1311.0	3	1	1
411011	First-Line Supervisors/Managers of Retail Sales Workers	165.26	0	37701	3	0.8	0	944.0	2	2	2
411012	First-Line Supervisors/Managers of Non-Retail Sales Workers	178.24	0	59843	4	0.5	0	228.0	0	3	3
436012	Legal Secretaries	1.0817	0	45074	4	0.9	0	355.0	0	3	3
439031	Desktop Publishers	2.8198	0	39913	3	4.8	0	132.0	0	4	4
451011	First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	2.8198	0	28376	3	0.6	0	20.0	0	3.2	4
472073	Operating Engineers and Other Construction Equipment Operators	91.557	0	59349	4	0.7	0	206.0	0	2.5	3
472141	Painters, Construction and Maintenance	11.196	0	40339	3	1.1	0	328.0	0	4	4
472211	Sheet Metal Workers	81.128	0	53562	4	2.1	0	311.0	0	3	3
472221	Structural Iron and Steel Workers	7.5719	0	60129	4	1.5	0	50.0	0	3	3
492011	Computer, Automated Teller, and Office Machine Repairers	39.477	0	35066	3	1.6	0	108.0	0	3.3	4
492092	Electric Motor, Power Tool, and Related Repairers	8.4594	0	44563	4	0.4	0	19.0	0	2.7	3
492094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	5.6396	0	45327	4	1.4	0	67.0	0	3	3
493021	Automotive Body and Related Repairers	34.27	0	44816	4	1.9	0	353.0	0	3	3
493042	Mobile Heavy Equipment Mechanics, Except Engines	25.34	0	40302	3	0.8	0	50.0	0	4	4
499011	Mechanical Door Repairers	3.2451	0	56326	4	-1.4	0	1.0	0	3	3
499012	Control and Valve Installers and Repairers, Except Mechanical Door	5.6396	0	\$50,626	4	-0.4	0	26.0	0	2.7	3
499031	Home Appliance Repairers	36.851	0	39306	3	1.2	0	68.0	0	3.5	4
499052	Telecommunications Line Installers and Repairers	2.8198	0	45016	4	1.6	0	158.0	0	3	3
512041	Structural Metal Fabricators and Fitters	2.8198	0	36625	3	1.1	0	60.0	0	4	4
514041	Machinists	297.48	0	33754	3	0.4	0	369.0	0	4	4
515022	Prepress Technicians and Workers	5.6396	0	41091	3	-2.3	0	110.0	0	3.8	4
516052	Tailors, Dressmakers, and Custom Sewers	5.6396	0	23539	3	-0.9	0	30.0	0	3.5	4
518021	Stationary Engineers and Boiler Operators	9.9664	0	55369	4	-0.1	0	67.0	0	2.5	3
536041	Traffic Technicians	4.3268	0	29888	3	0.8	0	4.0	0	4	4
536051	Transportation Inspectors	250.51	0	35988	3	2.8	0	56.0	0	3.2	4
194031	Chemical Technicians	2.8198	0	36215	3	0.7	0	94.0	0	3	3
271026	Merchandise Displayers and Window Trimmers	42.297	0	28011	3	1.6	0	56.0	0	3	3
274021	Photographers	2.8198	0	34887	3	0.8	0	71.0	0	3	3
333052	Transit and Railroad Police	67.065	0	61576	4	-1.8	0	1.0	0	2	2
352021	Food Preparation Workers	33.838	0	16153	0	1.5	0	2250.0	5	1	1

353021	Combined Food Preparation and Serving Workers, Including Fast Food	39.403	0	14492	0	2.4	0	3799.0	5	1	1
353031	Waiters and Waitresses	65.984	0	15870	0	1.7	0	4184.0	5	1	1
391021	First-Line Supervisors/Managers of Personal Service Workers	12.98	0	30220	3	1.6	0	117.0	0	3	3
413041	Travel Agents	2.4574	0	31282	3	-0.9	0	140.0	0	3	3
433011	Bill and Account Collectors	175.03	0	30983	3	2.1	0	744.0	1	2	2
435061	Production, Planning, and Expediting Clerks	331.02	0	32464	3	1.6	0	474.0	1	2	2
439011	Computer Operators	166.44	0	39161	3	-1.7	0	119.0	0	3	3
472151	Pipelayers	0.8318	0	50,165	4	1.1	0	42.0	0	2	2
475031	Explosives Workers, Ordnance Handling Experts, and Blasters	3.4062	0	48372	4	0.4	0	1.0	0	2	2
492021	Radio Mechanics	2.1634	0	27632	3	-3.7	0	2.0	0	3	3
492093	Electrical and Electronics Installers and Repairers, Transportation Equipment	173.5	0	41282	3	0.3	0	9.0	0	3	3
492097	Electronic Home Entertainment Equipment Installers and Repairers	14.099	0	38683	3	-2.3	0	16.0	0	3	3
493041	Farm Equipment Mechanics	2.8198	0	32721	3	0.4	0	42.0	0	3	3
499041	Industrial Machinery Mechanics	37.115	0	37513	3	0.8	0	217.0	0	3	3
499096	Riggers	16.525	0	35470	3	1.2	0	3.0	0	3	3
512092	Team Assemblers	172.78	0	24412	3	0.0	0	643.0	1	2	2
513011	Bakers	25.378	0	22291	3	1.2	0	149.0	0	3	3
513021	Butchers and Meat Cutters	31.018	0	25416	3	-0.7	0	102.0	0	3	3
513092	Food Batchmakers	16.919	0	24927	3	0.0	0	78.0	0	3	3
515023	Printing Machine Operators	14.099	0	30612	3	0.2	0	199.0	0	2.8	3
516063	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	8.4594	0	25005	3	1.3	0	7.0	0	3	3
516093	Upholsterers	11.279	0	25824	3	-2.3	0	18.0	0	3	3
517011	Cabinetmakers and Bench Carpenters	2.8198	0	31595	3	0.7	0	83.0	0	3	3
519061	Inspectors, Testers, Sorters, Samplers, and Weighers	303.23	0	29191	3	-0.2	0	374.0	0	2.8	3
534012	Locomotive Firers	33.533	0	\$38,690	3	1.8	0	3.0	0	3	3
537032	Excavating and Loading Machine and Dragline Operators	40.94	0	52331	4	1.8	0	125.0	0	2	2
537071	Gas Compressor and Gas Pumping Station Operators	5.6396	0	38903	3	0.8	0	4.0	0	3	3
537072	Pump Operators, Except Wellhead Pumps	14.679	0	50807	4	-0.7	0	5.0	0	2	2
537121	Tank Car, Truck, and Ship Loaders	195.71	0	38321	3	0.9	0	20.0	0	3	3
194011	Agricultural and Food Science Technicians	2.8198	0	34432	3	1.6	0	17.0	0	2	2
271023	Floral Designers	11.279	0	23758	3	0.6	0	72.0	0	2	2
339021	Private Detectives and Investigators	4.9832	0	39126	3	2.0	0	55.0	0	2	2
373012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	2.8198	0	30029	3	1.1	0	35.0	0	2	2
412022	Parts Salespersons	19.514	0	26913	3	-0.3	0	186.0	0	2	2
419041	Telemarketers	51.264	0	23609	3	2.3	0	666.0	1	1	1
433051	Payroll and Timekeeping	172.98	0	32763	3	0.2	0	206.0	0	2	2

	Clerks										
434021	Correspondence Clerks	33.756	0	28232	3	1.1	0	66.0	0	2	2
434161	Human Resources Assistants, Except Payroll and Timekeeping	124.7	0	31717	3	1.8	0	300.0	0	2	2
434181	Reservation and Transportation Ticket Agents and Travel Clerks	57.328	0	32109	3	0.6	0	209.0	0	2	2
439021	Data Entry Keyers	237.84	0	24057	3	0.3	0	315.0	0	2	2
439022	Word Processors and Typists	35.861	0	30132	3	-2.0	0	162.0	0	2	2
473013	Helpers--Electricians	1.0817	0	29532	3	1.2	0	23.0	0	2	2
474041	Hazardous Materials Removal Workers	5.5084	0	41030	3	3.0	0	75.0	0	2	2
499091	Coin, Vending, and Amusement Machine Servicers and Repairers	5.6396	0	33455	3	1.0	0	59.0	0	2	2
513023	Slaughterers and Meat Packers	5.6396	0	23143	3	0.3	0	64.0	0	2	2
514011	Computer-Controlled Machine Tool Operators, Metal and Plastic	2.8198	0	31444	3	1.2	0	288.0	0	2	2
514031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	11.279	0	25947	3	-0.9	0	248.0	0	2	2
514072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	33.838	0	26670	3	0.0	0	144.0	0	1.8	2
515011	Bindery Workers	5.6396	0	23425	3	0.2	0	150.0	0	1.5	2
517021	Furniture Finishers	14.099	0	26859	3	0.7	0	30.0	0	2	2
517041	Sawing Machine Setters, Operators, and Tenders, Wood	2.8198	0	22865	3	0.7	0	27.0	0	2	2
517042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	8.4594	0	24379	3	-0.2	0	40.0	0	1.5	2
518091	Chemical Plant and System Operators	2.8198	0	39329	3	-0.5	0	54.0	0	2	2
519032	Cutting and Slicing Machine Setters, Operators, and Tenders	16.919	0	28414	3	-0.3	0	33.0	0	1.5	2
519041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	8.4594	0	30040	3	0.3	0	53.0	0	1.5	2
519111	Packaging and Filling Machine Operators and Tenders	126.89	0	23009	3	1.7	0	557.0	1	1	1
519121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	11.279	0	26541	3	0.9	0	113.0	0	1.5	2
519122	Painters, Transportation Equipment	47.784	0	38709	3	1.9	0	46.0	0	2	2
519196	Paper Goods Machine Setters, Operators, and Tenders	14.099	0	26132	3	-1.0	0	105.0	0	2	2
531011	Aircraft Cargo Handling Supervisors	43.401	0	41647	4	2.3	0	20.0	0	1	1
534013	Rail Yard Engineers, Dinkey Operators, and Hostlers	166.33	0	\$39,163	3	-2.3	0	6.0	0	2	2
535011	Sailors and Marine Oilers	6.1435	0	26824	3	0.3	0	17.0	0	2	2
536011	Bridge and Lock Tenders	11.899	0	40608	3	-1.9	0	12.0	0	2	2
537021	Crane and Tower Operators	119	0	40696	3	0.2	0	46.0	0	2	2
352014	Cooks, Restaurant	14.062	0	20176	0	2.0	0	770.0	1	3	3

353022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	8.4594	0	18106	0	1.2	0	1405.0	3	1	1
419011	Demonstrators and Product Promoters	5.6396	0	31380	3	1.7	0	116.0	0	1	1
432011	Switchboard Operators, Including Answering Service	58.318	0	23964	3	-1.8	0	213.0	0	1	1
432021	Telephone Operators	2.1634	0	31838	3	-5.7	0	84.0	0	1	1
433061	Procurement Clerks	33.374	0	33630	3	-1.2	0	43.0	0	1	1
434041	Credit Authorizers, Checkers, and Clerks	22.413	0	31937	3	0.2	0	43.0	0	1	1
434071	File Clerks	138.97	0	23400	3	0.7	0	325.0	0	1	1
435041	Meter Readers, Utilities	2.8198	0	31562	3	-3.8	0	24.0	0	1	1
435111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	117.82	0	26234	3	0.8	0	66.0	0	1	1
439071	Office Machine Operators, Except Computer	40.174	0	24736	3	-2.0	0	77.0	0	1	1
474051	Highway Maintenance Workers	7.1379	0	38649	3	0.5	0	125.0	0	1	1
493093	Tire Repairers and Changers	49.297	0	23184	3	0.5	0	61.0	0	1	1
499043	Maintenance Workers, Machinery	47.467	0	37039	3	0.3	0	94.0	0	1	1
499098	Helpers--Installation, Maintenance, and Repair Workers	118.06	0	26505	3	1.3	0	253.0	0	1	1
513093	Food Cooking Machine Operators and Tenders	5.6396	0	28491	3	0.2	0	18.0	0	1	1
516051	Sewers, Hand	2.8198	0	21768	3	0.0	0	41.0	0	1	1
519021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	2.8198	0	28172	3	0.9	0	27.0	0	1	1
519023	Mixing and Blending Machine Setters, Operators, and Tenders	11.279	0	30231	3	0.5	0	144.0	0	1	1
519031	Cutters and Trimmers, Hand	5.6396	0	26090	3	-0.3	0	17.0	0	1	1
519051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	5.6396	0	28600	3	0.1	0	16.0	0	1	1
519191	Cementing and Gluing Machine Operators and Tenders	2.8198	0	27709	3	-0.2	0	15.0	0	1	1
519193	Cooling and Freezing Equipment Operators and Tenders	8.4594	0	31503	3	-0.2	0	1.0	0	1	1
533021	Bus Drivers, Transit and Intercity	14.575	0	32899	3	1.1	0	357.0	0	1	1
533031	Driver/Sales Workers	345.59	0	28124	3	0.7	0	236.0	0	1	1
533041	Taxi Drivers and Chauffeurs	32.262	0	24324	3	1.8	0	89.0	0	1	1
537011	Conveyor Operators and Tenders	338.03	0	29298	3	0.5	0	52.0	0	1	1
537063	Machine Feeders and Offbearers	39.477	0	25002	3	-1.3	0	156.0	0	1	1
537081	Refuse and Recyclable Material Collectors	73.357	0	40536	3	1.3	0	296.0	0	1	1
372012	Maids and Housekeeping Cleaners	8.4594	0	18111	0	0.9	0	1021.0	2	1	1
519198	Helpers--Production Workers	116.55	0	18544	0	0.5	0	985.0	2	1	1
412021	Counter and Rental Clerks	121.31	0	21036	0	1.4	0	810.0	1	1	1
439051	Mail Clerks and Mail Machine Operators, Except Postal Service	76.927	0	21004	0	1.4	0	424.0	1	1	1
516021	Pressers, Textile, Garment, and Related Materials	2.8198	0	19282	0	0.9	0	64.0	0	1.3	2



319095	Pharmacy Aides	2.8198	0	19323	0	1.6	0	137.0	0	1	1
352015	Cooks, Short Order	3.2451	0	18864	0	0.4	0	201.0	0	1	1
396011	Baggage Porters and Bellhops	154.47	0	19198	0	0.8	0	54.0	0	1	1
396032	Transportation Attendants, Except Flight Attendants and Baggage Porters	193.92	0	18992	0	1.8	0	35.0	0	1	1
452041	Graders and Sorters, Agricultural Products	14.099	0	20764	0	0.1	0	12.0	0	1	1
452092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	22.752	0	19028	0	1.3	0	34.0	0	1	1
452093	Farmworkers, Farm and Ranch Animals	3.013	0	17399	0	1.6	0	37.0		1	1
513022	Meat, Poultry, and Fish Cutters and Trimmers	56.396	0	19623	0	0.7	0	82.0	0	1	1
516031	Sewing Machine Operators	50.756	0	19271	0	-1.2	0	47.0	0	1	1
536021	Parking Lot Attendants	10.166	0	18965	0	2.3	0	241.0	0	1	1
536031	Service Station Attendants	37.143	0	19657	0	-0.6	0	153.0	0	1	1

mean 366.92 41439.0 0.83 420.5  
Standard Deviation 1732 19690.7 1.56 784.9

366.92	0	21748.3	0	0.83	0	420	0	0	0
1232.9	6	31593.7	3	1.61	0	813	1	1	1
2098.9	7	41439.0	3	2.39	0	1205	2	2	2
2964.9	8	61129.8	4	3.17	0	1598	3	3	3
3830.9	9	80820.5	4	3.94	0	1990	4	4	4
	10		5		0		5	5	5

## Wholesale Trade

occ_co de	occ_title	Employment	Employment SCORE	Mean Annual Wage	wage SCORE	2000-2010 proj annual % change	Annual Pct Change	2000-2010 proj annual total Change	Annual Total Change	Job Zone	Job Zone SCORE
111021	General and Operations Managers	6110.3	10	89314	5	1.2	0	240 5	5	5	5
111011	Chief Executives	991.36	6	142019	5	1.5	0	133 9	4	4.5	5
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	25517	10	53171	4	0.3	0	163 1	4	2	2
439061	Office Clerks, General	5675.3	10	24633	3	1.4	0	337 7	5	2	2
533032	Truck Drivers, Heavy and Tractor-Trailer	6245.5	10	40247	3	1.8	0	211 8	5	1.5	2
434051	Customer Service Representatives	4124.2	9	31349	3	2.5	0	269 5	5	2	2
113031	Financial Managers	1298.5	6	88657	5	1.7	0	870	2	4.5	5
132011	Accountants and Auditors	1560.9	7	53159	4	1.4	0	107	3	4	4

151041	Computer Support Specialists	1324.6	6	45211	4	6.0	0	138 7	4	4	4
412031	Retail Salespersons	2587.2	8	22872	3	0.8	0	520 7	5	2	2
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	7165.1	10	60723	4	0.4	0	501	1	2.5	3
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	3054.5	8	44768	4	0.7	0	117 0	3	3	3
112022	Sales Managers	1854.9	7	\$44,451	5	2.4	0	684	2	4	4
113021	Computer and Information Systems Managers	648.29	6	92160	5	3.4	0	609	1	5	5
435081	Stock Clerks and Order Fillers	7414.9	10	21574	0	0.4	0	227 1	5	1.5	2
436011	Executive Secretaries and Administrative Assistants	2107.3	7	36550	3	1.0	0	130 7	3	4	4
533033	Truck Drivers, Light or Delivery Services	6202.3	10	32374	3	1.4	0	990	3	1	1
537062	Laborers and Freight, Stock, and Material Movers, Hand	12312	10	20775	0	1.1	0	361 2	5	1.3	2
151021	Computer Programmers	1438.5	6	63422	4	1.2	0	711	2	4	4
151032	Computer Software Engineers, Systems Software	594.74	6	86353	5	5.5	0	457	1	4	4
151051	Computer Systems Analysts	752.13	6	69856	4	4.4	0	128 3	3	3	3
411012	First-Line Supervisors/Managers of Non- Retail Sales Workers	3739.4	9	59843	4	0.5	0	228	0	3	3
434171	Receptionists and Information Clerks	1503.1	7	22683	3	1.9	0	139 0	4	2	2
435071	Shipping, Receiving, and Traffic Clerks	6719.7	10	27071	3	0.6	0	767	2	1	1
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	800.65	6	22758	3	1.4	0	284 1	5	1	1
419031	Sales Engineers	902.92	6	67206	4	0.5	0	93	0	5	5
433031	Bookkeeping, Accounting, and Auditing Clerks	4984.8	10	31845	3	0.4	0	116 1		2	2
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	1208	6	57228	4	1.3	0	393	1	4	4
511011	First-Line Supervisors/Managers of Production and Operating Workers	1220.8	6	47697	4	0.1	0	657	2	3	3
512092	Team Assemblers	3571.8	9	24412	3	0.0	0	643	1	2	2
113061	Purchasing Managers	731.01	6	65178	4	-0.4	0	191	0	4	4
131022	Wholesale and Retail Buyers, Except Farm Products	1991.6	7	51096	4	-0.6	0	140	0	3	3
173023	Electrical and Electronic Engineering Technicians	794.92	6	43292	4	1.7	0	289	0	4	4



492011	Computer, Automated Teller, and Office Machine Repairers	2249.2	7	35066	3	1.6	0	108	0	3.3	4
493023	Automotive Service Technicians and Mechanics	539.93	6	39055	3	1.8	0	982	2	2.5	3
493042	Mobile Heavy Equipment Mechanics, Except Engines	1503.2	7	40302	3	0.8	0	50	0	4	4
499021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	547.49	6	50023	4	1.6	0	83	0	3.5	4
499042	Maintenance and Repair Workers, General	2042.5	7	36418	3	0.5	0	647	1	3	3
514041	Machinists	1161.6	6	33754	3	0.4	0	369	1	4	4
537051	Industrial Truck and Tractor Operators	3567.3	9	30625	3	1.0	0	450	1	1	1
291111	Registered Nurses	14.826	0	51536	4	1.9	0	281 1	5	4	4
411011	First-Line Supervisors/Managers of Retail Sales Workers	1203.4	6	37701	3	0.8	0	944	2	2	2
433011	Bill and Account Collectors	1159.6	6	30983	3	2.1	0	744	2	2	2
433021	Billing and Posting Clerks and Machine Operators	1480.4	7	30214	3	0.5	0	455	1	1.7	2
434151	Order Clerks	3179.1	8	27005	3	-1.0	0	295	0	2	2
519061	Inspectors, Testers, Sorters, Samplers, and Weighers	947.39	6	29191	3	-0.2	0	374	1	2.8	3
531021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	1067.3	6	41527	4	1.0	0	141	0	3	3
531031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	783.97	6	48008	4	1.6	0	182	0	3	3
537064	Packers and Packagers, Hand	2992.4	8	19009	0	1.4	0	132 3	4	1	1
533031	Driver/Sales Workers	3327	9	28124	3	0.7	0	236	0	1	1
151031	Computer Software Engineers, Applications	447.91	0	69751	4	6.7	0	148 3	4	4	4
412022	Parts Salespersons	2137.5	7	26913	3	-0.3	0	186	0	2	2
419041	Telemarketers	724.72	6	23609	3	2.3	0	666	2	1	1
435061	Production, Planning, and Expediting Clerks	688.35	6	32464	3	1.6	0	474	1	2	2
436014	Secretaries, Except Legal, Medical, and Executive	2440.5	8	\$18,734	0	-0.1	0	868	2	2	2
439011	Computer Operators	534.21	6	39161	3	-1.7	0	119	0	3	3
439021	Data Entry Keyers	623.32	6	24057	3	0.3	0	315	1	2	2
493031	Bus and Truck Mechanics and Diesel Engine Specialists	1189.4	6	39888	3	0.9	0	244	0	3	3
493041	Farm Equipment Mechanics	941.6	6	32721	3	0.4	0	42	0	3	3
514121	Welders, Cutters, Solderers, and Brazers	980.43	6	33889	3	1.8	0	607	1	2	2
412011	Cashiers	1113.7	6	17072	0	1.0	0	540 3	5	1	1
231011	Lawyers	32.235	0	113356	5	1.3	0	478	1	5	5

519111	Packaging and Filling Machine Operators and Tenders	1207	6	23009	3	1.7	0	557	1	1	1
112021	Marketing Managers	308.64	0	86837	5	2.5	0	385	1	4	4
113040	#N/A	295.76	0	80115	5	1.7	0	415	1	4	4
119041	Engineering Managers	235.91	0	90595	5	0.5	0	209	0	5	5
119111	Medical and Health Services Managers	3.625	0	76622	5	2.4	0	254	0	5	5
119121	Natural Sciences Managers	14.288	0	99780	5	0.5	0	15	0	5	5
131111	Management Analysts	197.87	0	84941	5	1.9	0	406	1	4	4
151011	Computer and Information Scientists, Research	21.44	0	80618	5	2.0	0	24	0	5	5
472061	Construction Laborers	59.608	0	41329	4	3.2	0	156 6	4	2	2
172171	Petroleum Engineers	5.6166	0	84902	5	-2.1	0	1	0	5	5
413031	Securities, Commodities, and Financial Services Sales Agents	1.5065	0	94945	5	1.5	0	365	1	3.5	4
112011	Advertising and Promotions Managers	210.41	0	77109	5	2.6	0	193	0	4	4
113011	Administrative Services Managers	442.38	0	54331	4	1.9	0	576	1	4	4
113051	Industrial Production Managers	165.6	0	76585	5	0.1	0	122	0	4	4
119021	Construction Managers	8.4638	0	78209	5	1.6	0	211	0	4	4
132051	Financial Analysts	114.7	0	63368	4	1.8	0	271	0	5	5
172011	Aerospace Engineers	15.325	0	62127	4	2.0	0	30	0	5	5
172041	Chemical Engineers	7.9454	0	69679	4	-0.6	0	29	0	5	5
172071	Electrical Engineers	298.83	0	68102	4	0.3	0	88	0	5	5
172072	Electronics Engineers, Except Computer	301.54	0	66554	4	1.5	0	119	0	5	5
172111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	7.3462	0	57382	4	0.9	0	17		4.3	5
172131	Materials Engineers	11.328	0	67283	4	-0.2	0	14	0	5	5
191021	Biochemists and Biophysicists	7.25	0	68491	4	1.6	0	27	0	5	5
192041	Environmental Scientists and Specialists, Including Health		0	49649	4	1.6	0	34	0	5	5
273042	Technical Writers	32.596	0	51442	4	2.0	0	95	0	5	5
299010	#N/A	4.73	0	47156	4	2.1	0	50	0	5	5
331021	First-Line Supervisors/Managers of Fire Fighting and Prevention Workers		0	60879	4	0.4	0	51	0	4.5	5
339032	Occupational Health and Safety Specialists and Technicians	140.57	0	22418	3	3.7	0	219 4	5	1	1
471011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	60.818	0	53067	4	1.0	0	321	1	3.5	4
472031	Carpenters	114.26	0	46802	4	0.8	0	868	2	2.8	3
472111	Electricians	149.71	0	51026	4	1.7	0	747	2	3	3
472141	Painters, Construction and Maintenance	20.682	0	40339	4	1.1	0	328	1	4	4

492095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	5.6295	0	43750	4	-0.3	0	13	0	5	5
192042	Geoscientists, Except Hydrologists and Geographers	0.7296	0	64475	4	1.0	0	16	0	5	5
211091	Health Educators		0	42924	4	1.7	0	19	0	5	5
259031	Instructional Coordinators	3.975	0	49530	4	2.2	0	83	0	5	5
291051	Pharmacists	170.14	0	74725	4	1.7	0	350	1	4	4
171011	Architects, Except Landscape and Naval	0	0	70127	4	1.5	0	67	0	5	5
112031	Public Relations Managers	14.241	0	\$46,086	4	3.0	0	114	0	4	4
113071	Transportation, Storage, and Distribution Managers	487.49	0	64039	4	1.4	0	161	0	4	4
131021	Purchasing Agents and Buyers, Farm Products	201.98	0	50542	4	0.5	0	20	0	4	4
131023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	428.09	0	49955	4	0.7	0	179	0	4	4
131041	Compliance Officers, Except Agriculture, Construction, Health and Safety, and Transportation	27.421	0	52704	4	0.8	0	87	0	3.5	4
131051	Cost Estimators	170.96	0	52342	4	1.7	0	283	0	4	4
131073	Training and Development Specialists	221.96	0	52198	4	2.0	0	263	0	4	4
131121	Meeting and Convention Planners	3.7879	0	49471	4	1.8	0	60	0	4	4
132031	Budget Analysts	43.517	0	52443	4	1.9	0	108	0	4	4
132041	Credit Analysts	203.02	0	48253	4	0.7	0	70	0	4	4
151061	Database Administrators	149.92	0	58423	4	4.8	0	275	0	4	4
151081	Network Systems and Data Communications Analysts	170.17	0	\$50,698	4	5.7	0	263		4	4
152031	Operations Research Analysts	5.6295	0	63607	4	1.9	0	76	0	4	4
172031	Biomedical Engineers		0	63908	4	2.5	0	17	0	4	4
172051	Civil Engineers	2.2272	0	63591	4	1.0	0	191	0	4	4
172061	Computer Hardware Engineers	136.04	0	70185	4	2.1	0	29	0	4	4
172112	Industrial Engineers	121.93	0	64547	4	-0.3	0	78	0	4	4
172141	Mechanical Engineers	318.92	0	64866	4	0.8	0	293	0	4	4
173013	Mechanical Drafters	48.341	0	42580	4	0.7	0	64	0	4	4
173021	Aerospace Engineering and Operations Technicians	5.3794	0	57341	4	0.2	0	8	0	4	4
173024	Electro-Mechanical Technicians	251.12	0	49113	4	0.3	0	35	0	4	4
173027	Mechanical Engineering Technicians	62.293	0	42447	4	0.6	0	41	0	4	4
192031	Chemists	67.888	0	59663	4	1.3	0	164	0	4	4
192032	Materials Scientists	3.0629	0	76082	4	2.1	0	9	0	4	4
193021	Market Research Analysts	284.24	0	45981	4	1.6	0	164	0	4	4
232011	Paralegals and Legal Assistants	5.9675	0	43594	4	1.6	0	110	0	4	4
271011	Art Directors	3.5122	0	73256	4	2.2	0	86	0	4	4

271013	Fine Artists, Including Painters, Sculptors, and Illustrators	1.0629	0	45682	4	1.1	0	28	0	4	4
271014	Multi-Media Artists and Animators	7.9001	0	43083	4	2.5	0	188	0	4	4
271021	Commercial and Industrial Designers	70.672	0	52470	4	1.4	0	27	0	4	4
271024	Graphic Designers	213.72	0	42583	4	2.5	0	213	0	4	4
273031	Public Relations Specialists	55.361	0	41569	4	3.2	0	269	0	4	4
273041	Editors	22.256	0	52476	4	1.8	0	220	0	4	4
274011	Audio and Video Equipment Technicians	1.8765	0	42638	4	1.1	0	48	0	4	4
274032	Film and Video Editors		0	41915	4	1.7	0	19	0	4	4
474021	Elevator Installers and Repairers	22.631	0	62929	4	1.5	0	33	0	4	4
492022	Telecommunications Equipment Installers and Repairers, Except Line Installers	303.11	0	47675	4	-1.2	0	33	0	3.2	4
493011	Aircraft Mechanics and Service Technicians	65.193	0	51746	4	1.5	0	197	0	3.7	4
499044	Millwrights	2.111	0	45696	4	0.1	0	70	0	4	4
514061	Model Makers, Metal and Plastic	3.753	0	40377	4	-1.1	0	12	0	4	4
514111	Tool and Die Makers	7.2559	0	45547	4	-0.2	0	155	0	4	4
515021	Job Printers	11.071	0	36785	3	0.2	0	50	0	5	5
515022	Prepress Technicians and Workers	15.897	0	41091	4	-2.3	0	110	0	3.8	4
532012	Commercial Pilots	4.8785	0	59084	4	1.7	0	7	0	4	4
119011	Farm, Ranch, and Other Agricultural Managers	9.129	0	44781	4	0.9	0	29	0	4	4
152041	Statisticians		0	61041	4	-0.1	0	5	0	4	4
171021	Cartographers and Photogrammetrists		0	43967	4	2.2	0	13	0	4	4
191042	Medical Scientists, Except Epidemiologists	17.4	0	70313	4	1.4	0	22	0	4	4
291031	Dietitians and Nutritionists	5.3266	0	39274	3	1.2	0	56	0	5	5
292011	Medical and Clinical Laboratory Technologists	4.5129	0	43113	4	1.4	0	156	0	4	4
518093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	18.422	0	48649	4	-0.2	0	16	0	3.3	4
171022	Surveyors		0	47811	4	0.6	0	28	0	4	4
191032	Foresters	2.1872	0	53599	4	0.4	0	1	0	4	4
251194	Vocational Education Teachers, Postsecondary		0	43198	4	2.0	0	61	0	4	4
271027	Set and Exhibit Designers	3.0629	0	37217	3	1.2	0	6	0	4.5	5
472041	Carpet Installers	18.835	0	55208	4	0.1	0	21	0	4	4
493021	Automotive Body and Related Repairers	128.53	0	44816	4	1.9	0	353	1	3	3
131071	Employment, Recruitment, and Placement Specialists	69.081	0	49375	4	1.5	0	193	0	3	3
131072	Compensation, Benefits, and Job Analysis Specialists	51.161	0	52314	4	1.4	0	102	0	3	3
151071	Insulation Workers	431.6	0	62524	4	5.8	0	638		3	3
172081	Environmental Engineers	12.252	0	\$39,163	3	2.0	0	38	0	4	4

173012	Electrical and Electronics Drafters	28.698	0	35853	3	0.8	0	55	0	3.5	4
173025	Environmental Engineering Technicians	5.6982	0	\$50,626	4	2.2	0	15	0	3	3
173026	Industrial Engineering Technicians	23.524	0	41872	4	0.5	0	60	0	3	3
254021	Librarians	1.325	0	39474	3	0.7	0	111	0	4	4
274014	Sound Engineering Technicians		0	49173	4	1.3	0	12	0	3	3
371011	First-Line Supervisors/Managers of Housekeeping and Janitorial Workers	9.3234	0	36939	3	1.1	0	242	0	3.5	4
373011	Landscaping and Groundskeeping Workers	119.17	0	22483	3	2.7	0	131 1	3	1	1
413011	Advertising Sales Agents	47.965	0	48877	4	2.4	0	288	0	3	3
439031	Desktop Publishers	4.3879	0	39913	3	4.8	0	132	0	4	4
472021	Brickmasons and Blockmasons	5.9362	0	57124	4	1.2	0	243	0	3	3
472073	Operating Engineers and Other Construction Equipment Operators	23.626	0	59349	4	0.7	0	206	0	2.5	3
472081	Drywall and Ceiling Tile Installers		0	44184	4	1.2	0	65	0	3	3
472121	Glaziers	9.4656	0	59297	4	1.3	0	26	0	3	3
472152	Plumbers, Pipefitters, and Steamfitters	102.36	0	\$28,872	3	1.0	0	430	1	3	3
472171	Reinforcing Iron and Rebar Workers	14.032	0	53815	4	1.7	0	11	0	3	3
472181	Roofers	2.784	0	51024	4	1.6	0	175	0	3	3
472211	Sheet Metal Workers	53.124	0	53562	4	2.1	0	311		3	3
472221	Structural Iron and Steel Workers	4.9169	0	60129	4	1.5	0	50	0	3	3
492092	Electric Motor, Power Tool, and Related Repairers	92.341	0	44563	4	0.4	0	19	0	2.7	3
492093	Electrical and Electronics Installers and Repairers, Transportation Equipment	68.113	0	41282	4	0.3	0	9	0	3	3
492094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	353.83	0	45327	4	1.4	0	67	0	3	3
492098	Security and Fire Alarm Systems Installers	169.54	0	65685	4	1.9	0	69	0	3	3
499011	Mechanical Door Repairers	13.363	0	56326	4	-1.4	0	1	0	3	3
499031	Home Appliance Repairers	81.25	0	39306	3	1.2	0	68	0	3.5	4
499052	Telecommunications Line Installers and Repairers	51.852	0	45016	4	1.6	0	158	0	3	3
499061	Camera and Photographic Equipment Repairers	49.006	0	39395	3	0.7	0	5	0	4	4
512041	Structural Metal Fabricators and Fitters	43.193	0	36625	3	1.1	0	60	0	4	4
514012	Numerical Tool and Process Control Programmers	8.0691	0	41232	4	1.0	0	30	0	3	3
517031	Model Makers, Wood	1.1136	0	\$28,100	3	1.0	0	8	0	4	4
518031	Water and Liquid Waste Treatment Plant and System Operators	2.3034	0	42836	4	1.2	0	74	0	3	3

519071	Jewelers and Precious Stone and Metal Workers	75.458	0	36240	3	-0.6	0	69	0	3.2	4
519195	Molders, Shapers, and Casters, Except Metal and Plastic	1.2034	0	26532	3	0.1	0	36	0	3.1	4
536051	Transportation Inspectors	11.134	0	35988	3	2.8	0	56	0	3.2	4
119051	Food Service Managers	6.1782	0	37125	3	1.2	0	274	0	4	4
194041	Geological and Petroleum Technicians	4.5137	0	51611	4	-0.1	0	2	0	3	3
271022	Fashion Designers	90.347	0	51356	4	0.7	0	5	0	3	3
271025	Interior Designers	102.02	0	38513	3	0.5	0	19	0	4	4
292061	Licensed Practical and Licensed Vocational Nurses	2.175	0	35987	3	1.5	0	628	1	3	3
351011	Chefs and Head Cooks	2.4266	0	28920	3	-0.1	0	50	0	4	4
351012	First-Line Supervisors/Managers of Food Preparation and Serving Workers	18.122	0	27280	3	1.3	0	611	1	3	3
371012	First-Line Supervisors/Managers of Landscaping, Lawn Service, and Groundskeeping Workers	3.975	0	36428	3	0.8	0	44	0	3.5	4
395012	Hairdressers, Hairstylists, and Cosmetologists		0	24035	3	1.0	0	549	1	3	3
451011	First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	45.445	0	28376	3	0.6	0	20	0	3.2	4
452011	Agricultural Inspectors	5.1807	0	35944	3	2.0	0	13	0	4	4
516052	Tailors, Dressmakers, and Custom Sewers	37.733	0	23539	3	-0.9	0	30	0	3.5	4
173031	Surveying and Mapping Technicians		0	37690	3	2.0	0	51	0	3.5	4
232093	Title Examiners, Abstractors, and Searchers	3.1665	0	41797	4	-0.1	0	12	0	2.5	3
291126	Respiratory Therapists	18.377	0	40741	4	2.7	0	130	0	3	3
292081	Opticians, Dispensing	42.881	0	27639	3	1.6	0	114	0	4	4
454023	Log Graders and Scalers	1.1136	0		0	***	0	***	5	2	2
472042	Floor Layers, Except Carpet, Wood, and Hard Tiles	3.5316	0	41409	4	0.9	0	6	0	3	3
472051	Cement Masons and Concrete Finishers	1.6704	0	52803	4	0.4	0	50	0	3	3
475011	Derrick Operators, Oil and Gas		0		0	***	0	***	5	2	2
173011	Architectural and Civil Drafters	51.927	0	35811	3	1.6	0	130		3	3
194031	Chemical Technicians	43.046	0	36215	3	0.7	0	94	0	3	3
274021	Photographers	4.6058	0	34887	3	0.8	0	71	0	3	3
332011	Fire Fighters		0	45329	4	0.5	0	241	0	2	2
353021	Combined Food Preparation and Serving Workers, Including Fast Food	103.44	0	14492	0	2.4	0	379 9	5	1	1
492021	Radio Mechanics	18.765	0	27632	3	-3.7	0	2	0	3	3

492096	Electronic Equipment Installers and Repairers, Motor Vehicles	26.146	0	31651	3	0.9	0	4	0	3	3
492097	Electronic Home Entertainment Equipment Installers and Repairers	64.987	0	38683	3	-2.3	0	16	0	3	3
493053	Outdoor Power Equipment and Other Small Engine Mechanics	63.586	0	30864	3	1.0	0	21	0	3	3
499041	Industrial Machinery Mechanics	413.56	0	37513	3	0.8	0	217	0	3	3
499062	Medical Equipment Repairers	204.73	0	37691	3	1.1	0	29	0	3	3
499064	Watch Repairers	17.498	0	28429	3	0.6	0	9	0	3	3
499096	Riggers	6.4764	0	35470	3	1.2	0	3	0	3	3
512022	Electrical and Electronic Equipment Assemblers	203.73	0	23878	3	-1.3	0	301	0	3	3
512023	Electromechanical Equipment Assemblers	13.699	0	24398	3	0.1	0	90	0	3	3
512031	Engine and Other Machine Assemblers	32.276	0	30100	3	0.2	0	66	0	3	3
514033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	33.249	0	28933	3	0.2	0	89	0	2.5	3
514034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	12.459	0	29253	3	-0.8	0	150	0	3	3
514035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	3.2382	0	28625	3	-1.3	0	38	0	3	3
514081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	29.842	0	28669	3	0.9	0	74	0	2.5	3
514191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	9.7146	0	27506	3	0.7	0	40	0	2.3	3
514193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic		0	25253	3	0.6	0	77	0	2.3	3
514194	Tool Grinders, Filers, and Sharpeners	2.6897	0	30528	3	-1.2	0	29	0	3	3
515023	Printing Machine Operators	92.959	0	30612	3	0.2	0	199	0	2.8	3
517011	Cabinetmakers and Bench Carpenters	76.054	0	31595	3	0.7	0	83	0	3	3
519131	Photographic Process Workers	3.0629	0	27718	3	-1.0	0	29	0	3	3
519194	Etchers and Engravers	3.5122	0	38179	3	0.1	0	9	0	2.3	3
537021	Crane and Tower Operators	259.79	0	40696	4	0.2	0	46	0	2	2
537072	Pump Operators, Except Wellhead Pumpers	2.1888	0	50807	4	-0.7	0	5	0	2	2
537121	Tank Car, Truck, and Ship Loaders	10.782	0	38321	3	0.9	0	20	0	3	3
271026	Merchandise Displayers and Window Trimmers	445.5	0	28011	3	1.6	0	56	0	3	3
292052	Pharmacy Technicians	228.46	0	23237	3	2.9	0	386	1	2	2



292071	Medical Records and Health Information Technicians	8.7	0	26427	3	3.7	0	279	0	3	3
352021	Food Preparation Workers	175.98	0	16153	0	1.5	0	2250	5	1	1
353031	Waiters and Waitresses	0.917	0	15870	0	1.7	0	4184	5	1	1
475031	Explosives Workers, Ordnance Handling Experts, and Blasters	12.636	0	48372	4	0.4	0	1	0	2	2
513021	Butchers and Meat Cutters	148.02	0	25416	3	-0.7	0	102	0	3	3
513092	Food Batchmakers	53.385	0	24927	3	0.0	0	78	0	3	3
516063	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	3.1887	0	25005	3	1.3	0	7	0	3	3
537032	Excavating and Loading Machine and Dragline Operators	23.91	0	52331	4	1.8	0	125	0	2	2
292054	Respiratory Therapy Technicians	3.0629	0	33780	3	2.7	0	51	0	3	3
292091	Orthotists and Prosthetists		0	38359	3	1.2	0	1	0	3	3
472044	Tile and Marble Setters	6.252	0	56049	4	0.9	0	23	0	2	2
472071	Paving, Surfacing, and Tamping Equipment Operators	1.1136	0	51999	4	1.4	0	40	0	2	2
474041	Hazardous Materials Removal Workers	2.1872	0	41030	4	3.0	0	75	0	2	2
493051	Motorboat Mechanics	10.256	0	30842	3	0.6	0	11	0	3	3
499094	Locksmiths and Safe Repairers	4.5687	0	35674	3	0.9	0	18	0	3	3
516093	Upholsterers	26.447	0	25824	3	-2.3	0	18	0	3	3
519081	Dental Laboratory Technicians		0	33846	3	0.4	0	29	0	3	3
194021	Biological Technicians	1.8051	0	31562	3	2.2	0	55	0	2	2
433051	Payroll and Timekeeping Clerks	228.67	0	32763	3	0.2	0	206	0	2	2
434021	Correspondence Clerks	57.416	0	28232	3	1.1	0	66	0	2	2
434071	File Clerks	183.77	0	23400	3	0.7	0	325	1	1	1
434161	Human Resources Assistants, Except Payroll and Timekeeping	189.62	0	31717	3	1.8	0	300	0	2	2
435032	Dispatchers, Except Police, Fire, and Ambulance	274.91	0	35362	3	2.0	0	216	0	2	2
439022	Word Processors and Typists	50.407	0	30132	3	-2.0	0	162		2	2
439111	Statistical Assistants	2.9	0	37673	3	-0.1	0	5	0	2	2
474031	Fence Erectors	6.1248	0	27838	3	0.2	0	26	0	2	2
499091	Coin, Vending, and Amusement Machine Servicers and Repairers	147.69	0	33455	3	1.0	0	59	0	2	2
514011	Computer-Controlled Machine Tool Operators, Metal and Plastic	19.943	0	31444	3	1.2	0	288	0	2	2
514021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	24.999	0	27661	3	0.4	0	79	0	2	2
514022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	11.873	0	28959	3	0.2	0	117	0	2	2



514023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	29.144	0	28837	3	-0.4	0	138	0	2	2
514031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	265.96	0	25947	3	-0.9	0	248	0	2	2
514032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2.6897	0	28062	3	-0.2	0	160	0	2	2
514071	Foundry Mold and Coremakers		0	29692	3	-1.3	0	22	0	2	2
514072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	21.346	0	26670	3	0.0	0	144	0	1.8	2
514122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	18.315	0	30995	3	1.3	0	104	0	2	2
515011	Bindery Workers	18.83	0	23425	3	0.2	0	150	0	1.5	2
517021	Furniture Finishers	43.461	0	26859	3	0.7	0	30	0	2	2
517041	Sawing Machine Setters, Operators, and Tenders, Wood	23.734	0	22865	3	0.7	0	27	0	2	2
517042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	70.128	0	24379	3	-0.2	0	40	0	1.5	2
518091	Chemical Plant and System Operators	16.502	0	39329	3	-0.5	0	54	0	2	2
519011	Chemical Equipment Operators and Tenders	52.665	0	35074	3	1.0	0	84	0	2	2
519032	Cutting and Slicing Machine Setters, Operators, and Tenders	80.685	0	28414	3	-0.3	0	33	0	1.5	2
519041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	16.113	0	30040	3	0.3	0	53	0	1.5	2
519082	Medical Appliance Technicians		0	31340	3	1.6	0	51	0	2	2
519121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	12.958	0	26541	3	0.9	0	113	0	1.5	2
519122	Painters, Transportation Equipment	47.428	0	38709	3	1.9	0	46	0	2	2
519132	Photographic Processing Machine Operators	3.0629	0	25147	3	0.8	0	46	0	2	2
519196	Paper Goods Machine Setters, Operators, and Tenders		0	26132	3	-1.0	0	105	0	2	2
194011	Agricultural and Food Science Technicians	31.904	0	34432	3	1.6	0	17	0	2	2
353022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	9.7064	0	18106	0	1.2	0	140 5	4	1	1
372021	Pest Control Workers		0	31219	3	2.2	0	11	0	2	2

373012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	30.258	0	30029	3	1.1	0	35	0	2	2
434181	Reservation and Transportation Ticket Agents and Travel Clerks	2.175	0	32109	3	0.6	0	209	0	2	2
435011	Cargo and Freight Agents	5.9161	0	32487	3	0.1	0	43	0	2	2
439081	Proofreaders and Copy Markers	6.625	0	28147	3	-0.2	0	54	0	2	2
452091	Agricultural Equipment Operators	49.701	0	22405	3	2.0	0	13	0	2	2
513023	Slaughterers and Meat Packers	19.413	0	23143	3	0.3	0	64	0	2	2
516092	Fabric and Apparel Patternmakers	21.612	0	25599	3	-1.4	0	5	0	2	2
531011	Aircraft Cargo Handling Supervisors	6.4157	0	41647	4	2.3	0	20	0	1	1
533021	Bus Drivers, Transit and Intercity	2.4266	0	32899	3	1.1	0	357	1	1	1
537081	Refuse and Recyclable Material Collectors	61.242	0	40536	4	1.3	0	296	0	1	1
319093	Medical Equipment Preparers		0	25235	3	1.3	0	29	0	2	2
436013	Medical Secretaries	3.0629	0	36102	3	1.5	0	190	0	2	2
454022	Logging Equipment Operators	3.2808	0	25611	3	0.2	0	6	0	2	2
473011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	2.2272	0	48470	4	1.4	0	77	0	1	1
473015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters		0	37177	3	1.2	0	65	0	2	2
493022	Automotive Glass Installers and Repairers	6.9479	0	34757	3	1.8	0	28	0	2	2
493052	Motorcycle Mechanics	3.1665	0	35114	3	0.6	0	16	0	2	2
493092	Recreational Vehicle Service Technicians	4.222	0	26043	3	2.6	0	11	0	2	2
537033	Loading Machine Operators, Underground Mining	1.1136	0	23945	3	0.1	0	6	0	2	2
372012	Maids and Housekeeping Cleaners	11.797	0	18111	0	0.9	0	102 1	3	1	1
419011	Demonstrators and Product Promoters	444.42	0	31380	3	1.7	0	116	0	1	1
432011	Switchboard Operators, Including Answering Service	271.94	0	23964	3	-1.8	0	213	0	1	1
433061	Procurement Clerks	317.49	0	33630	3	-1.2	0	43	0	1	1
434041	Credit Authorizers, Checkers, and Clerks	328.93	0	31937	3	0.2	0	43	0	1	1
435111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	244.75	0	26234	3	0.8	0	66	0	1	1
439071	Office Machine Operators, Except Computer	192.03	0	24736	3	-2.0	0	77	0	1	1
473012	Helpers--Carpenters	1.1136	0	25417	3	0.4	0	130	0	1	1
475013	Service Unit Operators, Oil, Gas, and Mining		0		0	-0.8	0	1	0	4	4
492091	Avionics Technicians	18.828	0		0	1.1	0	14	0	4	4

499043	Maintenance Workers, Machinery	129.33	0	37039	3	0.3	0	94	0	1	1
499098	Helpers--Installation, Maintenance, and Repair Workers	170.41	0	26505	3	1.3	0	253	0	1	1
519012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	21.424	0	34638	3	0.0	0	23	0	1	1
519021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	30.98	0	28172	3	0.9	0	27	0	1	1
519022	Grinding and Polishing Workers, Hand	14.237	0	28426	3	0.9	0	32	0	1	1
519023	Mixing and Blending Machine Setters, Operators, and Tenders	140.92	0	30231	3	0.5	0	144	0	1	1
519031	Cutters and Trimmers, Hand	29.008	0	26090	3	-0.3	0	17	0	1	1
519051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	6.5816	0	28600	3	0.1	0	16	0	1	1
519083	Ophthalmic Laboratory Technicians	134.77	0	22215	0	-0.6	0	53	0	3.5	4
519123	Painting, Coating, and Decorating Workers	13.288	0	22984	3	1.1	0	26	0	1	1
519191	Cementing and Gluing Machine Operators and Tenders	2.6897	0	27709	3	-0.2	0	15	0	1	1
519192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	4.8532	0	27112	3	-0.5	0	14	0	1	1
537011	Conveyor Operators and Tenders	339.45	0	29298	3	0.5	0	52	0	1	1
537063	Machine Feeders and Offbearers	42.764	0	25002	3	-1.3	0	156	0	1	1
359031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop		0	17266	0	1.1	0	378	1	3	3
392021	Nonfarm Animal Caretakers	13.128	0	23896	3	1.9	0	94	0	1	1
419012	Models		0	23043	3	2.2	0	29	0	1	1
419091	Door-To-Door Sales Workers, News and Street Vendors, and Related Workers	156.9	0	28302	3	0.8	0	170	0	1	1
435021	Couriers and Messengers	10.698	0	23703	3	-0.9	0	155	0	1	1
475081	Helpers--Extraction Workers	6.6187	0	22778	3	0.8	0	87	0	1	1
493093	Tire Repairers and Changers	71.557	0	23184	3	0.5	0	61	0	1	1
513091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	7.9348	0	28039	3	-0.7	0	7	0	1	1
513093	Food Cooking Machine Operators and Tenders	14.56	0	28491	3	0.2	0	18	0	1	1
519193	Cooling and Freezing Equipment Operators and Tenders	0	0	31503	3	-0.2	0	1	0	1	1

537073	Wellhead Pumpers		0		0	-0.7	0	1	0	4	4
472022	Stonemasons	1.1136	0		0	1.9	0	4	0	4	4
412021	Counter and Rental Clerks	518.41	0	21036	0	1.4	0	810	2	1	1
499012	Control and Valve Installers and Repairers, Except Mechanical Door	26.241	0		0	-0.4	0	26	0	2.7	3
516062	Textile Cutting Machine Setters, Operators, and Tenders	24.846	0	21455	0	-0.5	0	6	0	3	3
519198	Helpers--Production Workers	174.57	0	18544	0	0.5	0	985	2	1	1
352011	Cooks, Fast Food	0.912	0	15855	0	0.0	0	473	1	2	2
352012	Cooks, Institution and Cafeteria	13.189	0	21383	0	0.7	0	362	1	2	2
513011	Bakers	145.6	0	22291	0	1.2	0	149	0	3	3
518092	Gas Plant Operators		0		0	-1.0	0	13	0	2.5	3
439051	Mail Clerks and Mail Machine Operators, Except Postal Service	139.72	0	21004	0	1.4	0	424	1	1	1
512021	Coil Winders, Tapers, and Finishers	7.506	0	22185	0	0.2	0	45	0	2	2
512091	Fiberglass Laminators and Fabricators	34.464	0		0	0.4	0	36	0	2	2
353011	Bartenders		0	17516	0	1.5	0	405	1	1	1
359021	Dishwashers	13.998	0	14947	0	-1.0	0	566	1	1	1
475071	Roustabouts, Oil and Gas	1.2034	0		0	-0.1	0	3	0	2	2
516021	Pressers, Textile, Garment, and Related Materials	6.3774	0	19282	0	0.9	0	64	0	1.3	2
516041	Shoe and Leather Workers and Repairers	5.7609	0	21077	0	-1.4	0	14	0	2	2
311011	Home Health Aides		0	20104	0	3.7	0	452	1	1	1
493091	Bicycle Repairers	1.0936	0	18875	0	1.6	0	3	0	2	2
499095	Manufactured Building and Mobile Home Installers	11.453	0		0	1.6	0	7	0	2	2
516031	Sewing Machine Operators	225	0	19271	0	-1.2	0	47	0	1	1
516051	Sewers, Hand	1.325	0	21768	0	0.0	0	41	0	1	1
537041	Hoist and Winch Operators	4.8769	0	19441	0	0.7	0	17	0	1	1
537061	Cleaners of Vehicles and Equipment	231.61	0	18366	0	2.2	0	503		1	1
319095	Pharmacy Aides	22.638	0	19323	0	1.6	0	137	0	1	1
352015	Cooks, Short Order	3.521	0	18864	0	0.4	0	201	0	1	1
452041	Graders and Sorters, Agricultural Products	435.63	0	20764	0	0.1	0	12	0	1	1
452092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	404.13	0	19028	0	1.3	0	34	0	1	1
452093	Farmworkers, Farm and Ranch Animals	76.163	0	17399	0	1.6	0	37	0	1	1
513022	Meat, Poultry, and Fish Cutters and Trimmers	203.83	0	19623	0	0.7	0	82	0	1	1
516061	Textile Bleaching and Dyeing Machine Operators and Tenders	1.0629	0		0	5.3	0	26	0	1	1
536031	Service Station Attendants	68.342	0	19657	0	-0.6	0	153	0	1	1
519197	Tire Builders	6.333	0		0	-0.3	0	22	0	1	1
536021	Parking Lot Attendants	22.166	0	18965	0	2.3	0	241	0	1	1
451012	Farm Labor Contractors	2.65	0		0	0.0	0	1	0	0	0

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6

532.27	0	22348.70		0.95		314	0	0	0
1452.3 9	6	31342.68	3	1.60	0	649	1	1	1
2372.5 1	7	40336.66	3	2.25	0	985	2	2	2
3292.6 2	8	58324.63	4	2.89	0	132 1	3	3	3
4212.7 4	9	76312.59	4	3.54	0	165 7	4	4	4
	10		5		0		5	5	5

## Appendix L: List of Critical Occupations Identified Through JOWE©

### Transportation/Warehousing

SOC	Occupation Title	Score (Out of 25)
111021	General and Operations Managers	22
533032	Truck Drivers, Heavy and Tractor-Trailer	20
439061	Office Clerks, General	19
434051	Customer Service Representatives	17
537062	Laborers and Freight, Stock, and Material Movers, Hand	17
132011	Accountants and Auditors	16
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	16
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	16
436011	Executive Secretaries and Administrative Assistants	16
533033	Truck Drivers, Light or Delivery Services	16
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	15
435081	Stock Clerks and Order Fillers	15
534011	Locomotive Engineers	15
534031	Railroad Conductors and Yardmasters	15
537051	Industrial Truck and Tractor Operators	15
113071	Transportation, Storage, and Distribution Managers	14
433031	Bookkeeping, Accounting, and Auditing Clerks	14
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	14
531031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	14
111011	Chief Executives	13
291111	Registered Nurses	13
435071	Shipping, Receiving, and Traffic Clerks	13
436014	Secretaries, Except Legal, Medical, and Executive	13
493031	Bus and Truck Mechanics and Diesel Engine Specialists	13
499042	Maintenance and Repair Workers, General	13

SOC	Occupation Title	Score (Out of 25)
531021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	13
113031	Financial Managers	12
412011	Cashiers	12
433021	Billing and Posting Clerks and Machine Operators	12
435011	Cargo and Freight Agents	12
435032	Dispatchers, Except Police, Fire, and Ambulance	12
493043	Rail Car Repairers	12
514121	Welders, Cutters, Solderers, and Brazers	12
534021	Railroad Brake, Signal, and Switch Operators	12
113021	Computer and Information Systems Managers	11
151031	Computer Software Engineers, Applications	11
231011	Lawyers	11
434151	Order Clerks	11
537064	Packers and Packagers, Hand	11

## Wholesale Trade

SOC	Occupation Title	Score (Out of 25)
111021	General and Operations Managers	25
111011	Chief Executives	20
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	20
439061	Office Clerks, General	20
533032	Truck Drivers, Heavy and Tractor-Trailer	20
434051	Customer Service Representatives	19
113031	Financial Managers	18
132011	Accountants and Auditors	18
151041	Computer Support Specialists	18
412031	Retail Salespersons	18
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	18
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	18
112022	Sales Managers	18
113021	Computer and Information Systems Managers	17
435081	Stock Clerks and Order Fillers	17
436011	Executive Secretaries and Administrative Assistants	17
533033	Truck Drivers, Light or Delivery Services	17
537062	Laborers and Freight, Stock, and Material Movers, Hand	17
151021	Computer Programmers	16
151032	Computer Software Engineers, Systems Software	16
151051	Computer Systems Analysts	16
411012	First-Line Supervisors/Managers of Non-Retail Sales Workers	16
434171	Receptionists and Information Clerks	16
435071	Shipping, Receiving, and Traffic Clerks	16
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	15
419031	Sales Engineers	15
433031	Bookkeeping, Accounting, and Auditing Clerks	15



SOC	Occupation Title	Score (Out of 25)
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	15
511011	First-Line Supervisors/Managers of Production and Operating Workers	15
512092	Team Assemblers	15
113061	Purchasing Managers	14
131022	Wholesale and Retail Buyers, Except Farm Products	14
173023	Electrical and Electronic Engineering Technicians	14
492011	Computer, Automated Teller, and Office Machine Repairers	14
493023	Automotive Service Technicians and Mechanics	14
493042	Mobile Heavy Equipment Mechanics, Except Engines	14
499021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	14
499042	Maintenance and Repair Workers, General	14
514041	Machinists	14
537051	Industrial Truck and Tractor Operators	14
291111	Registered Nurses	13
411011	First-Line Supervisors/Managers of Retail Sales Workers	13
433011	Bill and Account Collectors	13
433021	Billing and Posting Clerks and Machine Operators	13
434151	Order Clerks	13
519061	Inspectors, Testers, Sorters, Samplers, and Weighers	13
531021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	13
531031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	13
537064	Packers and Packagers, Hand	13
533031	Driver/Sales Workers	13
151031	Computer Software Engineers, Applications	12
412022	Parts Salespersons	12
419041	Telemarketers	12

SOC	Occupation Title	Score (Out of 25)
435061	Production, Planning, and Expediting Clerks	12
436014	Secretaries, Except Legal, Medical, and Executive	12
439011	Computer Operators	12
439021	Data Entry Keyers	12
493031	Bus and Truck Mechanics and Diesel Engine Specialists	12
493041	Farm Equipment Mechanics	12
514121	Welders, Cutters, Solderers, and Brazers	12
412011	Cashiers	12

## Appendix M: Industry-Specific Critical Occupations

### Trucking & Courier Services – No Air

- General and Operations Managers
- Truck drivers, Heavy and Tractor-Trailer
- Laborers and Freight, Stock, and Material Movers, Hand
- Customer Service Representative
- Office Clerks, General
- First-Line Supervisors / Managers of Office and Administrative Support Workers
- Truck Drivers, Light or Delivery Services
- Transportation, Storage and Distribution Managers
- Bookkeeping, Accounting, and Auditing Clerks
- First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators

### Public Warehouse & Storage

- General and Operations Managers
- Truck Drivers, Heavy and Tractor-Trailer
- Customer Service Representatives
- Office Clerks, General
- Stock Clerks and Order Fillers
- Laborers and Freight, Stock, and Material Movers, Hand
- Executive Secretaries and Administrative Assistants
- Retail Salespersons
- First-Line Supervisors/Managers of Office and Administrative Support Workers
- Janitors and Cleaners, Except Maids and Housekeeping Cleaners

### Transportation Services

- General and Operations Managers
- Office Clerks, General
- Customer Service Representatives
- First-Line Supervisors / Managers of Office & Admin. Support Workers
- Truck Drivers, Heavy and Tractor-Trailer
- Laborers and Freight, Stock, and Material Movers, Hand
- Accountants and Auditors
- Executive Secretaries and Administrative Assistants
- Truck Drivers, Light or Delivery Services
- Cargo and Freight Agents

### Railroad Transportation

- General and Operations Managers
- Office Clerks, General
- Locomotive Engineers
- Railroad Conductors and Yardmasters
- Customer Service Representatives
- Rail Care Repairers
- Railroad Brake, Signal, and Switch Operators

- Laborers and Freight, Stock, and Material Movers, Hand
- Transportation, Storage and Distribution Managers
- Health and Safety Engineers, Except Mining Safety Engineers and Inspectors

#### Durable Wholesale

- General and Operations Managers
- Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
- Office Clerks, General
- Customer Service Representatives
- Truck Drivers, Heavy and Tractor-Trailer
- Financial Managers
- Accountants and Auditors
- Computer Support Specialists
- Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products
- First-Line Supervisors/Managers of Office and Administrative Support Workers

#### Non-Durable Wholesale

- General and Operations Managers
- Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
- Stock Clerks and Order Fillers
- Truck Drivers, Heavy and Tractor-Trailer
- Financial Managers
- Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products
- Customer Service Representatives
- Office Clerks, General
- Retail Salespersons
- Laborers and Freight, Stock, and Material Movers, Hand

## Appendix N: Skills and Knowledge Attributes of Critical Occupation Groups

### Business, Financial and Administrative Occupations

Business, Financial and Administrative Occupations include Accountants, Bookkeepers, Office Clerks, Executive Secretaries, and other critical occupations in the administrative field. These occupations are generally responsible for managing either human or financial resources. The attributes listed below include attribute findings specific to these occupations.

Skills Attribute Title	Index Score	Knowledge Attribute Title	Index Score	
Active Listening	100	Clerical	100	
Reading Comprehension	98	Mathematics	66	
Writing	88	English Language	65	
Speaking	87	Customer and Personal Service	63	
Mathematics	80	Economics and Accounting	61	
Coordination	73	Computers and Electronics	59	
Social Perceptiveness	69	Administration and Management	48	
Monitoring	68	Education and Training	42	Mechanical Occupations
Critical Thinking	68	Law and Government	41	
Time Management	66	Personnel and Human Resources	40	

Mechanical Critical Occupations include Bus and Truck Mechanics, Managers of Mechanical Workers, and other mechanic-related critical occupations. These occupations are generally responsible for the repair and maintenance of vehicles and machinery. The attributes listed below are specific to these occupations.

Skills Attribute Title	Index Score	Knowledge Attribute Title	Index Score
Troubleshooting	100	Mechanical	100
Quality Control Analysis	94	Engineering and Technology	45
Equipment Maintenance	93	Mathematics	38
Installation	93	Public Safety and Security	36
Repairing	89	Administration and Management	34
Equipment Selection	77	Design	33
Mathematics	77	Computers and Electronics	32
Complex Problem Solving	76	Physics	32
Operation Monitoring	74	English Language	27
Active Learning	73	Customer and Personal Service	24

### Administrative Production Occupations

Administrative Production Critical Occupations include Stock Clerks and Order Fillers and Shipping and Receiving Clerks. These occupations are generally responsible for ensuring the timely shipment and transaction of goods. The attributes listed below are specific to these occupations.

Skills Attribute Title	Index Score	Knowledge Attribute Title	Index Score
Active Listening	100	Clerical	100
Equipment Selection	82	Mathematics	57
Operation and Control	81	Computers and Electronics	56
Coordination	79	Economics and Accounting	54
Reading Comprehension	78	English Language	49
Quality Control Analysis	76	Production and Processing	45
Mathematics	74	Administration and Management	36
Complex Problem Solving	72	Transportation	36
Equipment Maintenance	72	Customer and Personal Service	34
Active Learning	71	Mechanical	27

### Transportation Occupations

Transportation Critical Occupations include Truck Drivers, Bus Drivers, and other occupations relating the movement and transportation of people or products. The attributes listed below are specific to these occupations.

Skills Attribute Title	Index Score	Knowledge Attribute Title	Index Score
Operation and Control	100	Transportation	100
Equipment Maintenance	94	Mechanical	90
Operation Monitoring	92	Geography	68
Reading Comprehension	84	Public Safety and Security	58
Repairing	83	Clerical	56
Writing	80	Mathematics	54
Equipment Selection	78	Telecommunications	52
Active Listening	77	Law and Government	51
Troubleshooting	76	Production and Processing	47
Speaking	72	Engineering and Technology	47

## Appendix O: Short- and Long-Term Projections for Critical Occupations

### Short Term Projections

SOC	Occupational Title	Estimated Total Percent Change 2004-2006	Employment Change, 2004-2006
<b>Management</b>			
111021	General and Operations Managers	2%	2044
112022	Sales Managers	5%	892
113021	Computer and Information Systems Managers	7%	851
113031	Financial Managers	3%	944
113061	Purchasing Managers	-1%	-47
113071	Transportation, Storage, and Distribution Managers	3%	155
<b>Business &amp; Financial Occupations</b>			
132011	Accountants and Auditors	3%	1070
<b>Computers &amp; Mathematics</b>			
151021	Computer Programmers	2%	537
151032	Computer Software Engineers, Systems Software	11%	829
151041	Computer Support Specialists	12%	2611
151051	Computer Systems Analysts	9%	2200
151071	Network and Computer Systems Administrators	12%	1198
<b>Arts, Design, &amp; Media</b>			
273043	Writers and Authors	2%	73
<b>Building &amp; Grounds</b>			
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	3%	2568
<b>Installation, Maintenance, &amp; Repair</b>			
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	3%	276
<b>Engineering</b>			
172072	Electronics Engineers, Except Computer	3%	111
<b>Sales Related</b>			
412022	Parts Salespersons	-1%	-39
412031	Retail Salespersons	2%	1922
413099	Sales Representatives, Services, All Other	4%	93
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	1%	125
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	1%	368
419041	Telemarketers	5%	732
432011	Switchboard Operators, Including Answering Service	-4%	-245



SOC	Occupational Title	Estimated Total Percent Change 2004-2006	Employment Change, 2004-2006
<b>Customer Service &amp; Clerical</b>			
433031	Bookkeeping, Accounting, and Auditing Clerks	1%	401
434051	Customer Service Representatives	5%	4139
436011	Executive Secretaries and Administrative Assistants	2%	992
439061	Office Clerks, General	3%	2999
<b>Administrative Production Personnel</b>			
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	1%	638
435032	Dispatchers, Except Police, Fire, and Ambulance	4%	249
435071	Shipping, Receiving, and Traffic Clerks	1%	350
435081	Stock Clerks and Order Fillers	1%	452
<b>Product ion</b>			
511011	First-Line Supervisors/Managers of Production and Operating Workers	0%	34
514033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	0%	12
519199	Production Workers, All Other	6%	4130
<b>Transportation &amp; Materials Moving</b>			
531031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	3%	163
533021	Bus Drivers, Transit and Intercity	2%	224
533022	Bus Drivers, School	3%	299
533032	Truck Drivers, Heavy and Tractor-Trailer	4%	2518
533033	Truck Drivers, Light or Delivery Services	3%	1013
533041	Taxi Drivers and Chauffeurs	4%	126
533099	Motor Vehicle Operators, All Other	2%	108
534011	Locomotive Engineers	4%	80
534031	Railroad Conductors and Yardmasters	-1%	-17
534041	Subway and Streetcar Operators	2%	14
537051	Industrial Truck and Tractor Operators	2%	390
537062	Laborers and Freight, Stock, and Material Movers, Hand	2%	1910
537064	Packers and Packagers, Hand	3%	960

## Long Term Projections

SOC	Occupational Title	Estimated Total Percent Change 2004-2010	Employment Change, 2004-2010
<b>Management</b>			
111021	General and Operations Managers	7%	6279
112022	Sales Managers	15%	2809
113021	Computer and Information Systems Managers	22%	2730
113031	Financial Managers	10%	2929
113061	Purchasing Managers	-2%	-139
113071	Transportation, Storage, and Distribution Managers	9%	477
<b>Business &amp; Financial Occupations</b>			
132011	Accountants and Auditors	8%	3299
<b>Computers &amp; Mathematics</b>			
151021	Computer Programmers	7%	1650
151032	Computer Software Engineers, Systems Software	38%	2780
151041	Computer Support Specialists	42%	8836
151051	Computer Systems Analysts	30%	7217
151071	Network and Computer Systems Administrators	40%	4042
<b>Arts, Design, &amp; Media</b>			
273043	Writers and Authors	7%	223
<b>Building &amp; Grounds</b>			
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	9%	7923
<b>Installation, Maintenance, &amp; Repair</b>			
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	8%	850
<b>Engineering</b>			
172072	Electronics Engineers, Except Computer	9%	344
<b>Sales Related</b>			
412022	Parts Salespersons	-2%	-116
412031	Retail Salespersons	5%	5863
413099	Sales Representatives, Services, All Other	12%	291
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	2%	379
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	2%	1112
419041	Telemarketers	14%	2298
432011	Switchboard Operators, Including Answering Service	-10%	-708
<b>Customer Service &amp; Clerical</b>			
433031	Bookkeeping, Accounting, and Auditing Clerks	2%	1212
434051	Customer Service Representatives	16%	13048

SOC	Occupational Title	Estimated Total Percent Change 2004-2010	Employment Change, 2004-2010
436011	Executive Secretaries and Administrative Assistants	6%	3036
439061	Office Clerks, General	9%	9258
<b>Administrative Production Personnel</b>			
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	4%	1942
435032	Dispatchers, Except Police, Fire, and Ambulance	13%	777
435071	Shipping, Receiving, and Traffic Clerks	3%	1062
435081	Stock Clerks and Order Fillers	2%	1368
<b>Production</b>			
511011	First-Line Supervisors/Managers of Production and Operating Workers	0%	102
514033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	1%	36
519199	Production Workers, All Other	19%	13136
<b>Transportation &amp; Materials Moving</b>			
531031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	10%	504
533021	Bus Drivers, Transit and Intercity	7%	686
533022	Bus Drivers, School	8%	922
533032	Truck Drivers, Heavy and Tractor-Trailer	11%	7837
533033	Truck Drivers, Light or Delivery Services	8%	3123
533041	Taxi Drivers and Chauffeurs	11%	393
533099	Motor Vehicle Operators, All Other	7%	331
534011	Locomotive Engineers	12%	248
534031	Railroad Conductors and Yardmasters	-3%	-50
534041	Subway and Streetcar Operators	5%	44
537051	Industrial Truck and Tractor Operators	6%	1195
537062	Laborers and Freight, Stock, and Material Movers, Hand	7%	5861
537064	Packers and Packagers, Hand	8%	2959

## Appendix P: Comparisons Between County and State Wages, Growth Rates and Replacements

### Six Year Projections

SOC	Occupation	Cook	DeKalb	DuPage	Grund	Lake	Kankakee	Kane	Kendall	McHenry	Will
151032	Computer Software Engineers, Systems Software	37%	25%	41%	33%	41%	28%	44%	22%	32%	37%
		1861	10	457	5	188	10	152	4	38	57
151051	Computer Systems Analysts	29%	23%	32%	14%	29%	20%	35%	14%	23%	27%
		4763	26	1207	8	538	31	416	7	75	161
151071	Network and Computer Systems Administrators	40%	45%	43%	33%	42%	29%	48%	35%	36%	41%
		2704	23	646	8	297	19	218	6	49	95
151021	Computer Programmers	7%	-1%	9%	1%	8%	0%	12%	-6%	4%	7%
		1012	-1	336	1	134	0	129	-2	12	37
151041	Computer Support Specialists	42%	36%	42%	40%	43%	34%	46%	28%	35%	41%
		5904	47	1402	19	624	47	455	12	118	212
519199	Production Workers, All Other	19%	6%	20%	3%	19%	6%	20%	2%	10%	18%
		8504	21	2314	5	957	25	884	5	119	310
419041	Telemarketers	14%	14%	15%	2%	15%	9%	17%	8%	11%	14%
		1480	8	398	1	183	7	145	2	26	53
531031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	10%	12%	11%	13%	9%	5%	9%	0%	12%	8%
		347	3	83	2	27	2	16	0	12	15
434051	Customer Service Representatives	16%	13%	16%	4%	16%	10%	16%	8%	12%	10%
		8904	51	2121	18	933	62	561	16	143	232
432011	Switchboard Operators, Including Answering Service	-11%	-19%	-8%	-15%	-10%	-13%	-9%	-20%	-12%	-10%
		-499	-7	-79	-2	-45	-7	-28	-3	-13	-19
172072	Electronics Engineers, Except Computer	9%	0%	12%	6%	10%	3%	10%	8%	7%	10%
		214	0	67	1	32	1	17	1	6	7
273043	Writers and Authors	6%	11%	8%	N/A	10%	3%	8%	0%	7%	10%
		137	2	41	N/A	16	1	10	0	7	6
537064	Packers and Packagers, Hand	7%	6%	11%	2%	9%	2%	12%	5%	12%	8%
		1704	12	552	2	246	7	242	9	93	92
534041	Subway and Streetcar Operators	5%	0%	5%	N/A	6%	10%	2%	N/A	3%	4%
		33	0	4	N/A	3	1	1	N/A	1	1

SOC	Occupation	Cook	Dekalb	DuPage	Grundys	Lake	Kankakee	Kane	Kendall	McHenry	Will
514033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	1%	0%	3%	N/A	-1%	-8%	2%	2%	2%	1%
		21	0	14	N/A	-3	-2	4	1	2	1
533099	Motor Vehicle Operators, All Other	7%	7%	7%	0%	7%	4%	6%	10%	7%	6%
		212	2	56	0	27	2	12	1	7	11
113071	Transportation, Storage, and Distribution Managers	9%	5%	10%	0%	6%	8%	7%	3%	7%	8%
		339	1	78	0	20	5	12	1	7	12
534031	Railroad Conductors and Yardmasters	-2%	-4%	-7%	0%	-1%	0%	-9%	-10%	-5%	-2%
		-20	-1	-11	0	-1	0	-6	-1	-2	-4
534011	Locomotive Engineers	13%	7%	7%	7%	14%	13%	5%	5%	8%	12%
		197	1	13	1	8	3	4	1	3	24
413099	Sales Representatives, Services, All Other	12%	8%	12%	N/A	14%	7%	16%	N/A	12%	15%
		186	1	53	N/A	22	1	16	N/A	3	8
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	8%	5%	10%	2%	10%	5%	10%	4%	7%	9%
		5047	38	1252	5	648	34	523	10	107	254
113061	Purchasing Managers	-3%	-8%	0%	-9%	-2%	-8%	-3%	-9%	-5%	-3%
		-103	-3	-4	-1	-10	-4	-8	-2	-7	-7
112022	Sales Managers	15%	12%	16%	14%	15%	9%	17%	12%	14%	14%
		1804	13	488	7	210	14	146	9	52	75
533041	Taxi Drivers and Chauffeurs	12%	11%	10%	10%	13%	6%	11%	14%	9%	12%
		275	2	55	1	26	2	11	1	4	17
435032	Dispatchers, Except Police, Fire, and Ambulance	13%	14%	14%	7%	12%	6%	14%	10%	10%	10%
		539	4	136	2	37	4	29	2	9	21
537062	Laborers and Freight, Stock, and Material Movers, Hand	7%	3%	8%	3%	7%	0%	9%	2%	4%	5%
		3715	16	1125	10	411	4	349	7	66	153
439061	Office Clerks, General	9%	4%	10%	2%	9%	3%	10%	5%	6%	7%
		5972	32	1667	8	696	28	485	18	127	237
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	9%	3%	8%	1%	7%	1%	7%	8%	6%	6%
		587	2	134	1	53	1	32	3	15	23
537051	Industrial Truck and Tractor Operators	6%	2%	8%	3%	5%	0%	6%	3%	3%	5%
		752	3	256	2	70	1	62	3	16	31
533032	Truck Drivers, Heavy and Tractor-Trailer	12%	10%	12%	10%	10%	5%	12%	6%	9%	9%
		5356	42	1320	31	353	40	307	19	116	246

SOC	Occupation	Cook	Dekalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will
113021	Computer and Information Systems Managers	22%	21%	22%	24%	22%	17%	24%	22%	19%	20%
		1849	13	422	6	190	15	128	8	39	59
113031	Financial Managers	10%	6%	12%	10%	11%	5%	10%	7%	8%	9%
		1928	9	517	7	234	10	119	6	39	69
533022	Bus Drivers, School	8%	4%	8%	10%	10%	4%	8%	9%	4%	11%
		580	6	124	6	82	6	33	4	9	68
511011	First-Line Supervisors/Managers of Production and Operating Workers	0%	-1%	3%	-1%	-1%	-4%	1%	-1%	0%	-1%
		25	-3	90	-1	-14	-11	19	-1	2	-12
433031	Bookkeeping, Accounting, and Auditing Clerks	2%	-1%	4%	-2%	3%	-1%	3%	-3%	1%	1%
		735	-4	300	-4	102	-7	65	-5	8	14
533033	Truck Drivers, Light or Delivery Services	9%	6%	8%	6%	8%	2%	8%	3%	7%	6%
		2186	14	470	7	181	8	122	5	53	81
436011	Executive Secretaries and Administrative Assistants	6%	3%	8%	2%	7%	1%	7%	2%	4%	5%
		1941	10	566	3	245	6	160	2	37	74
412022	Parts Salespersons	-2%	-4%	0%	-4%	-2%	-7%	-3%	-5%	-3%	-4%
		-64	-2	-4	-1	-13	-5	-8	-1	-5	-11
132011	Accountants and Auditors	8%	7%	10%	5%	9%	4%	7%	8%	9%	8%
		2146	13	605	5	283	8	110	7	51	68
111021	General and Operations Managers	7%	4%	8%	5%	7%	3%	8%	2%	6%	6%
		3979	27	1136	14	479	25	311	8	119	182
412031	Retail Salespersons	4%	9%	6%	6%	7%	3%	7%	8%	9%	6%
		2880	81	1221	26	691	55	371	48	228	254
435081	Stock Clerks and Order Fillers	1%	3%	4%	1%	4%	1%	6%	2%	6%	2%
		532	14	368	2	177	7	152	5	83	41
435071	Shipping, Receiving, and Traffic Clerks	3%	1%	5%	2%	3%	0%	4%	0%	3%	2%
		593	2	248	2	91	-1	65	0	20	23
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	4%	2%	6%	1%	5%	1%	4%	2%	4%	4%
		1199	5	395	2	147	6	84	3	38	57
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	2%	1%	3%	-1%	3%	-1%	3%	-1%	1%	3%
		178	1	106	-1	52	-1	21	-1	5	17
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	2%	1%	3%	-1%	3%	-1%	3%	0%	1%	2%

SOC	Occupation	Cook	DeKalb	DuPage	Grund	Lake	Kankakee	Kane	Kendall	McHenry	Will
		529	2	324	-2	145	-3	71	1	16	32
533021	Bus Drivers, Transit and Intercity	7%	5%	7%	8%	7%	5%	4%	4%	4%	6%
		505	4	72	3	45	4	15	2	9	26

## Two Year Projections

SOC	Occupations	Cook	DeKalb	DuPage	Grund	Lake	Kankakee	Kane	Kendall	McHenry	Will
151021	Computer Programmers	2%	0%	3%	0%	3%	0%	4%	-2%	1%	2%
		330	0	109	0	43	0	41	-1	4	12
151051	Computer Systems Analysts	9%	7%	10%	5%	9%	6%	10%	4%	7%	8%
		1453	8	366	3	164	10	125	2	23	49
151032	Computer Software Engineers, Systems Software	11%	8%	12%	10%	12%	9%	13%	7%	10%	11%
		556	3	135	2	56	3	45	1	12	17
519199	Production Workers, All Other	6%	2%	6%	1%	6%	2%	6%	1%	3%	6%
		2674	7	724	2	301	8	277	2	38	98
151071	Network and Computer Systems Administrators	12%	13%	13%	10%	12%	9%	14%	10%	11%	12%
		802	7	190	2	88	6	64	2	15	28
151041	Computer Support Specialists	12%	11%	12%	12%	13%	10%	13%	8%	10%	12%
		1745	14	414	6	184	14	133	4	35	63
419041	Telemarketers	5%	4%	5%	1%	5%	3%	5%	3%	4%	4%
		471	3	127	0	58	2	46	1	8	17
432011	Switchboard Operators, Including Answering Service	-4%	-7%	-3%	-5%	-3%	-5%	-3%	-7%	-4%	-3%
		-173	-3	-27	-1	-16	-3	-10	-1	-5	-6
531031	First-Line Supervisors/Managers of Transportation Vehicle Operators	3%	4%	4%	4%	3%	2%	3%	0%	4%	2%
		112	1	27	1	9	1	5	0	4	5
514033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	0%	0%	1%	N/A	0%	-3%	1%	1%	1%	0%
		7	0	5	N/A	-1	-1	1	0	1	0
434051	Customer Service Representatives	5%	4%	5%	1%	5%	3%	5%	3%	4%	3%
		2822	16	672	6	296	20	178	5	46	75
172072	Electronics Engineers, Except Computer	3%	0%	4%	2%	3%	1%	3%	3%	2%	3%
		69	0	21	0	10	0	5	0	2	2
534031	Railroad Conductors and Yardmasters	-1%	-1%	-2%	0%	0%	0%	-3%	-3%	-2%	-1%
		-7	0	-4	0	0	0	-2	0	-1	-1
537064	Packers and Packagers, Hand	2%	2%	3%	1%	3%	1%	4%	2%	4%	3%
		554	4	178	1	80	2	77	3	30	30
533099	Motor Vehicle Operators, All Other	2%	2%	2%	0%	2%	1%	2%	3%	2%	2%
		69	1	18	0	9	1	4	0	2	4
113071	Transportation, Storage, and Distribution Managers	3%	2%	3%	0%	2%	3%	2%	1%	2%	2%



SOC	Occupations	Cook	DeKalb	DuPage	Grund	Lake	Kankakee	Kane	Kendall	McHenry	Will
		110	0	25	0	6	2	4	0	2	4
413099	Sales Representatives, Services, All Other	4%	3%	4%	N/A	4%	2%	5%	N/A	4%	5%
		60	0	17	N/A	7	0	5	N/A	1	3
273043	Writers and Authors	2%	3%	3%	N/A	3%	1%	3%	0%	2%	3%
		45	1	13	N/A	5	0	3	0	2	2
534041	Subway and Streetcar Operators	2%	0%	2%	N/A	2%	3%	1%	N/A	1%	1%
		11	0	1	N/A	1	0	0	N/A	0	0
113061	Purchasing Managers	-1%	-3%	0%	-3%	-1%	-3%	-1%	-3%	-2%	-1%
		-35	-1	-1	0	-3	-1	-3	-1	-2	-2
534011	Locomotive Engineers	4%	2%	2%	2%	4%	4%	2%	1%	2%	4%
		63	0	4	0	2	1	1	0	1	8
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	3%	2%	3%	1%	3%	1%	3%	1%	2%	3%
		1638	13	405	2	209	11	169	3	35	82
537062	Laborers and Freight, Stock, and Material Movers, Hand	2%	1%	3%	1%	2%	0%	3%	1%	1%	2%
		1211	5	365	3	134	1	113	2	22	50
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	3%	1%	3%	0%	2%	0%	2%	3%	2%	2%
		190	1	43	0	17	0	10	1	5	7
533041	Taxi Drivers and Chauffeurs	4%	3%	3%	3%	4%	2%	4%	5%	3%	4%
		88	1	18	0	8	1	3	0	1	5
439061	Office Clerks, General	3%	1%	3%	1%	3%	1%	3%	2%	2%	2%
		1935	11	537	3	225	9	157	6	41	77
112022	Sales Managers	5%	4%	5%	4%	5%	3%	6%	4%	4%	4%
		573	4	155	2	67	4	46	3	17	24
537051	Industrial Truck and Tractor Operators	2%	1%	3%	1%	2%	0%	2%	1%	1%	2%
		246	1	83	1	23	0	20	1	5	10
435032	Dispatchers, Except Police, Fire, and Ambulance	4%	4%	4%	2%	4%	2%	4%	3%	3%	3%
		173	1	43	1	12	1	9	1	3	7
533032	Truck Drivers, Heavy and Tractor-Trailer	4%	3%	4%	3%	3%	2%	4%	2%	3%	3%
		1720	13	423	10	114	13	98	6	38	80
113031	Financial Managers	3%	2%	4%	3%	4%	2%	3%	2%	3%	3%
		622	3	166	2	75	3	38	2	13	22
511011	First-Line Supervisors/Managers of Production and Operating Workers	0%	0%	1%	0%	0%	-1%	0%	0%	0%	0%
		8	-1	30	0	-5	-4	6	0	1	-4
533022	Bus Drivers, School	3%	1%	3%	3%	3%	1%	2%	3%	1%	3%

SOC	Occupations	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will
		188	2	40	2	26	2	11	1	3	22
433031	Bookkeeping, Accounting, and Auditing Clerks	1%	0%	1%	-1%	1%	0%	1%	-1%	0%	0%
		243	-1	99	-1	34	-2	22	-2	3	5
113021	Computer and Information Systems Managers	7%	6%	7%	7%	7%	5%	8%	7%	6%	6%
		576	4	131	2	59	5	40	2	12	19
412022	Parts Salespersons	-1%	-1%	0%	-1%	-1%	-2%	-1%	-2%	-1%	-1%
		-21	-1	-1	0	-4	-2	-3	0	-2	-4
533033	Truck Drivers, Light or Delivery Services	3%	2%	3%	2%	2%	1%	3%	1%	2%	2%
		708	5	152	2	59	3	40	2	17	27
436011	Executive Secretaries and Administrative Assistants	2%	1%	3%	1%	2%	0%	2%	1%	1%	2%
		635	3	184	1	80	2	52	1	12	24
132011	Accountants and Auditors	3%	2%	3%	2%	3%	1%	2%	3%	3%	2%
		697	4	195	2	92	3	36	2	17	22
111021	General and Operations Managers	2%	1%	3%	2%	2%	1%	3%	1%	2%	2%
		1296	9	369	5	156	8	101	3	39	60
412031	Retail Salespersons	1%	3%	2%	2%	2%	1%	2%	2%	3%	2%
		947	26	399	8	225	18	121	16	74	83
435071	Shipping, Receiving, and Traffic Clerks	1%	0%	2%	1%	1%	0%	1%	0%	1%	1%
		196	1	81	1	30	0	21	0	7	8
435081	Stock Clerks and Order Fillers	0%	1%	1%	0%	1%	0%	2%	1%	2%	1%
		176	5	121	1	58	2	50	2	27	14
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	1%	0%	1%	0%	1%	0%	1%	0%	0%	1%
		59	0	35	0	17	0	7	0	2	6
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	1%	0%	1%	0%	1%	0%	1%	0%	0%	1%
		175	1	107	-1	48	-1	24	0	5	11
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	1%	1%	2%	0%	1%	0%	1%	1%	1%	1%
		395	2	129	1	48	2	28	1	12	19
533021	Bus Drivers, Transit and Intercity	2%	2%	2%	3%	2%	2%	1%	1%	1%	2%
		165	1	24	1	15	1	5	1	3	8

## Annual Growth Openings

SOC	Occupations	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will
151051	Computer Systems Analysts	5%	4%	6%	2%	5%	4%	6%	2%	4%	5%
		732	4	184	1	83	5	63	1	12	25
534011	Locomotive Engineers	2%	0%	1%	0%	2%	4%	1%	0%	3%	2%
		32	0	2	0	1	1	1	0	1	4
151071	Network and Computer Systems Administrators	8%	8%	8%	5%	8%	6%	9%	7%	6%	8%
		406	3	97	1	45	3	32	1	7	14
435032	Dispatchers, Except Police, Fire, and Ambulance	2%	4%	2%	0%	2%	2%	3%	0%	1%	1%
		86	1	22	0	6	1	5	0	1	3
413099	Sales Representatives, Services, All Other	2%	0%	2%	N/A	3%	0%	3%	N/A	4%	2%
		30	0	9	N/A	4	0	3	N/A	1	1
531031	First-Line Supervisors/Managers of Transportation Vehicle Operators	2%	4%	2%	0%	1%	0%	2%	0%	2%	1%
		56	1	13	0	4	0	3	0	2	2
151041	Computer Support Specialists	8%	6%	8%	8%	8%	6%	9%	5%	6%	8%
		884	7	210	3	93	7	68	2	18	32
519199	Production Workers, All Other	3%	1%	4%	1%	3%	1%	4%	1%	2%	3%
		1341	4	363	1	151	4	139	1	19	49
419041	Telemarketers	2%	2%	3%	0%	3%	1%	3%	0%	2%	3%
		236	1	63	0	29	1	23	0	4	9
533021	Bus Drivers, Transit and Intercity	1%	1%	1%	3%	1%	1%	1%	0%	1%	1%
		82	1	12	1	7	1	2	0	2	4
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	1%	0%	1%	0%	1%	0%	1%	3%	1%	1%
		95	0	22	0	9	0	5	1	2	4
151032	Computer Software Engineers, Systems Software	7%	6%	8%	8%	8%	6%	8%	7%	6%	7%
		281	2	69	1	28	2	23	1	6	9
533041	Taxi Drivers and Chauffeurs	2%	0%	2%	0%	2%	0%	2%	0%	2%	2%
		44	0	9	0	4	0	2	0	1	3
151021	Computer Programmers	1%	0%	2%	0%	1%	0%	2%	0%	1%	1%
		165	0	54	0	22	0	21	0	2	6
537064	Packers and Packagers, Hand	1%	1%	2%	0%	2%	0%	2%	1%	2%	1%
		277	2	89	0	40	1	39	2	15	15
434051	Customer Service Representatives	3%	2%	3%	1%	3%	2%	3%	2%	2%	2%
		1414	8	337	3	148	10	89	3	23	38
172072	Electronics Engineers, Except	2%	0%	2%	0%	2%	0%	2%	0%	1%	1%

SOC	Occupations	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will
	Computer	35	0	11	0	5	0	3	0	1	1
273043	Writers and Authors	1%	0%	1%	N/A	2%	0%	2%	0%	1%	2%
		22	0	7	N/A	3	0	2	0	1	1
534041	Subway and Streetcar Operators	1%	0%	1%	N/A	2%	0%	0%	N/A	0%	0%
		5	0	1	N/A	1	0	0	N/A	0	0
113021	Computer and Information Systems Managers	4%	4%	4%	4%	4%	3%	4%	3%	3%	4%
		289	2	66	1	30	2	20	1	6	9
113071	Transportation, Storage, and Distribution Managers	2%	0%	2%	0%	1%	2%	1%	0%	1%	1%
		55	0	13	0	3	1	2	0	1	2
112022	Sales Managers	3%	2%	3%	2%	3%	1%	3%	3%	2%	2%
		287	2	78	1	33	2	23	2	8	12
533022	Bus Drivers, School	1%	1%	1%	2%	2%	1%	1%	2%	1%	2%
		94	1	20	1	13	1	5	1	2	11
439061	Office Clerks, General	1%	1%	2%	0%	2%	1%	2%	1%	1%	1%
		968	5	269	1	113	5	79	3	21	39
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	1%	1%	2%	0%	2%	1%	2%	1%	1%	1%
		820	6	203	1	105	6	84	2	18	41
537051	Industrial Truck and Tractor Operators	1%	1%	1%	0%	1%	0%	1%	1%	1%	1%
		123	1	42	0	12	0	10	1	3	5
537062	Laborers and Freight, Stock, and Material Movers, Hand	1%	1%	1%	1%	1%	0%	1%	0%	1%	1%
		606	3	183	2	67	1	57	1	11	25
436011	Executive Secretaries and Administrative Assistants	1%	1%	1%	1%	1%	0%	1%	0%	1%	1%
		318	2	92	1	40	1	26	0	6	12
132011	Accountants and Auditors	1%	1%	2%	1%	2%	0%	1%	1%	1%	1%
		349	2	98	1	46	1	18	1	8	11
533099	Motor Vehicle Operators, All Other	1%	0%	1%	0%	1%	0%	1%	0%	1%	1%
		35	0	9	0	4	0	2	0	1	2
533032	Truck Drivers, Heavy and Tractor-Trailer	2%	2%	2%	2%	2%	1%	2%	1%	1%	2%
		861	7	212	5	57	7	49	3	19	40
533033	Truck Drivers, Light or Delivery Services	2%	1%	1%	1%	1%	0%	1%	1%	1%	1%
		355	2	76	1	29	1	20	1	9	13
111021	General and Operations Managers	1%	1%	1%	1%	1%	0%	1%	0%	1%	1%
		648	4	185	2	78	4	51	1	20	30

SOC	Occupations	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will
113031	Financial Managers	2%	1%	2%	2%	2%	1%	2%	1%	1%	2%
		311	2	83	1	38	2	19	1	6	11
435081	Stock Clerks and Order Fillers	0%	0%	1%	0%	1%	0%	1%	0%	1%	0%
		88	2	61	0	29	1	25	1	14	7
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	1%	0%	1%	0%	1%	0%	1%	1%	1%	1%
		197	1	65	0	24	1	14	1	6	9
412031	Retail Salespersons	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
		474	13	199	4	113	9	61	8	37	42
435071	Shipping, Receiving, and Traffic Clerks	1%	0%	1%	0%	1%	0%	1%	0%	0%	0%
		98	0	41	0	15	0	11	0	3	4
433031	Bookkeeping, Accounting, and Auditing Clerks	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
		122	0	49	0	17	0	11	0	1	2
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	0%	0%	1%	0%	1%	0%	1%	0%	0%	1%
		30	0	17	0	9	0	4	0	1	3
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%
		88	0	54	0	24	0	12	0	3	5
511011	First-Line Supervisors/Managers of Production and Operating Workers	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
		4	0	15	0	0	0	3	0	0	0
514033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	0%	0%	0%	N/A	0%	0%	0%	0%	0%	0%
		4	0	2	N/A	0	0	1	0	0	0
412022	Parts Salespersons	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
		0	0	0	0	0	0	0	0	0	0
113061	Purchasing Managers	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
		0	0	0	0	0	0	0	0	0	0
534031	Railroad Conductors and Yardmasters	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
		0	0	0	0	0	0	0	0	0	0
432011	Switchboard Operators, Including Answering Service	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
		0	0	0	0	0	0	0	0	0	0

## Replacements

SOC	Occupations	Cook	Dekalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will
534031	Railroad Conductors and Yardmasters	4%	6%	4%	0%	4%	4%	4%	0%	5%	5%
		60	1	7	0	2	1	3	0	2	8
413099	Sales Representatives, Services, All Other	2%	0%	2%	N/A	2%	6%	2%	N/A	4%	2%
		31	0	9	N/A	3	1	2	N/A	1	1
113061	Purchasing Managers	3%	3%	3%	7%	3%	4%	3%	4%	3%	3%
		117	1	34	1	17	2	9	1	5	6
172072	Electronics Engineers, Except Computer	2%	4%	2%	0%	2%	4%	2%	0%	1%	1%
		41	1	10	0	6	1	3	0	1	1
435032	Dispatchers, Except Police, Fire, and Ambulance	2%	4%	2%	4%	2%	2%	2%	0%	1%	1%
		63	1	15	1	5	1	3	0	1	3
531031	First-Line Supervisors/Managers of Transportation Vehicle Operators	2%	4%	2%	0%	2%	2%	2%	0%	2%	2%
		69	1	15	0	6	1	4	0	2	4
432011	Switchboard Operators, Including Answering Service	3%	2%	3%	6%	3%	3%	3%	6%	3%	3%
		145	1	30	1	15	2	10	1	4	6
533099	Motor Vehicle Operators, All Other	2%	4%	2%	0%	2%	2%	2%	0%	2%	2%
		47	1	13	0	7	1	3	0	2	3
113021	Computer and Information Systems Managers	2%	2%	2%	4%	2%	1%	2%	3%	2%	2%
		125	1	28	1	13	1	8	1	3	4
534041	Subway and Streetcar Operators	2%	0%	3%	N/A	2%	0%	3%	N/A	0%	3%
		13	0	2	N/A	1	0	1	N/A	0	1
514033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2%	2%	2%	N/A	3%	5%	2%	3%	3%	3%
		51	1	12	N/A	7	1	5	1	4	3
534011	Locomotive Engineers	2%	0%	2%	0%	2%	0%	3%	0%	3%	2%
		30	0	4	0	1	0	2	0	1	4
419041	Telemarketers	2%	2%	2%	3%	2%	3%	2%	5%	2%	2%
		195	1	51	1	23	2	16	1	4	7
113071	Transportation, Storage, and Distribution Managers	2%	0%	2%	0%	2%	2%	2%	0%	2%	2%
		58	0	13	0	5	1	3	0	2	3
273043	Writers and Authors	2%	0%	2%	N/A	2%	0%	2%	0%	2%	2%
		35	0	8	N/A	3	0	2	0	2	1

SOC	Occupations	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will
151051	Computer Systems Analysts	1%	1%	1%	2%	1%	1%	1%	0%	1%	1%
		120	1	28	1	14	1	9	0	3	4
412022	Parts Salespersons	3%	4%	3%	3%	3%	3%	3%	4%	3%	3%
		106	2	37	1	19	2	8	1	5	8
112022	Sales Managers	1%	1%	1%	2%	1%	1%	1%	1%	1%	1%
		155	1	39	1	19	2	11	1	5	7
533041	Taxi Drivers and Chauffeurs	1%	0%	1%	0%	1%	0%	1%	0%	0%	1%
		18	0	4	0	2	0	1	0	0	1
151032	Computer Software Engineers, Systems Software	1%	0%	1%	0%	1%	0%	1%	0%	1%	1%
		27	0	6	0	3	0	2	0	1	1
151041	Computer Support Specialists	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%
		48	1	11	0	5	1	3	0	1	2
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	3%	3%	3%	2%	3%	2%	3%	3%	3%	3%
		165	2	39	1	19	2	11	1	6	10
151071	Network and Computer Systems Administrators	0%	0%	0%	0%	0%	0%	1%	0%	1%	1%
		23	0	5	0	2	0	2	0	1	1
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	3%	2%	3%	2%	3%	3%	3%	2%	3%	3%
		260	2	86	1	46	4	19	1	10	14
533022	Bus Drivers, School	3%	3%	3%	2%	2%	2%	3%	2%	3%	3%
		175	4	36	1	19	3	11	1	5	15
132011	Accountants and Auditors	1%	2%	1%	2%	1%	1%	1%	1%	1%	2%
		368	3	85	2	42	3	21	1	8	13
533021	Bus Drivers, Transit and Intercity	3%	2%	3%	3%	2%	2%	2%	2%	3%	3%
		175	2	27	1	15	2	9	1	5	11
436011	Executive Secretaries and Administrative Assistants	2%	2%	2%	1%	2%	2%	2%	2%	2%	2%
		549	6	118	2	58	7	37	3	15	25
537064	Packers and Packagers, Hand	3%	3%	3%	2%	3%	2%	3%	2%	3%	2%
		555	5	124	2	63	8	46	4	19	26
537051	Industrial Truck and Tractor Operators	1%	2%	1%	2%	1%	1%	1%	1%	1%	1%
		161	2	41	1	20	3	14	1	6	9
151021	Computer Programmers	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
		299	2	71	1	31	3	20	1	6	10
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	3%	3%	3%	3%	3%	3%	3%	2%	3%	3%

SOC	Occupations	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will
		890	8	274	4	122	12	65	5	34	43
113031	Financial Managers	2%	1%	2%	2%	2%	2%	2%	1%	1%	1%
		271	2	60	1	29	3	17	1	7	10
533033	Truck Drivers, Light or Delivery Services	1%	1%	1%	2%	1%	1%	1%	1%	1%	1%
		325	3	75	2	31	5	19	2	11	17
511011	First-Line Supervisors/Managers of Production and Operating Workers	3%	3%	3%	3%	3%	3%	3%	2%	3%	3%
		394	6	90	3	59	7	40	4	20	22
435081	Stock Clerks and Order Fillers	4%	4%	4%	3%	4%	4%	4%	3%	4%	4%
		1309	15	325	7	169	26	92	9	47	73
434051	Customer Service Representatives	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
		424	3	99	3	46	5	27	2	10	18
519199	Production Workers, All Other	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
		724	6	179	3	81	7	69	3	20	28
433031	Bookkeeping, Accounting, and Auditing Clerks	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
		634	7	145	3	71	9	43	4	20	31
435071	Shipping, Receiving, and Traffic Clerks	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
		369	4	100	2	52	7	29	3	15	19
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
		569	6	129	3	61	8	39	3	16	27
111021	General and Operations Managers	2%	2%	2%	2%	2%	2%	2%	1%	2%	2%
		901	9	218	5	108	13	63	5	30	48
537062	Laborers and Freight, Stock, and Material Movers, Hand	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
		1704	16	444	10	194	27	129	11	59	91
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
		1044	13	222	5	111	13	84	5	26	51
439061	Office Clerks, General	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
		1242	14	286	7	139	18	90	6	36	62
412031	Retail Salespersons	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
		2655	33	705	16	378	62	194	22	96	156
533032	Truck Drivers, Heavy and Tractor-Trailer	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
		584	5	138	4	46	11	33	4	17	33





## Entry Level Wages

SOC	Occupation	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will	Illinois
533099	Motor Vehicle Operators, All Other	-7%	N/A	0%	N/A	66%	-3%	125%	N/A	24%	N/A	
		\$6.25	N/A	\$6.70	N/A	\$11.14	\$6.50	\$15.09	N/A	\$8.30	N/A	\$6.72
533022	Bus Drivers, School	13%	24%	76%	N/A	35%	-26%	20%	N/A	N/A	14%	
		\$9.56	\$10.50	\$14.91	N/A	\$11.49	\$6.32	\$10.16	N/A	N/A	\$9.67	\$8.49
514033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	1%	N/A	2%	N/A	6%	N/A	-4%	N/A	-10%	81%	
		\$9.48	N/A	\$9.58	N/A	\$9.89	N/A	\$8.96	N/A	\$8.41	\$16.94	\$9.36
414012	Sales Reps, Wholesale and Mfg, Except Tech & Scientific Products	3%	7%	14%	78%	22%	-10%	21%	N/A	17%	10%	
		\$12.55	\$13.03	\$13.89	\$21.72	\$14.80	\$10.96	\$14.69	N/A	\$14.25	\$13.41	\$12.17
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	9%	67%	10%	-14%	-4%	-11%	-1%	28%	14%	-6%	
		\$13.44	\$20.55	\$13.53	\$10.53	\$11.82	\$10.87	\$12.15	\$15.71	\$14.01	\$11.50	\$12.28
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	-3%	63%	28%	-3%	3%	-4%	-16%	33%	56%	15%	
		\$14.28	\$23.97	\$18.86	\$14.27	\$15.14	\$14.14	\$12.32	\$19.53	\$22.95	\$16.84	\$14.68
435032	Dispatchers, Except Police, Fire, and Ambulance	-4%	N/A	19%	N/A	45%	2%	20%	-33%	10%	9%	
		\$8.98	N/A	\$11.12	N/A	\$13.55	\$9.53	\$11.20	\$6.26	\$10.32	\$10.14	\$9.34
113021	Computer and Information Systems Managers	9%	-17%	5%	N/A	29%	1%	5%	27%	-25%	-46%	
		\$27.17	\$20.73	\$26.20	N/A	\$32.05	\$25.08	\$26.16	\$31.47	\$18.62	\$13.31	\$24.85
412031	Retail Salespersons	6%	13%	-2%	-4%	11%	-6%	5%	66%	6%	2%	
		\$6.92	\$7.40	\$6.42	\$6.24	\$7.22	\$6.10	\$6.83	\$10.83	\$6.94	\$6.64	\$6.52
113031	Financial Managers	13%	16%	5%	49%	9%	-23%	6%	9%	15%	7%	
		\$24.73	\$25.34	\$22.97	\$32.42	\$23.88	\$16.72	\$23.21	\$23.73	\$25.05	\$23.41	\$21.82
111021	General and Operations Managers	19%	21%	25%	-21%	21%	-25%	-3%	8%	44%	14%	
		\$18.96	\$19.35	\$20.02	\$12.56	\$19.31	\$11.97	\$15.52	\$17.25	\$22.92	\$18.18	\$15.97
531031	First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	7%	N/A	5%	N/A	18%	-3%	56%	N/A	10%	-12%	

SOC	Occupation	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will	Illinois
		\$14.29	N/A	\$13.98	N/A	\$15.72	\$13.02	\$20.83	N/A	\$14.75	\$11.72	\$13.36
533033	Truck Drivers, Light or Delivery Services	4%	29%	54%	N/A	-8%	-28%	-3%	-11%	14%	-8%	
		\$9.43	\$11.71	\$13.95	N/A	\$8.35	\$6.56	\$8.79	\$8.12	\$10.38	\$8.38	\$9.08
412022	Parts Salespersons	-3%	N/A	0%	N/A	15%	14%	N/A	N/A	62%	21%	
		\$7.50	N/A	\$7.72	N/A	\$8.88	\$8.78	N/A	N/A	\$12.54	\$9.32	\$7.73
112022	Sales Managers	5%	46%	19%	N/A	3%	3%	-17%	2%	23%	8%	
		\$21.68	\$30.11	\$24.48	N/A	\$21.17	\$21.17	\$17.08	\$20.97	\$25.21	\$22.28	\$20.56
519199	Production Workers, All Other	0%	N/A	13%	N/A	0%	N/A	1%	62%	53%	2%	
		\$6.21	N/A	\$7.01	N/A	\$6.21	N/A	\$6.28	\$10.06	\$9.50	\$6.37	\$6.22
273043	Writers and Authors	69%	N/A	48%	N/A	109%	N/A	244%	N/A	N/A	N/A	
		\$15.60	N/A	\$13.67	N/A	\$19.33	N/A	\$31.80	N/A	N/A	N/A	\$9.24
132011	Accountants and Auditors	5%	-8%	11%	11%	-7%	-6%	0%	47%	13%	-11%	
		\$15.86	\$13.90	\$16.69	\$16.64	\$14.07	\$14.20	\$15.10	\$22.07	\$16.96	\$13.45	\$15.05
419041	Telemarketers	2%	N/A	2%	N/A	0%	-20%	6%	N/A	36%	N/A	
		\$7.76	N/A	\$7.83	N/A	\$7.64	\$6.08	\$8.09	N/A	\$10.41	N/A	\$7.64
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	-10%	N/A	16%	N/A	-9%	-7%	-21%	N/A	24%	34%	
		\$12.08	N/A	\$15.61	N/A	\$12.32	\$12.49	\$10.63	N/A	\$16.76	\$18.00	\$13.47
533032	Truck Drivers, Heavy and Tractor-Trailer	14%	-21%	9%	-2%	16%	-1%	0%	32%	21%	13%	
		\$14.72	\$10.17	\$14.05	\$12.64	\$14.95	\$12.70	\$12.85	\$16.96	\$15.58	\$14.61	\$12.89
113061	Purchasing Managers	0%	14%	22%	N/A	0%	11%	8%	46%	-3%	37%	
		\$17.16	\$19.58	\$20.94	N/A	\$17.08	\$19.02	\$18.57	\$25.00	\$16.56	\$23.50	\$17.14
511011	First-Line Supervisors/Managers of Production and Operating Workers	-2%	15%	-2%	46%	4%	26%	15%	36%	6%	2%	
		\$12.81	\$14.97	\$12.71	\$18.97	\$13.48	\$16.36	\$14.92	\$17.64	\$13.73	\$13.30	\$13.01
439061	Office Clerks, General	6%	7%	13%	25%	-4%	-4%	6%	-22%	-2%	14%	
		\$8.19	\$8.24	\$8.75	\$9.65	\$7.40	\$7.44	\$8.15	\$6.02	\$7.54	\$8.80	\$7.72
435071	Shipping, Receiving, and Traffic Clerks	2%	-11%	7%	24%	0%	-23%	8%	N/A	15%	-4%	
		\$8.84	\$7.69	\$9.22	\$10.68	\$8.68	\$6.69	\$9.35	N/A	\$9.95	\$8.29	\$8.64

SOC	Occupation	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will	Illinois
151071	Network and Computer Systems Administrators	10%	-5%	11%	N/A	3%	-28%	15%	N/A	-7%	15%	
		\$21.05	\$18.10	\$21.18	N/A	\$19.77	\$13.74	\$21.93	N/A	\$17.87	\$22.05	\$19.14
433031	Bookkeeping, Accounting, and Auditing Clerks	12%	-16%	23%	-2%	19%	-19%	6%	2%	-7%	7%	
		\$10.30	\$7.71	\$11.32	\$9.01	\$11.00	\$7.49	\$9.79	\$9.45	\$8.61	\$9.84	\$9.23
151032	Computer Software Engineers, Systems Software	3%	4%	-4%	N/A	29%	N/A	-6%	N/A	-11%	N/A	
		\$24.88	\$24.99	\$23.06	N/A	\$31.07	N/A	\$22.80	N/A	\$21.55	N/A	\$24.14
533021	Bus Drivers, Transit and Intercity	N/A	N/A	-16%	N/A	23%	N/A	N/A	N/A	N/A	N/A	
		N/A	N/A	\$7.88	N/A	\$11.46	N/A	N/A	N/A	N/A	N/A	\$9.34
434051	Customer Service Representatives	4%	-15%	9%	N/A	3%	-4%	9%	23%	15%	-13%	
		\$9.52	\$7.80	\$9.99	N/A	\$9.49	\$8.85	\$9.99	\$11.30	\$10.55	\$7.95	\$9.18
537062	Laborers and Freight, Stock, and Material Movers, Hand	7%	21%	-9%	N/A	9%	10%	-8%	29%	22%	14%	
		\$7.11	\$8.06	\$6.04	N/A	\$7.25	\$7.33	\$6.15	\$8.58	\$8.08	\$7.57	\$6.65
113071	Transportation, Storage, and Distribution Managers	6%	N/A	11%	N/A	-17%	-3%	10%	N/A	18%	-19%	
		\$19.53	N/A	\$20.32	N/A	\$15.18	\$17.90	\$20.25	N/A	\$21.71	\$14.96	\$18.36
436011	Executive Secretaries and Administrative Assistants	5%	14%	14%	3%	9%	-6%	-10%	13%	-1%	25%	
		\$11.49	\$12.50	\$12.51	\$11.22	\$11.94	\$10.22	\$9.85	\$12.34	\$10.81	\$13.71	\$10.93
151041	Computer Support Specialists	7%	1%	-12%	N/A	16%	1%	N/A	N/A	21%	-14%	
		\$13.03	\$12.38	\$10.81	N/A	\$14.24	\$12.41	N/A	N/A	\$14.75	\$10.51	\$12.23
151021	Computer Programmers	2%	-20%	14%	N/A	N/A	-3%	-11%	N/A	-2%	-1%	
		\$19.10	\$15.11	\$21.39	N/A	N/A	\$18.26	\$16.73	N/A	\$18.34	\$18.64	\$18.81
533041	Taxi Drivers and Chauffeurs	13%	N/A	N/A	N/A	-19%	0%	N/A	N/A	N/A	N/A	
		\$8.62	N/A	N/A	N/A	\$6.21	\$7.61	N/A	N/A	N/A	N/A	\$7.62
151051	Computer Systems Analysts	-1%	-11%	6%	N/A	-4%	-9%	-1%	N/A	-20%	-24%	
		\$22.71	\$20.24	\$24.17	N/A	\$21.82	\$20.87	\$22.67	N/A	\$18.32	\$17.31	\$22.83
432011	Switchboard Operators, Including Answering Service	6%	15%	24%	N/A	13%	-4%	-6%	N/A	10%	10%	
		\$8.43	\$9.12	\$9.86	N/A	\$8.94	\$7.61	\$7.46	N/A	\$8.71	\$8.76	\$7.93

SOC	Occupation	Cook	DeKalb	DuPage	Grund	Lake	Kankakee	Kane	Kendall	McHenry	Will	Illinois
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	3%	12%	2%	25%	-3%	3%	1%	17%	8%	9%	
		\$7.20	\$7.89	\$7.17	\$8.77	\$6.82	\$7.20	\$7.08	\$8.20	\$7.57	\$7.68	\$7.02
172072	Electronics Engineers, Except Computer	-1%	N/A	5%	N/A	23%	N/A	-4%	N/A	N/A	N/A	
		\$22.88	N/A	\$24.31	N/A	\$28.59	N/A	\$22.29	N/A	N/A	N/A	\$23.16
435081	Stock Clerks and Order Fillers	4%	-6%	8%	-9%	5%	-12%	5%	2%	8%	-9%	
		\$7.31	\$6.64	\$7.58	\$6.40	\$7.40	\$6.20	\$7.35	\$7.19	\$7.61	\$6.42	\$7.03
537064	Packers and Packagers, Hand	1%	20%	10%	N/A	0%	4%	11%	-3%	9%	-1%	
		\$6.52	\$7.74	\$7.08	N/A	\$6.42	\$6.68	\$7.14	\$6.26	\$7.01	\$6.37	\$6.45
537051	Industrial Truck and Tractor Operators	3%	4%	-3%	N/A	1%	-4%	4%	N/A	7%	7%	
		\$10.36	\$10.41	\$9.77	N/A	\$10.11	\$9.65	\$10.46	N/A	\$10.79	\$10.74	\$10.04
413099	Sales Representatives, Services, All Other	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		\$14.76	N/A	\$17.62	N/A	\$13.70	\$16.84	N/A	N/A	N/A	\$12.62	N/A
534011	Locomotive Engineers	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$16.23
534041	Subway and Streetcar Operators	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$16.76
534031	Railroad Conductors and Yardmasters	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$16.64

## Median Level Wages

SOC	Occupation	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will	Illinois
531031	First-Line Supervisors/Managers of Transportation Vehicle Operators	3%	N/A	6%	N/A	4%	-18%	172 %	N/A	-7%	-26%	
		\$22.40	N/A	\$23.06	N/A	\$22.64	\$17.89	\$58.95	N/A	\$20.11	\$16.13	\$21.69
273043	Writers and Authors	20%	N/A	1%	N/A	13%	N/A	111 %	N/A	N/A	N/A	
		\$23.00	N/A	\$19.26	N/A	\$21.65	N/A	\$40.42	N/A	N/A	N/A	\$19.13
412031	Retail Salespersons	7%	6%	1%	10%	5%	-11%	-2%	96%	4%	12%	
		\$9.35	\$9.25	\$8.79	\$9.57	\$9.19	\$7.79	\$8.51	\$17.08	\$9.10	\$9.79	\$8.72
533099	Motor Vehicle Operators, All Other	-10%	N/A	4%	N/A	69%	13%	88%	N/A	-11%	N/A	
		\$8.80	N/A	\$10.15	N/A	\$16.55	\$11.04	\$18.41	N/A	\$8.70	N/A	\$9.78
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	4%	38%	2%	57%	-26%	-2%	-1%	-8%	73%	8%	
		\$23.65	\$31.27	\$23.05	\$35.51	\$16.85	\$22.27	\$22.42	\$20.96	\$39.18	\$24.58	\$22.67
151032	Computer Software Engineers, Systems Software	-5%	-13%	14%	N/A	52%	N/A	-23%	N/A	-32%	N/A	
		\$36.52	\$33.45	\$43.58	N/A	\$58.27	N/A	\$29.38	N/A	\$26.03	N/A	\$38.32
111021	General and Operations Managers	14%	24%	18%	-34%	12%	-24%	1%	-5%	42%	4%	
		\$33.64	\$36.50	\$34.75	\$19.61	\$32.94	\$22.53	\$29.70	\$27.88	\$41.86	\$30.62	\$29.50
533033	Truck Drivers, Light or Delivery Services	-3%	11%	31%	N/A	-15%	-12%	-13%	-43%	-4%	-12%	
		\$14.07	\$15.99	\$18.96	N/A	\$12.32	\$12.71	\$12.64	\$8.23	\$13.89	\$12.76	\$14.45
519199	Production Workers, All Other	-9%	N/A	24%	N/A	11%	N/A	7%	62%	59%	28%	
		\$7.07	N/A	\$9.63	N/A	\$8.66	N/A	\$8.30	\$12.55	\$12.38	\$9.91	\$7.77
533022	Bus Drivers, School	0%	21%	52%	N/A	5%	-19%	12%	N/A	N/A	-7%	
		\$12.71	\$15.36	\$19.19	N/A	\$13.33	\$10.20	\$14.14	N/A	N/A	\$11.81	\$12.66
537064	Packers and Packagers, Hand	0%	33%	9%	N/A	1%	-9%	4%	-23%	16%	-7%	
		\$8.57	\$11.39	\$9.32	N/A	\$8.62	\$7.79	\$8.92	\$6.59	\$9.92	\$7.98	\$8.54
433031	Bookkeeping, Accounting, and Auditing Clerks	6%	-40%	12%	-6%	13%	-12%	-9%	-18%	-11%	12%	
		\$14.14	\$8.06	\$14.94	\$12.52	\$15.11	\$11.72	\$12.18	\$10.96	\$11.82	\$14.88	\$13.34
439061	Office Clerks, General	4%	3%	10%	12%	-4%	-7%	-2%	-39%	-7%	5%	
		\$11.45	\$11.34	\$12.18	\$12.35	\$10.65	\$10.26	\$10.87	\$6.71	\$10.28	\$11.58	\$11.04

SOC	Occupation	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will	Illinois
514033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	1%	N/A	-6%	N/A	-4%	N/A	-5%	N/A	-8%	43%	
		\$13.96	N/A	\$13.05	N/A	\$13.32	N/A	\$13.22	N/A	\$12.81	\$19.87	\$13.87
113061	Purchasing Managers	-1%	-6%	8%	N/A	-5%	4%	13%	4%	2%	46%	
		\$26.31	\$25.01	\$28.75	N/A	\$25.40	\$27.68	\$30.00	\$27.75	\$27.12	\$38.96	\$26.66
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	9%	32%	5%	-12%	-13%	-16%	-3%	5%	16%	-9%	
		\$20.26	\$24.61	\$19.60	\$16.44	\$16.19	\$15.60	\$18.06	\$19.54	\$21.69	\$16.91	\$18.67
435032	Dispatchers, Except Police, Fire, and Ambulance	-5%	N/A	14%	N/A	33%	-4%	3%	-34%	4%	-11%	
		\$14.42	N/A	\$17.27	N/A	\$20.10	\$14.52	\$15.53	\$10.01	\$15.72	\$13.51	\$15.10
533032	Truck Drivers, Heavy and Tractor-Trailer	4%	-26%	17%	-21%	5%	2%	-1%	17%	19%	21%	
		\$18.33	\$12.99	\$20.63	\$13.91	\$18.40	\$17.85	\$17.44	\$20.55	\$20.97	\$21.30	\$17.57
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	-1%	N/A	20%	N/A	-8%	-21%	-27%	N/A	5%	11%	
		\$24.47	N/A	\$29.81	N/A	\$22.83	\$19.59	\$17.98	N/A	\$26.07	\$27.35	\$24.75
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	0%	24%	6%	55%	6%	-9%	37%	N/A	8%	4%	
		\$19.69	\$24.48	\$20.91	\$30.45	\$20.86	\$17.94	\$26.96	N/A	\$21.18	\$20.47	\$19.70
151071	Network and Computer Systems Administrators	6%	1%	-4%	N/A	3%	-9%	36%	N/A	-9%	9%	
		\$28.59	\$27.41	\$26.10	N/A	\$27.98	\$24.57	\$36.68	N/A	\$24.70	\$29.62	\$27.07
412022	Parts Salespersons	-5%	N/A	2%	N/A	3%	7%	N/A	N/A	40%	32%	
		\$10.71	N/A	\$11.50	N/A	\$11.57	\$12.05	N/A	N/A	\$15.77	\$14.89	\$11.25
419041	Telemarketers	4%	N/A	6%	N/A	-12%	-16%	20%	N/A	25%	N/A	
		\$9.64	N/A	\$9.86	N/A	\$8.17	\$7.76	\$11.10	N/A	\$11.58	N/A	\$9.28
112022	Sales Managers	2%	24%	10%	N/A	6%	5%	5%	-16%	11%	10%	
		\$34.92	\$42.37	\$37.65	N/A	\$36.18	\$35.82	\$36.06	\$28.83	\$38.01	\$37.67	\$34.26
537062	Laborers and Freight, Stock, and Material Movers, Hand	3%	17%	-24%	N/A	6%	10%	-7%	20%	15%	9%	
		\$9.56	\$10.91	\$7.10	N/A	\$9.90	\$10.23	\$8.64	\$11.23	\$10.74	\$10.18	\$9.32

SOC	Occupation	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will	Illinois
435081	Stock Clerks and Order Fillers	7% \$10.08	-15% \$8.03	2% \$9.61	-25% \$7.10	-6% \$8.83	-14% \$8.08	7% \$10.11	4% \$9.83	13% \$10.67	-9% \$8.53	\$9.42
533041	Taxi Drivers and Chauffeurs	3% \$10.30	N/A	N/A	N/A	-34% \$6.61	-17% \$8.33	N/A	N/A	N/A	N/A	\$10.02
434051	Customer Service Representatives	3% \$13.58	-28% \$9.51	8% \$14.25	N/A	4% \$13.69	-3% \$12.75	-3% \$12.82	1% \$13.32	-1% \$13.07	-9% \$12.03	\$13.17
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	7% \$10.39	3% \$10.03	-2% \$9.51	14% \$11.15	-1% \$9.68	-8% \$9.00	1% \$9.85	28% \$12.49	-1% \$9.60	1% \$9.86	\$9.74
436011	Executive Secretaries and Administrative Assistants	3% \$16.03	13% \$17.61	7% \$16.60	14% \$17.67	6% \$16.54	-10% \$14.07	-19% \$12.64	-11% \$13.83	0% \$15.53	13% \$17.54	\$15.55
113021	Computer and Information Systems Managers	4% \$41.22	-20% \$31.67	-2% \$39.01	N/A	12% \$44.24	2% \$40.41	0% \$39.65	-17% \$32.98	-14% \$33.87	-11% \$35.38	\$39.61
435071	Shipping, Receiving, and Traffic Clerks	2% \$12.08	6% \$12.52	-1% \$11.74	10% \$13.00	1% \$11.92	-21% \$9.31	7% \$12.68	N/A	11% \$13.20	-3% \$11.49	\$11.85
151021	Computer Programmers	0% \$27.46	-22% \$21.55	9% \$30.09	N/A	N/A	5% \$28.83	-6% \$25.98	N/A	7% \$29.53	-14% \$23.66	\$27.58
132011	Accountants and Auditors	4% \$22.79	-9% \$20.02	5% \$22.92	-8% \$20.10	2% \$22.47	-14% \$18.85	-10% \$19.65	16% \$25.43	5% \$23.05	-5% \$20.85	\$21.93
113031	Financial Managers	6% \$37.73	8% \$38.30	3% \$36.74	14% \$40.45	12% \$39.63	-13% \$30.91	-4% \$34.07	-16% \$29.83	0% \$35.35	-6% \$33.49	\$35.50
151041	Computer Support Specialists	7% \$21.04	-3% \$19.21	-10% \$17.69	N/A	5% \$20.78	0% \$19.77	N/A	N/A	-5% \$18.73	-17% \$16.27	\$19.71
432011	Switchboard Operators, Including Answering Service	2% \$10.80	6% \$11.18	18% \$12.50	N/A	3% \$10.85	-6% \$9.98	0% \$10.62	N/A	0% \$10.58	-1% \$10.45	\$10.57
511011	First-Line Supervisors/Managers of Production and Operating Workers	2% \$20.90	17% \$23.92	-4% \$19.60	19% \$24.32	1% \$20.59	8% \$22.04	4% \$21.16	0% \$20.47	0% \$20.39	9% \$22.21	\$20.44
113071	Transportation, Storage, and Distribution Managers	0% \$10.80	N/A	1% \$10.80	N/A	-6% \$10.80	3% \$10.80	2% \$10.80	N/A	14% \$10.80	-8% \$10.80	\$10.80



SOC	Occupation	Cook	DeKalb	DuPage	Grundy	Lake	Kankakee	Kane	Kendall	McHenry	Will	Illinois
		\$26.77	N/A	\$26.97	N/A	\$25.21	\$27.57	\$27.21	N/A	\$30.33	\$24.50	\$26.71
537051	Industrial Truck and Tractor Operators	7%	3%	-5%	N/A	2%	-5%	-2%	N/A	15%	15%	
		\$14.19	\$13.69	\$12.61	N/A	\$13.53	\$12.70	\$13.05	N/A	\$15.28	\$15.27	\$13.32
151051	Computer Systems Analysts	-2%	-13%	2%	N/A	-6%	-14%	4%	N/A	-12%	-8%	
		\$31.60	\$27.89	\$32.75	N/A	\$30.21	\$27.82	\$33.50	N/A	\$28.28	\$29.74	\$32.17
533021	Bus Drivers, Transit and Intercity	N/A	N/A	-20%	N/A	-5%	N/A	N/A	N/A	N/A	N/A	
		N/A	N/A	\$11.56	N/A	\$13.81	N/A	N/A	N/A	N/A	N/A	\$14.48
172072	Electronics Engineers, Except Computer	-1%	N/A	8%	N/A	9%	N/A	2%	N/A	N/A	N/A	
		\$29.97	N/A	\$32.71	N/A	\$33.14	N/A	\$31.05	N/A	N/A	N/A	\$30.31
413099	Sales Representatives, Services, All Other	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		\$23.72	N/A	\$26.78	N/A	\$17.78	\$25.00	N/A	N/A	N/A	\$17.05	N/A
534011	Locomotive Engineers	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$23.78
534041	Subway and Streetcar Operators	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$20.09
534031	Railroad Conductors and Yardmasters	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$21.38