

Strategic Targeting of Occupations for Near-term Action

The analysis of Transportation, Warehousing and Logistics sector occupations in the preceding chapters have included both direct operations and support occupations. A combination of the Hudson JOWE© and IDES survey methods generated a base list of over one hundred critical occupations, from which the top 20 of each were used for a detailed analysis. The more immediate issue becomes: What occupations should be the primary focus for the next two to three years?

Two considerations influenced the narrowing process described in this chapter. First, the nine Workforce Boards are anxious to focus on occupational categories for which the workforce system has capacity and expertise to impact. Second, Transportation, Warehousing, and Logistics is undergoing significant competitive, organizational and technologic changes that could impact the continued superiority of Chicago as a major transportation hub. While Chicago has possessed distribution locational advantage for over a century, there is no guarantee such a competitive edge is assured without constant improvements on a variety of fronts, one of which is building and maintaining its talent pool in this sector. The metro Chicago Transportation, Warehousing, and Logistics sector faces the following opportunities and challenges in the immediate future:

- With the U.S. economy recovering, the Transportation, Warehousing, and Logistics sector is already showing a strong increase in activity. This is indicated by anecdotal evidence from interviewees and participants in focus groups. Having a skilled workforce, ready with upgraded skills in existing jobs or newly acquired skills for job entry, will allow the region to fully capitalize on this recovery.
- The Transportation, Warehousing, and Logistics sector is undergoing significant restructuring and reorganizing due to the ever increasing use of shipping, logistics, and warehousing software for tracking shipments and inventories and advanced communication technologies. The occupational mix is shifting to more technically sophisticated jobs, and strong computer skills will be required at all occupational levels.
- While Chicago is strategically in a good position, it will have to work hard to hold on to its competitive edge. Other inland distribution centers (e.g. Memphis) are vying for a larger share of the freight pie. In addition, growth in the southern and western portions of the U.S. means growth in distribution hubs such as Tampa.
- The public and private leaders of Metro Chicago are focusing on improving the region's transportation system as a means to sustain competitive position. Several long-range infrastructure and land use planning initiatives are underway. Civic leaders recognize that the delay time in moving freight through Chicago will have to be reduced to retain competitive edge in the future. A bold initiative titled CREATE is seeking to make much needed infrastructure improvements to railroads and intermodal terminals. The proposal involves pooling federal and private funding to make substantial upgrades to tracks, terminals and intermodal capacity.

Given the above situation, it makes strategic sense to strengthen metro Chicago's workforce in Transportation, Warehousing, and Logistics to enhance industry competitiveness overall and to help it ramp up significantly over the next two to three years. In particular, improving the access of prospective employees to job opportunities in operations and operations-related functions makes most sense in the near term. Jobs such as computer support specialists, dispatchers, customer service representatives, repair and maintenance workers, truck drivers and first line supervisors are both in high demand and serve to improve

productivity / performance in this time of significant change. Consequently, it makes most sense for the CSSI project to focus attention on operations and operations-related occupations. To whittle down a base list of critical occupations generated earlier in this report, first all non-operations occupations were eliminated. This was undertaken with the assistance of two Transportation, Warehousing, and Logistics industry liaisons to the CSSI project.

Arriving at a short list of targeted occupations from the base list of operations and operations-related occupations is not easy. The Transportation, Warehousing, and Logistics sector, as defined in this project, is by no means monolithic. Rather it is a set of interacting and interdependent industries with different histories, cultures, organizational structures, growth paths and prospects. Two approaches were applied to narrow the focus of this effort: the *organization function* approach and the *occupational title* approach.

In the functional approach, the long base list of 53 operations and operations-related occupations are clustered at the 3-digit SOC level. These are shown in Figure 15. Broad critical skill shortage “functions” can be observed: operations management, first-line supervision, administrative production, technicians, material moving, vehicle operations, computers and IT, and maintenance /repair. Future solutions planning could focus on these “critical functions”, finding ways they play out in different Transportation, Warehousing, and Logistics industries in different parts of the region.

Figure 15. - Transportation, Warehousing, and Logistics Critical Occupations by 3 digit SOC Grouping

(Bold occupations are major occupations groups, non-bold are sub groups)

SOC	Occupation
Operations Specialties Managers	
113021	Computer and Information Systems Managers
113071	Transportation, Storage, and Distribution Managers
132041	Credit Analysts
Computer Specialists	
151021	Computer Programmers
151030	Computer Software Engineers
151041	Computer Support Specialists
151051	Computer Systems Analysts
151061	Database Administrators
151071	Network and Computer Systems Administrators
151081	Network Systems and Data Communications Analysts
Drawing, Engineering, & Mapping Technicians	
173023	Electrical and Electronic Engineering Technicians
173027	Mechanical Engineering Technicians
173029	Engineering Technicians, Except Drafters, All Other
412011	Cashiers
Financial Clerks	
433011	Bill and Account Collectors
433021	Billing and Posting Clerks and Machine Operators
Information & Record Clerks	
434041	Credit Authorizers, Checkers, and Clerks
434051	Customer Service Representatives
Material Recording, Scheduling, Dispatching, & Distributing	

SOC	Occupation
435011	Cargo and Freight Agents
435032	Dispatchers, Except Police, Fire, and Ambulance
435061	Production, Planning, and Expediting Clerks
435071	Shipping, Receiving, and Traffic Clerks
Other Office & Administrative Support Workers	
439011	Computer Operators
439021	Data Entry Keyers
492011	Computer, Automated Teller, and Office Machine Repairers
Vehicle & Mobile Vehicle Mechanics, Installers, & Repairers	
493023	Automotive Service Technicians and Mechanics
493031	Bus and Truck Mechanics and Diesel Engine Specialists
493042	Mobile Heavy Equipment Mechanics, Except Engines
493043	Rail Car Repairers
493053	Outdoor Power Equipment and Other Small Engine Mechanics
Other Installation, Maintenance, & Repair	
499021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers
499042	Maintenance and Repair Workers, General
Metals Workers & Plastic Workers	
514033	Grinding, Lapping, Polishing, Buffing Machine Tool Setters, Operators, Tenders Metal/Plastic
514041	Machinists
514121	Welders, Cutters, Solderers, and Brazers
519061	Inspectors, Testers, Sorters, Samplers, and Weighers
Motor Vehicle Operators	
533031	Driver/Sales Workers
533032	Truck Drivers, Heavy and Tractor-Trailer
533033	Truck Drivers, Light or Delivery Services
533099	Motor Vehicle Operators, All Other
Rail Transportation Workers	
534011	Locomotive Engineers
534021	Railroad Brake, Signal, and Switch Operators
534031	Railroad Conductors and Yardmasters
534041	Subway and Streetcar Operators
536099	Transportation Workers, All Other
Material Moving Workers	
537051	Industrial Truck and Tractor Operators
537062	Laborers and Freight, Stock, and Material Movers, Hand
First Line Supervisors	
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers
531021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand
531031	First-Line Supervisors/Managers-Transportation & Material-Moving Machine & Vehicle Operators

For the occupational title approach, the following steps were taken:

1. The remaining operations related occupations were ranked by order of projected annual job openings.
2. The Transportation, Warehousing, and Logistics Sector Council was surveyed to provide industry validation of the highly ranked occupations according to openings, opportunity, and the potential for enhancing regional competitiveness.
3. The criteria used for the cut-off between Tier 1 and Tier 2 on the list were:
 - No more than 25% of the whole list should be included in Tier 1.
 - Tier 1 occupations should be generic to a broad base of Transportation, Warehousing, and Logistics industries and have broad area-wide impact.
 - Tier 1 Occupations should be clearly defined.
 - The highest wage/salary occupations should be included in Tier 1 and 2.

Figure 16 shows the composite results of steps 1, 2, and 3.

Figure 16. - Tiers 1, 2, and 3: Targeted Transportation, Warehousing, and Logistics Critical Occupations

SOC	Occupation	Top Occupation Identified by Industry	Short Term Regional Projected Openings ¹	Long Term Regional Projected Openings ²	Tier Selection
533032	Truck Drivers, Heavy and Tractor-Trailer	x	4,272	12,816	1
493031	Bus and Truck Mechanics and Diesel Engine Specialists	x	492	1,476	1
434051	Customer Service Representatives	x	5,420	16,260	1
151041	Computer Support Specialists	x	2,790	8,370	1
533031	Driver/Sales Workers	x	476	1,428	1
514041	Machinists	x	742	2,226	1
534011	Locomotive Engineers	x	162	486	1
113021	Computer and Information Systems Managers		1,224	3,672	1
151030	Computer Software Engineers		3,898	11,694	1

¹ Captures growth and replacement openings. This figure was arrived at by taking the average annual total job openings and multiplying by two, for a projection of the total openings generated in two years, or through 2006.

² Captures growth and replacement openings. This figure was arrived at by taking the average annual total job openings and multiplying by six, for a projection of the total openings generated in six years, or through 2010.

SOC	Occupation	Top Occupation Identified by Industry	Short Term Regional Projected Openings ¹	Long Term Regional Projected Openings ²	Tier Selection
151081	Network Systems and Data Communications Analysts		528	1,584	1
435032	Dispatchers, Except Police, Fire, and Ambulance		436	1,308	1
514121	Welders, Cutters, Solderers, and Brazers		1,220	3,660	1
151021	Computer Programmers		1,428	4,284	2
151071	Network and Computer Systems Administrators		1,280	3,840	2
537051	Industrial Truck and Tractor Operators		906	2,718	2
173023	Electrical and Electronic Engineering Technicians		580	1,740	2
151051	Computer Systems Analysts		2,576	7,728	2
151061	Database Administrators		552	1,656	2
533033	Truck Drivers, Light or Delivery Services		1,990	5,970	2
534031	Railroad Conductors and Yardmasters		168	504	3
499042	Maintenance and Repair Workers, General		1,304	3,912	3
435061	Production, Planning, and Expediting Clerks	x	954	2,862	3
435071	Shipping, Receiving, and Traffic Clerks	x	1,548	4,644	3
537062	Laborers and Freight, Stock, and Material Movers, Hand	x	7,278	21,834	3
113071	Transportation, Storage, and Distribution Managers	x	324	972	3
531031	First-Line Supervisors/Managers-Transportation & Material-Moving Machine & Vehicle Operators	x	370	1,110	3
536099	Transportation Workers, All Other		724	2,172	3
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers	x	2,358	7,074	3
531021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	x	288	864	3
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers		792	2,376	3
533099	Motor Vehicle Operators, All Other		260	780	3

SOC	Occupation	Top Occupation Identified by Industry	Short Term Regional Projected Openings ¹	Long Term Regional Projected Openings ²	Tier Selection
433011	Bill and Account Collectors		1,498	4,494	3
439021	Data Entry Keyers		634	1,902	3
132041	Credit Analysts		144	432	3
514033	Grinding, Lapping, Polishing, Buffing Machine Tool Setters, Operators, Tenders Metal/Plastic		180	540	3
519061	Inspectors, Testers, Sorters, Samplers, and Weighers		756	2,268	3
412011	Cashiers		10,938	32,814	3
434041	Credit Authorizers, Checkers, and Clerks		86	258	3
492011	Computer, Automated Teller, and Office Machine Repairers		216	648	3
	CLASSIFICATIONS ELIMINATED				
433021	Billing and Posting Clerks and Machine Operators				
493042	Mobile Heavy Equipment Mechanics, Except Engines				
151031	Computer Software Engineers, Applications				
493023	Automotive Service Technicians and Mechanics				
493043	Rail Car Repairers				
534021	Railroad Brake, Signal, and Switch Operators				
435011	Cargo and Freight Agents				
499042	Maintenance and Repair Workers, General				
173027	Mechanical Engineering Technicians				
439011	Computer Operators				
499021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers				
493053	Outdoor Power Equipment and Other Small Engine Mechanics				
173029	Engineering Technicians, Except Drafters, All Other				
534041	Subway and Streetcar Operators				

Conclusion

The Workforce Boards selected the transportation, warehousing and logistics sector, and more specifically the industry groups shown below, as one of the three shortage sectors on 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, in which Chicago plays a key geographic role, is expected to continue a strong growth trend well into the future

Final Target Industry Group Selections	
	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 a base list of 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. This base list was narrowed using stakeholder quantitative and qualitative input.

Stakeholder representation in the selection of critical occupations took three forms. First, on behalf of the sector, two sector liaisons to the CSSI project narrowed the base list to focus only on occupations directly related to operations. Second, on behalf of the Workforce Boards, the Corporation for a Skilled Workforce held a series of focus groups and individual employer interviews on transportation, warehousing and logistics workforce issues. The focus groups included discussion of the identification of critical occupations. Third, 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 operations occupations is presented at three levels: Tier 1, Tier 2 and Tier 3. Twenty three occupations were selected as Tiers 1 and 2, the most relevant set because of their good wages, growth prospects, long term career outlook, and opportunities for advancement in sector companies. Tier 1 and Tier 2 occupations were also selected because of region-wide and multi-industry impact.

While the focus of the Workforce Boards will be on Tiers 1 and 2, Tier 3 occupations are included because they may be “bridging” jobs to Tiers 1 or 2 or, because of specialization or other factors, they may cause supply bottlenecks and/or short term skill gaps.

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

Tier 1	
533032	Truck Drivers, Heavy and Tractor-Trailer
493031	Bus and Truck Mechanics and Diesel Engine Specialists
434051	Customer Service Representatives
151041	Computer Support Specialists
533031	Driver/Sales Workers
514041	Machinists
534011	Locomotive Engineers
113021	Computer and Information Systems Managers
151030	Computer Software Engineers
151081	Network Systems and Data Communications Analysts
435032	Dispatchers, Except Police, Fire, and Ambulance
514121	Welders, Cutters, Solderers, and Brazers

Tier 2	
151021	Computer Programmers
151071	Network and Computer Systems Administrators
537051	Industrial Truck and Tractor Operators
173023	Electrical and Electronic Engineering Technicians
151051	Computer Systems Analysts
151061	Database Administrators
533033	Truck Drivers, Light or Delivery Services

Tier 3	
534031	Railroad Conductors and Yardmasters
499042	Maintenance and Repair Workers, General
435061	Production, Planning, and Expediting Clerks
435071	Shipping, Receiving, and Traffic Clerks
537062	Laborers and Freight, Stock, and Material Movers, Hand
113071	Transportation, Storage, and Distribution Managers
531031	First-Line Supervisors/Managers-Transportation & Material-Moving Machine & Vehicle Operators

Tier 3	
536099	Transportation Workers, All Other
431011	First-Line Supervisors/Managers of Office and Administrative Support Workers
531021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand
491011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers
533099	Motor Vehicle Operators, All Other
433011	Bill and Account Collectors
439021	Data Entry Keyers
132041	Credit Analysts
514033	Grinding, Lapping, Polishing, Buffing Machine Tool Setters, Operators, Tenders Metal/Plastic
519061	Inspectors, Testers, Sorters, Samplers, and Weighers
412011	Cashiers
434041	Credit Authorizers, Checkers, and Clerks
492011	Computer, Automated Teller, and Office Machine Repairers