

Transportation and Logistics

CLUSTER SUMMARY

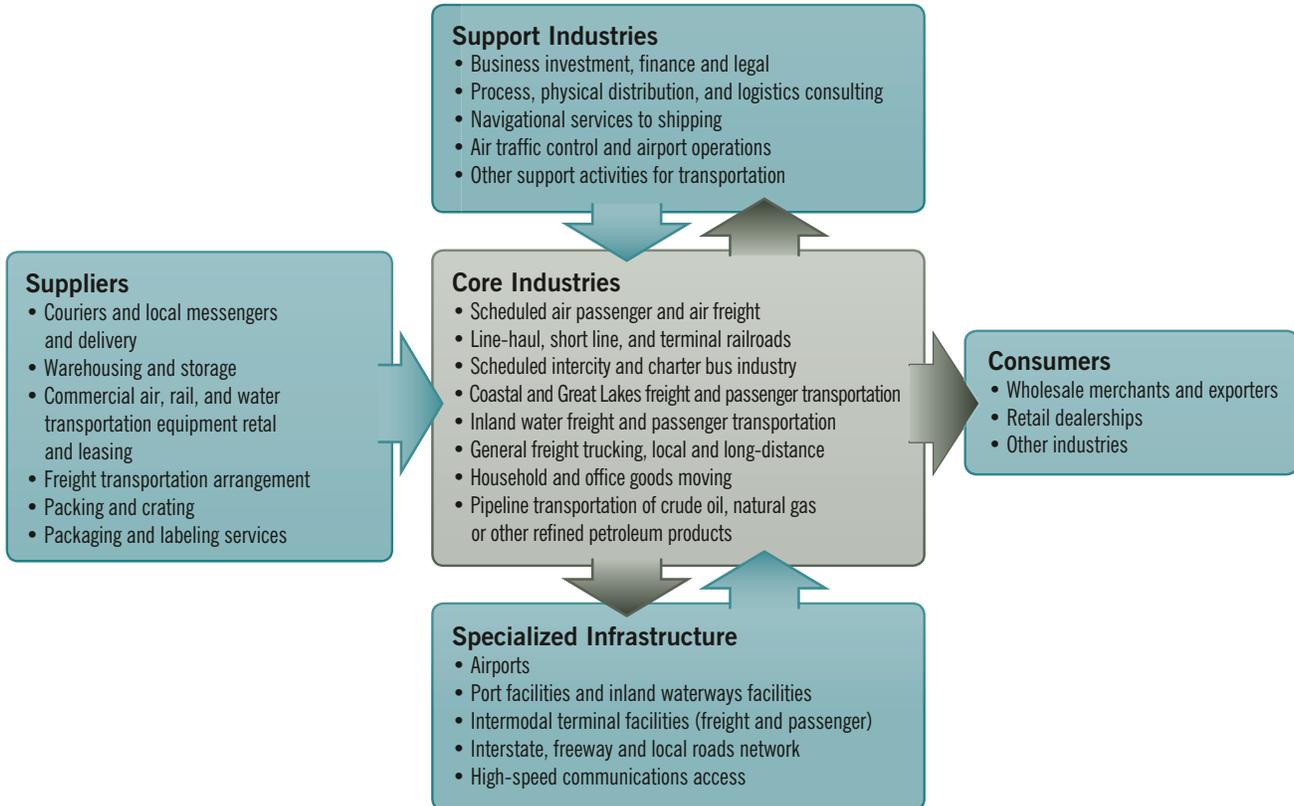
The *Transportation and Logistics* industry cluster encompasses the transportation of passengers and freight, related support services (e.g., freight forwarding and supply chain management), warehousing, and the management transportation infrastructure (e.g., ports and terminal facilities). Providers of air, water, road, and rail transportation and related services are also included in this cluster. The cluster has a relatively small, but growing presence in the five-county region, driven by transportation access and the proximity to the Chicago area and other regional markets.

For this report, the Transportation and Logistics cluster is considered to be a grouping of physical and strategic assets which should be developed and maintained to support other targeted industries. The Region not only benefits from excellent highway and rail access, but also from several large commercial airports, two foreign trade zones, a major UPS air hub (in Rockford), and the Global III rail-truck intermodal facility (in Rochelle). The former Savanna Army Depot also has the potential for rail and communications-related development if necessary infrastructure improvements are made.

CLUSTER DEFINITION

An industry cluster is a group of similar industries which are closely connected by supply chains and/or common labor pools in the same region. The core strength of the cluster comes from the transportation of people or goods by air, road, rail, or water. These core industries drive employment and inputs in the other industries which supply them, as well as those which support the core industries by providing business finance and various business services (Figure 1).

Figure 1: Transportation and Logistics, Cluster Components



Source: The Purdue Center for Regional Development (cluster definitions), 2012.

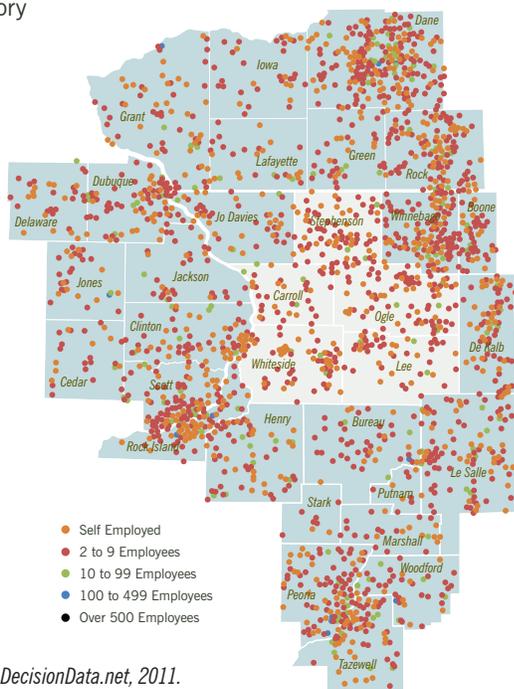
REGIONAL OVERVIEW

The Transportation and Logistics cluster in the Reference Region, a group of 32 counties in northwest Illinois, northeast Iowa, and southwest Wisconsin including the five-county region, had 2,353 establishments and employed 35,054 people in 2010. The average annual wage in this cluster was \$40,524, slightly below the average for all industries.

The passenger and freight transportation component (trucking, railroads, airlines, and barge or other shipping operations) represents 59.7% of the total business establishments in the Reference Region and 54.5% of the total employment. Transportation support activities including facilities operations and transportation brokerage services accounts are 24.0% of total business establishments and 23.0% of total cluster employment. The warehousing and storage services component accounts for 14.7% of the firms operating in the Reference Region and 20.4% of total cluster employment (Figure 2).

The cluster has had a growing concentration of employment in the five-county region with location quotients (LQ) of 0.6 in 2001, 0.9 in 2007, and 1.1 in 2010 with many industry subsectors represented in the five-county region. Four subsectors have a strong presence in the Region as measured by concentration of employment (Figure 3).

Figure 2: Transportation and Logistics: Firms by Employment Size Category



Source: DecisionData.net, 2011.

Figure 3: Transportation and Logistics: Subsectors Based on Employment Concentration

Indicator	Location Quotient (2010)
Warehousing and storage	3.6
Transit and ground passenger transportation	1.9
Transport by truck	1.6
Transport by rail	1.4

Source: IMPLAN, 2010.

In the five-county region, the cluster includes 300 establishments and employed 2,298 people in direct cluster jobs in 2010. The average annual wage for direct cluster jobs is \$41,559. This cluster has a higher than average concentration of economic activity, as defined by employment and firm LQ, in both the Reference Region and the five-county region, when compared to the nation's economic activity in this cluster (Figure 4).

Location Quotients (LQ) are used to evaluate local development opportunities and find businesses which are especially suited for the Region. A LQ is the ratio of the employment percentage represented by a given industry in the county to the percentage which the industry represents in the state or a representative area of interest. A ratio greater than one indicates a higher local concentration and a likelihood of exports from the county; a ratio less than one may suggest that goods or services are being imported into the Region.

The transportation component of the cluster includes 64.5% of the total business establishments in the five-county region, but only 39.5% of the total employment. Transportation services accounts for 20.7% of the total business establishments but has 19.6% of the total employment in the cluster.

The warehousing and distribution component includes 14.9% of the firms operating in the five-county region, but has 40.9% of total cluster employment. The majority of companies have small employment with 95.0% having fewer than 100 employees, but they represent about one-third of total employment.

Although there are few large employers in the industry cluster in the five counties, most engage in warehousing and distribution activities. The surrounding metropolitan areas also contain many large general warehousing companies, corporate distribution centers, and parcel couriers (e.g., Lowe's, Nestle, Target, Caterpillar Logistics, and United Parcel Service) (Figure 5).

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Figure 4: Transportation and Logistics: Economic Activity Summary

Indicator	Five-County Region	Reference Region (32 Counties)
Number of Firms (2010)	300	2,353
<i>Percent Change in Number of Firms (2007-2010)</i>	14.5	0.4
<i>Firm Location Quotient (LQ)</i>	2.6	1.6
Employment (2010)	2,298	35,054
<i>Percent Change in Employment (2007-2010)</i>	6.4	-8.4
<i>Employment Location Quotient (LQ)</i>	1.1	1.1
Average Annual Wage (2010)	\$41,559	\$40,524
<i>Percent Change in Average Annual Wage (2007-2010)</i>	--	4.3

Sources: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW) and the Purdue Center for Regional Development (cluster definitions), 2012.

Figure 5: Transportation and Logistics: Major Employers, Five-County Region

Company Name	# of Employees	Industry Description	City
Walmart Distribution Center	300	Regional Distribution Center	Sterling
Total Logistic Control LLC	200	Refrigerated Warehousing and Storage	Rochelle
Americold Logistics LLC	140	Refrigerated Warehousing and Storage	Rochelle
Dohrn Transfer Company	100	General Freight Trucking - Long-Distance	Rock Falls
Canadian National Railway	75	Rail Transportation	Freeport
First Student, Inc.	54	Charter Bus Industry	Dixon
Sterling Rail Services LLC	33	Support Services for Rail Transportation	Sterling

Source: Dun & Bradstreet, Inc., 2012.

INDUSTRY TRENDS¹

Decline in Small Carriers, Owner-Operators:

Rising fuel costs have led to a decline in small and mid-size trucking companies. Unable to negotiate bulk fuel rates, smaller carriers are more vulnerable to price increases. Owner-operators also have less leverage when collecting fuel surcharges, and some brokers fail to pass the surcharges, which they collected, on to the drivers.

Air Cargo Declining; Stronger Demand for Alternative Transportation:

Rising costs have caused many U.S. shippers to migrate from air shipping to other modes of transportation. Fewer flights and the high fuel costs associated with air transport have made ship, rail, and truck transport more competitive options to air transport. Joint ventures between ship and truck carriers have succeeded in improving shipment reliability and shortening delivery times. Advances in information systems and innovations in intermodal transport have caused a resurgence in the use of railroads. Railroads are also one of the most cost-effective, environmentally friendly forms of freight transportation.

Increasing Intermodal Revenue:

The transfer of containers from ship to truck or intermodal service is one of the largest revenue-generators for Class I railroads, second only to coal. Containers can now be stacked on railcars due to advances in terminal loading and unloading. Shippers seeking cheaper transportation largely drive demand for intermodal services. Intermodal rail accounts for about 20.0% of Class I railroad revenue, according to the Association of American Railroads (AAR).

Logistics Services:

From being a passive provider of storage space, the warehousing industry has evolved to providing logistics services which enable customers to identify, track, and expedite individual items through the supply chain. Many warehouse facilities are considered high throughput distribution (HTD) facilities rather than long-term storage buildings.

¹ Source: Hoovers, Inc., 2013. (www.hoovers.com)

Larger Warehouses, Electronically Equipped:

To provide sophisticated distribution functions for customers, new warehouses are bigger: 1 million square feet is now a common size. With computer systems now controlling the identification and throughput of individual items, special wiring and outlets are installed in warehouses. In some warehouses, a grid of wires in the floor allows computer-guided forklifts to find stored items.

Specialized Equipment:

As more warehousing and logistics companies specialize, they require more customized material handling equipment. More site-specific, comfortable, and safe products are especially in demand.

MARKET OPPORTUNITIES²

Conserving Fuel:

Carriers and owner-operators can maximize profits by managing fuel consumption. New power management technologies allow a truck cab to be warmed or cooled without the engine idling. New aerodynamic body designs, advanced tire technology, and GPS routing can help truckers reduce fuel costs.

Longer Combination Vehicles (LCV):

Trucking companies can increase efficiency and save on labor costs by using longer trucks. Federal regulations limit the size of combination vehicles, trucks with two or three trailers, and states limit their use on certain routes.

Increased Productivity through Information Technology:

Large carriers are among the most sophisticated users of transportation technology. Many in-cab systems include basic management and dispatching software. New systems incorporate bar code readers, signature capture, and radio frequency identification (RFID) tagging, allowing drivers to quickly manage the transfer of goods. Experience with computer systems has led some truckers to expand into courier and logistics services for large shippers.

In the rail industry, positive train control (PTC) is a highly advanced integrated system of digital data links, GPS, and on-board computers. PTC represents a paradigm shift for railroad operators as routes can be managed by centralized systems, not conventional track signaling.

Capacity Improvements on Key Routes:

Railroads are doubling track on key commodity routes, such as coal, to keep up with increased demand. Doubling track on high-volume routes improves traffic flow and reliability. On lines used by Amtrak and regional commuter railroads, double tracks also improve capacity by allowing freight and passenger trains to quickly maneuver around each other.

Public-Private Partnerships (PPP):

Public-private partnerships between railroads and local governments can help railroads address public rail infrastructure improvements. The railroad industry has traditionally been wary of PPPs, but the demand for more rail capacity has made them more receptive to investment help from local governments.

Alternative Fuels:

Alternative fuels, such as biodiesel, can substantially reduce carbon emissions in the transportation industry compared to standard fuels. Biodiesel has the highest energy content of any alternative fuel and can be used in trucks or locomotives with minor modifications. However, the cost and efficiency of biodiesel has yet to match that of regular diesel fuel. Switching to biodiesel may make it easier for transportation companies to meet the EPA's requirement to reduce sulfur emissions and may qualify them for alternative fuel tax credits, but may not fully offset higher biodiesel costs.

Outsourcing Warehouse/Distribution Functions:

Recognizing the importance of efficient storage and distribution functions, more companies are outsourcing to logistics specialists, known as third-party logistics providers, or 3PLs. In addition to higher efficiency, companies can lower their capital investment and the risk of being stuck with poorly sited facilities. Outside logistics firms are more likely to use public warehousing to meet local distribution needs.

Electronic Record Storage:

Some record storage firms are expanding their capabilities from paper documents to electronic records by building computer server farms in secure locations. By providing secure, online storage offsite for customers' critical computer applications, storage companies are gradually transforming their business from paper to electronic storage.

SUPPLY CHAIN

This approach examines the value of supply chain inputs, the amount of inputs produced inside the five-county region (represented in most cases by an absorption rate) for the industry clusters studied, and the stages along the supply chain which represent areas of competitive advantage as well as those which present opportunities to attract businesses. Areas of high absorption represent areas along the Transportation and Logistics supply chain which allow the Region to capture the most value from a specific stage in the production or delivery of products and services within the supply chain.

² Source: Hoovers, Inc., 2013. (www.hoovers.com)

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Findings from a supply chain can inform local development strategies by indicating where along the value chain an investment will produce the highest impact on the regional economy and may indicate opportunities for business retention or expansion. Conversely, stages along the supply chain which are underperforming also offer opportunities for business attraction and/or entrepreneurship. When reviewing data relating to industry inputs it is important to compare both the absorption rate and the total value of inputs since certain services or components which maintain a high absorption rate may be of low value to the regional economy. Similarly, certain inputs, regardless of value or absorption, may be of high strategic importance to the Region in efforts to build a stronger industry cluster.

The supply chain information provided presents the flows of trade which support Transportation and Logistics companies both within the five-county region and from outside the Region. The key sectors, which may be appropriate targets for expansion, appear as imports (gaps) from outside the Region, but still within the industry cluster (Figure 6). These gaps are then analyzed in terms of regional strengths and potential areas for targeting and support and are placed into a supply chain analysis to identify stages of the supply chain with the strongest regional presence. In order to fully develop the Transportation and Logistics cluster, the five-county region can make the best progress by focusing on those sectors which do not currently have a strong regional presence, but have significant potential to develop in the Region.

Supply Chain

An essential component for an industry cluster is the local supply chain. While not all inputs (goods or services) that an industry cluster needs can be produced in the local economy, it is desirable to meet as many of the cluster's needs locally as possible. This analysis reveals the source and amount of purchases among the unique niches in an industry. By identifying the total industry economic outputs and areas where goods and services are purchased from outside the regional economy, one may be in a better position to determine which areas of the industry supply chains are strongest, as well as those that present the best opportunities for growth in the five-county region.

Regional Supply Gap

Difference between Gross and Regional Inputs: a large gap value indicates that a large amount of inputs are imported into the Region, rather than produced within the five-county region.

Regional Inputs

The dollar value of gross inputs which are produced within the Region.

Gross Inputs

Total dollar amount of inputs used by the industry within each sector.

Figure 6: Transportation and Logistics: Key Supply Chain Gaps, Five-County Region

Industry	Regional Supply Gap	Regional Inputs	Gross Inputs	% Purchased Outside Region
Motor vehicle parts	-\$9,402,335	\$88,543	\$9,490,877	99.1%
Management of companies and enterprises	-\$3,868,325	\$368,568	\$4,236,893	91.3
Railroad rolling stock	-\$1,849,496	\$26	\$1,849,522	99.9
Plates and fabricated structural products	-\$1,467,031	\$44,705	\$1,511,736	97.0
Other aircraft parts and auxiliary equipment	-\$1,145,754	\$60	\$1,145,814	99.9

Source: IMPLAN, 2010.

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For example, the regional Transportation and Logistics cluster requires \$9.4 million in inputs (i.e., the products or services required to create a finished product) from the “motor vehicle parts” production. However, only \$88,500 is produced in the Region, with the balance purchased from outside the five-county region. This suggests an opportunity for an existing firm or new business to satisfy the regional demand.

Another related opportunity is “other aircraft parts and auxiliary equipment.” Companies in this sector manufacture aircraft parts or auxiliary equipment (except engines and aircraft fluid power subassemblies) and/or develop and make prototypes of aircraft parts and auxiliary equipment. Auxiliary equipment can include such items as crop dusting apparatus, armament racks, in-flight refueling equipment, or external fuel tanks. Although the supply chain gaps in these industries are large, we should note that automotive and aerospace companies have a strong presence in the Rockford metro area. It is possible that a portion of these supply chain gaps are filled by companies in the Rockford area.

Also, there is some anecdotal evidence that motor vehicle parts manufacturers within the five-county region located here because of the larger industry in the Rockford area. Development of these supply chain opportunities is possible

if they can be pursued in a cooperative manner between the five-county region and the Rockford area.

Since only 2010 data is available for the supply chain analysis, the impact of the Nippon-Sharyo railcar manufacturing facility in Rochelle is not reflected in the results. The supply chain gap for the railroad rolling stock industry is likely much smaller now than shown in the table but planned expansions in the Nippon-Sharyo plant could benefit the Region substantially.

Motor vehicle parts (NAICS Sector 3363)

This industry comprises establishments primarily engaged in the manufacturing and/or rebuilding motor vehicle parts and accessories.

- » Motor Vehicle Gasoline Engine and Engine Parts.
- » Motor Vehicle Electrical and Electronic Equipment
- » Motor Vehicle Steering and Suspension Components
- » Motor Vehicle Transmission and Power Train Parts

WORKFORCE REQUIREMENTS, SUPPLY AND DEMAND

The available workforce for the Transportation and Logistics cluster has been an ongoing issue, just as it has for manufacturing in general. The lack of qualified workers stems from the wave of retirements of the Baby Boom generation of skilled laborers. Although cluster employment has remained mostly stable during the past decade, the next generation of potential workers is relatively small. This is due in part to general demographic trends and the propensity of many younger workers to pursue white collar careers.

The Transportation and Logistics cluster has a somewhat younger age profile (46.0% are age 25 to 44 years), than some manufacturing sectors (Figure 7). Wages are also lower than for comparable age groups in the manufacturing sector. This pattern could reflect a younger, less experienced workforce, a higher number of part-time and seasonal workers employed, or may mean that many jobs require less training and experience than other industries.

Figure 7: Transportation and Logistics: Employment and Wages by Age Group, Five-County Region

Age Group	Employment (Percent of Total)	Average Annual Wage
Under 25 Years	7.7%	\$14,269
25-44 Years	46.0	33,893
45-64 Years	41.0	38,525
65 Years & Older	5.2	20,202

Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2011.

In total, 56.3% of the employment and 54.7% of the wages in the cluster are concentrated in Transportation and Material Moving occupations (Figure 8). This occupational sector represents the largest single share of the jobs in the five-county region. Ensuring that appropriately skilled workers are

available at competitive rates of compensation will be critical to maintaining the manufacturing sector in the Region³.

³ In 2008, Production, Installation, Maintenance, Repair or Transportation and Material Moving occupations accounted for 23.0% of all occupational employment in Workforce Investment Board Region #4.

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Figure 8: Transportation and Logistics: Staffing Patterns, Five-County Region

Occupational Classification	Share of Employment	Share of Wages	Average Annual Wage
Transportation and Material Moving	56.3%	54.7%	\$41,407
Office and Administrative Support	21.7	17.7	34,684
Installation, Maintenance, and Repair	6.1	7.1	49,729
Personal Care and Service	4.7	4.5	40,417
Management	2.6	6.0	97,934
Business and Financial Operations	2.0	2.8	59,604
Production	1.7	1.5	35,877
Sales and Related Occupations	1.5	1.7	50,018

Sources: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW) and the Purdue Center for Regional Development (cluster definitions), 2012.

The challenge for employers is the looming demand for replacement workers as older workers repair. The Illinois Department of Employment Security estimates that 178 openings for Transportation and Material Moving workers

will become available annually between 2008 and 2018, most resulting from the demand for replacement workers (Figure 9).

Figure 9: Occupational Employment, Projected Demand by Worker Classification, Workforce Investment Board Region #4, 2008-2018*

Occupational Classification	Employment		Employment Change 2008-2018		Average Annual Job Openings		
	2008	2018	Number	Percent	Growth	Replacement	Total
Transportation and Material Moving	6,297	6,479	182	2.9	25	153	178
Office and Administrative Support	11,256	11,371	115	1.0	46	242	288
Installation, Maintenance, and Repair	2,798	2,930	132	4.7	15	55	70
Personal Care and Service	1,929	2,234	305	15.8	31	47	78
Management	7,959	7,693	-266	-3.3	13	123	136
Business and Financial Operations	3,110	3,385	275	8.8	28	64	92
Production	9,653	8,806	-847	-8.8	5	191	196
Sales and Related Occupations	7,815	8,049	234	3.0	27	241	268

*Workforce Investment Board (WIB) Region #4 consists of Carroll, JoDaviess, Ogle, Stephenson, and Whiteside counties.

Source: Illinois Department of Employment Security, 2012.

Because of the competition with surrounding metro areas for workers with specific skills or experience, compensation levels are a concern for local businesses⁴. For example, the projected demand for transportation and material moving workers in the metro areas around the five-county region is estimated to be 2,277 openings per year between 2008 and 2018⁵. The estimated average annual wage for workers in this occupation group is \$39,371, slightly

below the average for the five-county region itself (\$41,407)⁶. While the higher wage can help attract workers to the area, it can also discourage companies from locating or expanding. Given the intense competition for skilled workers, companies will have to monitor compensation trends to recruit and retain qualified employees.

⁴ Northern Illinois University, Center for Governmental Studies, "Promoting Regional Prosperity in Northwest Illinois: Wage and Benefit Report", August, 2012, p.23.

⁵ Source: Illinois Department of Employment Security, 2012.

⁶ Sources: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW) and the Purdue Center for Regional Development (cluster definitions), 2012.

BUSINESS OPERATING COSTS

An operating cost analysis focuses on those key geographically variable cost elements which are considered to be the most pivotal within the corporate site selection process and overall target industry competitiveness. The format of the cost comparisons allow a site selection professional or corporate facility planner to further tailor the cost data, plant specifications, and shipping patterns.

Annual operating costs are projected solely for comparative purposes with only major geographically variable operating costs projected for seven county sites in the U.S. including the five counties in the Region along with two additional counties which have significant concentrations of warehousing and storage companies. One of the two out-of-state counties is located in the Midwest region, and the second is located in an alternative U.S. region. Costs which did not vary significantly with geography, including relocation and start-up expenses, were not considered (Figure 10).

Figure 10: Warehousing and Storage: Geographically Variable Operating Cost Comparison

County Name	Total Annual Operating Costs
Northampton County, PA	\$14,730,294
Stephenson County, IL	12,921,810
Ogle County, IL	12,873,896
Whiteside County, IL	12,866,672
Carroll County, IL	12,753,789
Lee County, IL	12,664,759
Clark County, KY	12,247,060

Source: The Boyd Company, Inc., 2012.

The Region was the most competitive with peers in site acquisition and property tax costs. However, the labor costs were higher than for the peer location in the southeastern U.S. The Region was the most competitive in terms of shipping costs versus its peers. Estimated outbound shipping costs from the five-county region were nearly equal to Clark County, KY, and were 21.0% to 23.0% below Northampton County, PA. This underscores the advantages of northwest Illinois' strategic location and transportation assets, as well as its access to national and global markets.

Costs of Doing Business

Since most businesses operate in a real-time global marketplace, their focus is on maintaining comparative advantage through sourcing and supplying products profitably. Cost components such as labor, taxes, real estate, and utilities are key measures which most companies use to decide where to locate or expand their operations.

Operating cost analysis focuses on those key geographically variable cost elements which are considered to be the most pivotal within the corporate site selection process and the overall target industry competitiveness.

KEY TAKEAWAYS

- » The Transportation and Logistics cluster in the five-county region has a concentration of firms which is 2.6 times the national average and an employment concentration which is 1.1 times the national average. The Reference Region also ranks above the national average in both categories.
- » Aligning public infrastructure investments with industry development strategies will be critical to maintaining the Region's competitive advantage in this cluster. There are under-used or underdeveloped assets which if developed could dramatically improve the Region's economy. Examples include the Global III intermodal facility, the Whiteside Regional Airport, and the former Savanna Army Depot.
- » The growth of Transportation and Logistics operations in terms of companies and operations can be leveraged to retain and to attract businesses and jobs in other industry sectors, especially agriculture, wholesale, and manufacturing.
- » The Baby Boomers will create most of the demand for new workers, despite static and declining overall employment in the industry. Since other industries will experience the same challenges, competition for skilled workers will increase due to the limited number of potential younger workers.
- » The five-county region's strategic location in terms of proximity to major markets and transportation assets, along with competitive tax and site acquisition costs makes it attractive for warehouse and distribution operations.

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