

CENTRAL DISTRICT PROFILE: Freight and the District's Economic Future



Global trade and new technologies continue to transform the economy, redefining the way businesses operate, challenging supply chains and transportation networks, and creating new customer opportunities for Missouri businesses in places where they were once inconceivable. Businesses and their employees are more dependent than ever on integrated, agile, and efficient transportation networks to sustain economic competitiveness, facilitate journeys to work, and connect to markets. The military facilities in this district also depend on these transportation networks to maintain their state of readiness. Whiteman Air Force Base and Fort Leonard Wood have very different missions, but both rely on multimodal transportation networks to ensure maintenance of B-2 Spirit stealth bombers and critical training programs.

To compete in this global marketplace, businesses must optimize every asset—workforce skills, competitively priced products, and reliable transportation systems—to ensure their customers receive quality goods and services when they expect them. As the importance of trade and the demands of customers continue to evolve, Missouri companies often find freight an increasingly important factor in sustaining and enhancing their competitive position in the marketplace. Freight supports the domestic and international trade of Missouri businesses, and supports State and local economic development and job growth.

Central Missouri Population Trends

Missouri's population is projected to grow, with the 2012 population of 6,021,988 increasing to 7,159,350 by 2040. The population growth experienced by the MoDOT Central District from 2000 to 2012 is also expected to continue, with the 2012 population of 658,377 projected to grow to 831,750 by 2040.¹ Gasconade and Howard counties experienced a slight decline in population between 2000 and 2012, but between 2012 and 2040 all of the District's 18 counties are projected to gain population.

Boone, Camden, Phelps, and Pulaski counties experienced the greatest percentage growth in population from 2000 to 2012. Boone County, with the largest population by far, accounted for more than 40 percent of the District's population increase and is expected to be responsible for more than half of the region's growth between 2012 and 2040. Population growth often drives the expansion of non-traded sector businesses such as local professional services (legal, accounting, and medical), local retail trade, real estate and financial services, and food service and restaurants.

Freight is an increasingly important factor in sustaining and enhancing the economic competitiveness of businesses in Missouri and in the Central District.

¹ US Census Intercensal Estimates, July 2000; US Census Annual Estimates; 2013 CEDDS by Woods and Poole Economics

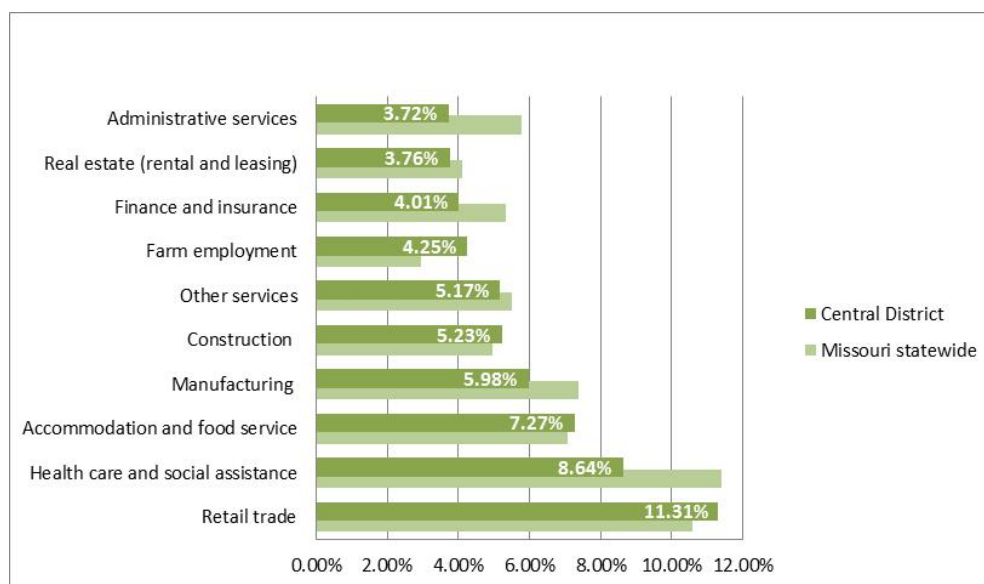
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Transportation Dependence: Missouri and the Central Missouri Economy

Freight transportation represents a key competitiveness factor for Central District businesses. Companies today compete on more than product quality and cost. The transportation networks serving their facilities must provide reliable connections to buyers, and must link to a multitude of markets to ensure timely deliveries of goods and services and access for employees and customers. Some business sectors use transportation facilities and services more extensively than others. An industry sector's dependence on transportation can be measured by examining the amount the sector spends on transportation as a share of its total output.² Transportation satellite accounts provide national data regarding the amount spent on transportation per dollar of output for various sectors.

To better understand the role freight and goods movement play in central Missouri and the contribution of multimodal transportation to the economic vitality of the region's key industry sectors, the project team evaluated the importance of these key industrial sectors based on the non-government employment concentrations in the region. Almost 60 percent of the District's non-government employment is concentrated in 10 sectors: retail and wholesale trade, health care and social services, accommodation and food service, manufacturing, construction, other services, farm employment, finance and insurance, real estate, and administrative services.³ **Figure 1** shows the breakdown of these employment sectors, by percentage, for the Central District and for the State.

Figure 1: Top Ten Non-Government Employment Sectors for the Central District



As noted in **Figure 1**, the importance of transportation to these key industry sectors can be measured by the amount each sector spent on transportation as a share of its total output.

The project team evaluated several primary industry sectors and identified the corresponding industrial classification codes for each key sector in order to compare the applicable transportation costs per dollar of product output using the transportation satellite accounts research. Key business sectors for the Central District are shown in **Table 1**.

² "Transportation Satellite Accounts: A Look at Transportation's Role in the Economy," U.S. DOT Research and Innovative Technology Administration

³ Bureau of Labor Statistics, US Census 2012, County Business Patterns

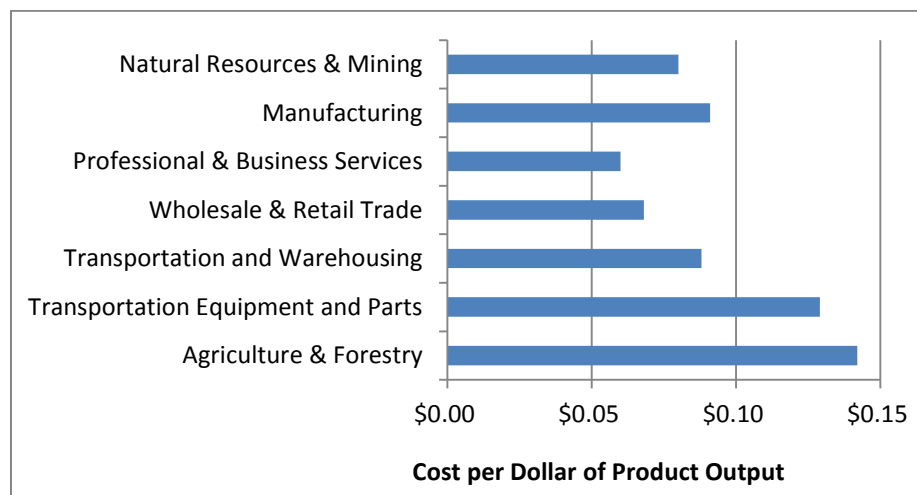
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Table 1: North American Industrial Classifications for Key Industrial Sectors in the Central District

Industrial Sectors	North American Industrial Classification Sector
Construction	Construction
Agribusiness	Agriculture
Transportation and logistics	Transportation and Warehousing
Machine manufacturing	Manufacturing
Electrical equipment manufacturing	Manufacturing

Figure 2 below shows the transportation cost per dollar of product output for several important industry sectors in the Central District based on their North American Industrial Classification System, or NAICS, code. Improvements in transportation costs and services would have a significant effect on the profitability of companies in these industries, as lower transportation costs and more reliable service help reduce the cost of materials, resulting in lower overall production costs. Reliable delivery of materials can enhance productivity, and reducing distribution costs to the consumer may also improve competitiveness.

*Figure 2: Transportation Cost as a Share of Sector Output
(Transportation cost per \$ of product value)*



Source: Transportation Satellite Accounts database, Bureau of Transportation Statistics, Research and Innovation Technology Administration

The Central District has been successful in retaining and attracting core cluster transportation-dependent businesses in several significant economic sectors as described in **Table 2**⁴:

⁴ Pattern Analysis Central Region, MERIC

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Table 2: Economic Sectors the Central District has retained and attracted transportation-dependent businesses

Manufacturing and Advanced Manufacturing	Food Processing	Chemical Manufacturing
Henniges Automotive	Beyond Meat	Behr Process Corporation
3M	Bimbo Bakeries	Unilever
Detroit Tool Metal Products	Quaker Oats	
	Unilever	

Economic Development Trends

The Central District included about 6.5 percent of the State's population in 2008. Healthcare, education, public administration, accommodation and food services, and retail are the largest employment sectors, but several freight-dependent sectors also contribute significantly to the District's economy. These include construction, agribusiness, transportation and logistics, machine manufacturing, and electrical equipment manufacturing.

Construction

Construction ranked sixth in employment in the Central District in 2011 with 19,647 jobs, or more than five percent of all workers in the region. Carpenters are among the top 20 job openings in the Missouri Economic Research and Information Center (MERIC's) 2022 outlook, with 1,010 openings anticipated between 2012 and 2022. Of these openings, 62 percent are due to growth and 38 percent will replace workers who retire or shift to other industries. According to MERIC, carpenters can expect above average job growth, job openings, and wages. The average wage for carpenters in 2013 was \$41,657.⁵ For the State as a whole, both specialty trade contractors and construction of buildings ranked among the top ten industries (sixth and seventh, respectively) for new business formations in 2013. The northern part of the Central District had a higher rate of construction startups than the State as a whole.

Agribusiness

Missouri ranks second in the nation for the number of farms, and agribusiness is especially important in Moniteau, Maries, Osage, Gasconade, and Washington Counties. In 2009 these counties had a location quotient for agribusiness greater than 1.5, indicating a higher share of employment in this sector compared to the nation as a whole. Morgan, Laclede, and Howard Counties have a higher than average share of agriculture and agribusiness jobs as well. Continuing improvements in technology and agricultural productivity have led to a reduction in farm labor across the State. More and more Missouri farmers are taking on other jobs to supplement their income.⁶ The average farm size in the State has shrunk in recent years while the number of farms has increased. The 2012 Census of Agriculture, conducted every five years by the U.S. Department of Agriculture (USDA), indicated that across the U.S. both farm sales and production expenses reached record highs in 2012. Three quarters of all farms in the U.S. had sales of less than \$50,000, and together these smaller farms produced less than 3 percent of farm products sold. Also, 87 percent of U.S. farms were operated by individuals or families and the average age of principal operators was 58.3 years. Although the average age is 58.3, the number of young startup operators increased more than 11 percent between 2007 and 2012.⁷

Organic farming is seeing increased interest in Missouri and in several of the counties in the Central District (Boone, Callaway, Maries, Morgan, Miles, and Camden). Nationwide sales of organic farm products increased from \$1.7 billion to \$3.12 billion from 2007 to 2012, but still accounted for only 0.8 percent of all U.S. agricultural production.⁸

Food processing is also important to the economy of the Central District. National brands such as Kraft Foods, Frito-Lay/Quaker Oats, PepsiCo, Coca-Cola, and Cargill all have processing facilities in the area. Beyond Meat, which Fast Company magazine named the World's Most Innovative Company for Food in 2014, makes plant-based beef and chicken substitutes at their plant in Columbia using ideas and research developed at the University of Missouri.

⁵ MERIC, Central Region Top Openings 2012-2022

⁶ MERIC, Missouri Economic Research Brief: Farm and Agribusiness, March 2009

⁷ USDA 2012 Census of Agriculture, available at www.agcensus.usda.gov

⁸ Ibid.

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Transportation and Logistics

Transportation, warehousing, and logistics companies make up another significant employment sector in Central Missouri, and such companies grew by more than 19 percent between 2003 and 2007, much higher than the national average rate of 1.5 percent. Dollar General, Home Depot, Scholastic, Walmart, and Brookstone all have major distribution centers in the region, and Midway USA, a major retailer and wholesale supplier of hunting and gun-related products, is headquartered in Columbia. Employment in the industry held steady during the recent recession, and the outlook for jobs in this sector is strong. MERIC projects an increase of 1,749 jobs for laborers and freight, stock, and materials movers in the region between 2012 and 2022, and an additional 1,260 jobs for heavy and tractor-trailer truck drivers over the same period; both occupations are ranked among the top 20 for job growth, number of openings, and wages.⁹ These figures represent openings due to growth as well as retirement, turnover, and workers shifting to other industries. However, a nationwide shortage of truck drivers in August 2014 has resulted in as many as 40,000 openings across the country remaining unfilled.¹⁰ Truck drivers are third on the list of ManpowerGroup's 2013 Talent Shortage Survey, and the situation is expected to intensify as demand for shipping via truck grows and drivers retire; in 2014 the average age for truck drivers nationwide is 50.

The District is a desirable location for logistics and distribution centers due to its proximity to I-70 and its position in the center of the State and the U.S. Missouri is within 600 miles of 50 percent of U.S. households and 52 percent of U.S. manufacturing establishments. Lower land costs and lower than average labor costs are other contributing factors. Nationally, the outlook for the industry is good as investment in transportation and logistics should correlate with growth in the U.S. economy.

Machine Manufacturing

This sector generates significant employment for the region as well. Nordyne, a maker of high efficiency heating and cooling systems, has facilities in Tipton and Booneville. Semco, based in Columbia, manufactures HVAC and energy recovery equipment. Several firms that manufacture parts for the transportation industry are also located in central Missouri including OTSCON, which makes parking brake systems, and Dana Corporation, which manufactures power trains. As the global economy recovers, analysts expect "quite impressive" growth in the worldwide market for industrial machinery between 2014 and 2018,¹¹ driven by consumer products such as cars and food as well as oil and gas exploration, construction, and green energy. Annual growth is projected at 6.3 percent in 2014 (more than double the 2.9 percent increase seen in 2013) and growth should average between five and six percent between 2014 and 2018.

Electrical Equipment Manufacturing

The Central District is home to several electrical equipment manufacturing firms; they pay above-average wages and employ a relatively large workforce. Hubbell Power Systems, Inc., Schneider Electric: Square D, Meramec Electrical Products, Marine Electrical Products, and Watlow Industries are significant employers in this sector.

Importance of Freight to the Economic Development Future of the Central District

Manufacturing and Exports

Manufacturing continues to be a vital part of Missouri's economy and exports of Missouri-manufactured goods continue to increase. Missouri businesses exported over \$3 billion in goods by the close of the first quarter of 2014, and nearly \$13 billion in 2013.^{12,13} Four primary industries in the manufacturing sector accounted for over 62 percent of Missouri exports: transportation equipment, chemicals, food and kindred products, and machinery related businesses. These industries exported over \$8 billion in products in 2013.¹⁴ Agricultural products, fabricated metal products, electrical equipment, minerals and ores, primary metal manufacturing, and computer and electronic products round out the state's top ten exports for 2013. Over 6,100 businesses in Missouri exported products and services in 2012, and 89.5 percent of Missouri's exports are manufactured goods produced in communities all around the State. Manufacturing exports support nearly 107,000 jobs in Missouri, and 85 percent of the companies engaged in exporting goods and services are small businesses.¹⁵

Manufacturing matters in Missouri because:

⁹ MERIC, Central Region Top Openings 2012-2022.

¹⁰ Williams, G. Chambers. "Trucking industry faces uphill battle to recruit drivers." The Tennessean, August 25, 2014.

¹¹ Cassell, Jonathan. "Rise of the Machines: Industrial Machinery Market Growth to Double in 2014." IHS Technology, April 16, 2014.

¹² WISER Export Trade data, 2014

¹³ U.S. Census, Freight Trade State Exports, Missouri

¹⁴ MERIC, Missouri Department of Economic Development, March 2013

¹⁵ U.S. Department of Commerce, International Trade Administration, National Association of Manufacturing, 2013

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- Employees in manufacturing firms earn an average of \$77,060 annually in pay and benefits, while average workers in all industries earn \$60,168. This means manufacturing jobs pay, on average, 19.9 percent more than non-manufacturing jobs.¹⁶
- Manufacturing firms account for nearly two-thirds of all research and development in the U.S. and are a leading user of new technologies and processes.¹⁷
- Manufacturing has the highest multiplier effect of any economic sector. For every dollar spent in manufacturing another \$1.48 is added to the economy, helping to stimulate economic growth.
- Missouri's economy is intrinsically linked to its ability to move people, materials, components, and finished goods within the State and to national and international destinations.
- Missouri's principal trading partners are Canada, Mexico, China, Japan, and Korea.¹⁸ The five industries with the most significant job dependence on exports include grain farming, oilseed farming, wholesale trade, and aircraft manufacturing.
- Export products are intrinsically dependent on multimodal freight transportation.

Conclusion

Missouri's Central District is well-positioned for economic growth. Numerous investments in manufacturing facilities are planned or under way by firms such as 3M, Fluid Power Support, Brewer Science Inc., and Meramec Electrical Products. These expansions will add jobs in the area, both directly and indirectly. Agriculture is vital to the region's economy, and food processing giants including Kraft Foods and Cargill as well as innovative firms such as Beyond Meat should continue to support significant employment. Increasing national and worldwide demand for central Missouri agricultural and manufactured products will, in turn, drive growth in the freight and warehousing sector, resulting in more jobs for truck drivers, freight handlers, and logistics experts. Employment growth in all of the above sectors and in service industries such as retail trade, health care and social assistance, and accommodations and food services—which represent the region's top three industries for jobs—will contribute to the projected population growth. More residents will lead to higher demand for consumer products that must be delivered to local stores and homes.

All of this depends on a dependable and efficient freight network. Manufacturers of machinery, electrical components, and other products depend on the statewide freight infrastructure to deliver raw materials and components and carry finished products to assembly plants, distributors, and end users. Farms, including the growing number of organic farm establishments, and food processors rely on the region's rail, highways, and river ports to deliver their output to markets across the country and around the world. They also depend on secondary roadways to link them with the broader transportation network, and businesses rely on these secondary roads for time-sensitive deliveries. Trucks of all sizes travel the highways and secondary roads to supply grocery stores, offices, construction sites, and homes with the goods, materials, and products they need every day.

Research reveals that investment in physical infrastructure reduces costs and improves efficiencies in conducting business, boosts job creation, and fosters growth cycles within countries.¹⁹ Based on the above research maintaining the existing freight system and expanding both its capacity and connectivity in ways that increase reliability and reduce transportation costs are critical to the economic vitality of the Central District.

¹⁶ Bureau of Economic Analysis, Industry Economic Accounts, 2011

¹⁷ Brookings Institute, Metropolitan Policy Program, "Why Does Manufacturing Matter?" February 2012

¹⁸ US Census, State Exports, Foreign Trade, 2013

¹⁹ Deloitte LLP and the Council on Competitiveness, "2013 Global Manufacturing Competitiveness Index"