

CHAPTER 4 CONSTRUCTION



This chapter provides an overview of the contribution of the construction sector to the economy and the use of transportation by the sector. The construction sector consists of establishments engaging in the construction of buildings or engineering projects (e.g., highways and utility systems), the preparation of sites for new construction, or subdivision of land for sale as building sites.¹

The sector uses less transportation services than all other sectors except the utilities and the natural resources and mining sectors in absolute dollars. However, on the basis of transportation required per dollar of output, the construction sector requires slightly more transportation services than most other sectors. The sector relies heavily on truck transportation services, using more dollars of truck transportation services than all other modes combined, and employing more in motor vehicle occupations than any other transportation occupation.

Table 4-1 Overview of the Construction Sector's Contribution to Gross Domestic Product (GDP) and Use of Transportation

Construction	Value	Year (latest year data is available)
Contribution to GDP	\$664.0 billion	2014
Use of transportation	\$46.9 billion	2012
Amount of transportation required to produce a dollar of output	4.1¢	2012
Number of transportation and material moving workers	199,420	2014
Transportation and material moving workers as percent of sector's work force	3.3	2014
Median annual wage of transportation and material moving workers	\$36,840	2014
Number of trucks used	4,542 thousand	2002*
Truck miles accumulated	75,906 million	2002*

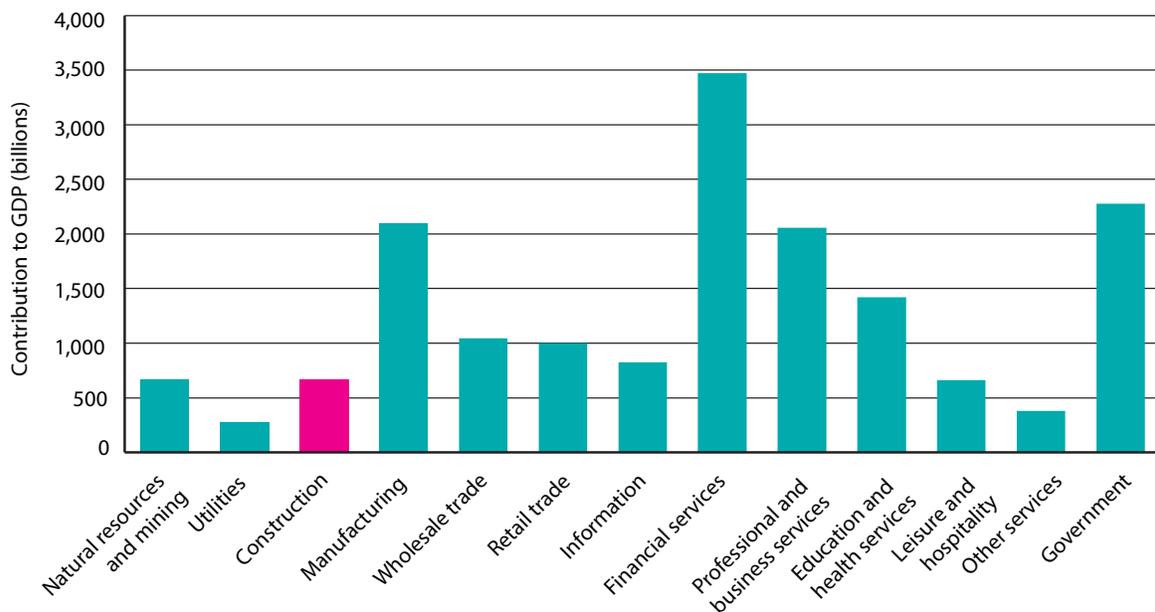
NOTE: Table presents latest data available, as of Feb. 1, 2016.

*Data on number of trucks and truck miles accumulated was last collected in the Vehicle Inventory and Use Survey for 2002.

SOURCE: Data for this table is drawn from figures and tables presented throughout this chapter.

In 2014 the construction sector contributed \$664.0 billion (3.8 percent) to the national economy, as measured by gross domestic product (GDP) (figure 4-1). The construction sector contributed less to the economy than many sectors but builds the transportation infrastructure needed to move the

¹ U.S. Department of Labor, Bureau of Labor Statistics, Industries at a Glance, www.bls.gov/iag/tgs/iag_index_naics.htm, as of Sept. 1, 2015

Figure 4-1 Construction Sector's Contribution to GDP, 2014

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, Gross Domestic Product by State, available at <http://bea.gov> as of November 2015.

goods produced by other sectors throughout the economy.

The largest amount of construction activity occurred in Texas (\$80.8 billion), followed by California (\$76.6 billion), New York (\$43.7 billion), Florida (\$37.3 billion), and Illinois (\$26.4 billion)—each of which accounted for 4 percent or more of national activity in the construction sector (figure 4-2, table 4-2).

Computing the percent of construction sector activity as a percent of a state gross product (GSP), rather than as a share of GDP, also provides useful insights to U.S. production. Nationally, Texas, California, New York, Florida, and Illinois lead in construction sector activity in 2014. However, construction was not the leading activity in these States and accounted for only a small share (less than 5.0 percent) of GSP. Construction accounted for the largest share of GSP in North Dakota (6.0

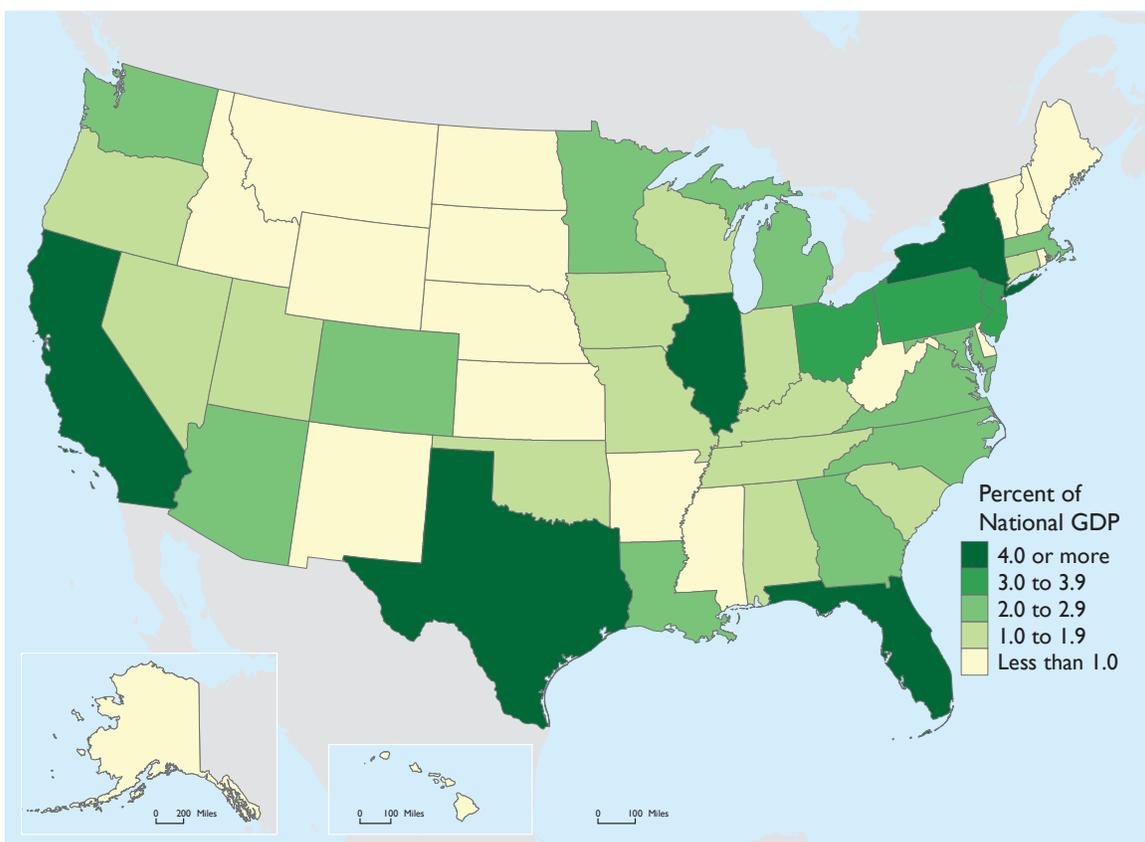
percent, or \$3.3 billion). North Dakota, however, contributed less than 4 percent to national GDP related to construction (see Appendix A).

The construction sector was the third smallest user of transportation services in 2012 (\$46.9 billion). The sector relies heavily on air, rail, truck, and water transportation services. Looking at the use of these four transportation services, the construction sector used almost twice as much in-house operations (\$28.3 billion) as for-hire services (\$18.2 billion) (figure 4-3).

The construction sector used \$46.9 billion of transportation services in 2012. In 2012 the sector used:

- Almost exclusively truck transportation services (e.g., for hauling materials and equipment to a construction site), which accounted for 88.8 percent (\$41,632 million) of

Figure 4-2 State Contributions to Construction Related GDP (percent of national GDP related to construction), 2014



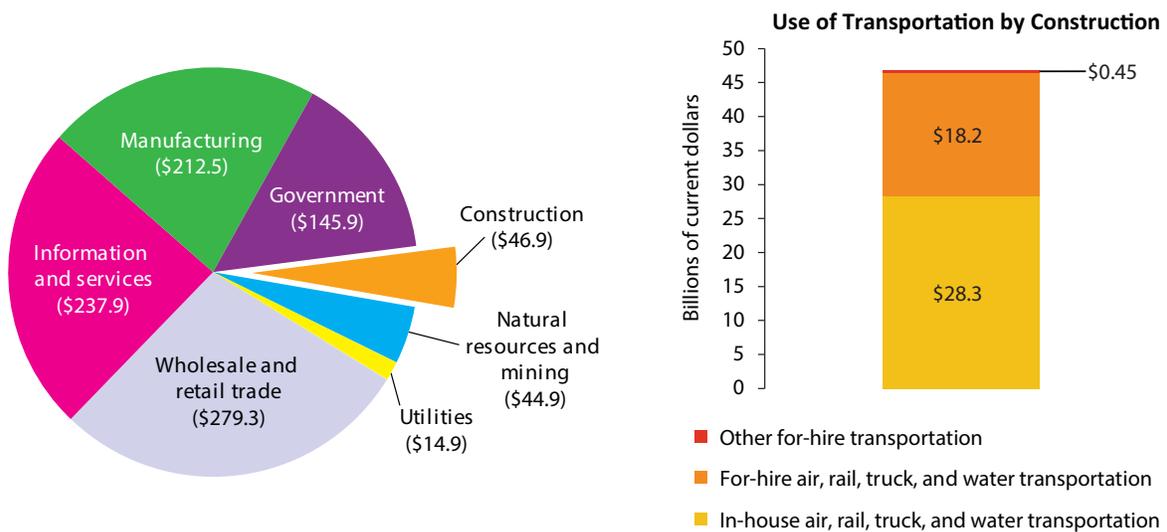
SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, Gross Domestic Product by State, available at <http://bea.gov> as of November 2015.

Table 4-2 States Contributing 4.0 Percent or More to National GDP Related to Construction in 2014

State	Construction (Construction related GDP = \$664.0 billion)			All products and services (Total National GDP = \$17.2 trillion)	
	Construction related GDP (billions)	Percent of national GDP related to construction	Rank (1=contributes most to national GDP related to construction, 51=least)	Dollar contribution to national GDP (billions)	Rank (1=contributes most to national GDP, 51=least)
Texas	80.8	12.2	1	1,641.0	2
California	76.6	11.5	2	2,305.9	1
New York	43.7	6.6	3	1,395.5	3
Florida	37.3	5.6	4	838.9	4
Illinois	26.4	4.0	5	736.3	5

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, Gross Domestic Product by State, available at <http://bea.gov> as of November 2015.

Figure 4-3 Use of Transportation by the Construction Sector, 2012 (current dollars, billions)



NOTE: In-house transportation consists of transportation services (air, rail, truck, and water) provided by nontransportation industries for their own use. For-hire transportation consists of the services provided by transportation firms to industries and the public on a fee-basis. Airlines, railroads, transit agencies, common carrier trucking companies, and pipelines are examples of for-hire transportation industries. "Other" for-hire transportation includes: transit and passenger ground transportation (excluding State and local government passenger transit); pipeline; sightseeing transportation and transportation support; parcel delivery, courier, and messenger services (excluding U.S. Postal Service); warehousing and storage; and other transportation and support activities. The construction sector did not use a measurable amount of for-hire warehousing in 2012.

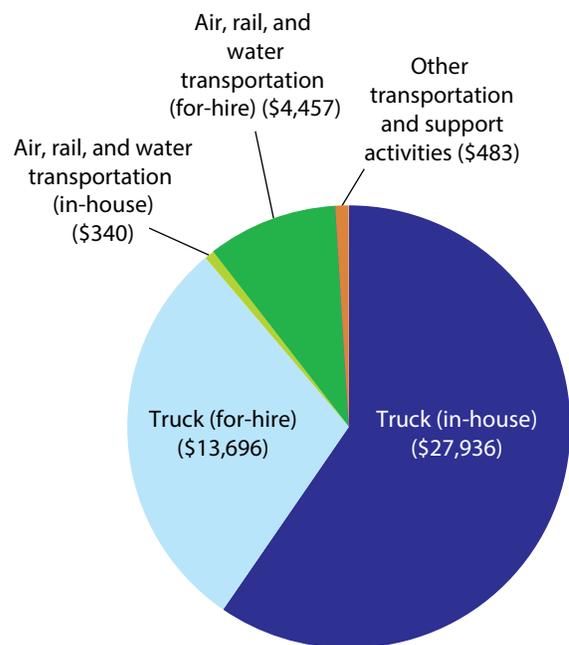
SOURCE: U.S. Department of Transportation, Bureau of Transportation Statistics, Transportation Satellite Accounts, available at <http://www.bts.gov> as of March 2016.

all transportation services used by the sector.

- More in-house truck transportation operations (\$27,936 million) than for-hire truck transportation services (\$13,696 million), with in-house truck transportation operations accounting for almost two-thirds (59.6 percent) of all transportation services used.
- A modest amount of air, rail, and water transportation services, which collectively accounted for 10.2 percent (\$4,797 million) of all the transportation services used by the sector. Almost all of air, rail, and water transportation services used by the sector were for-hire (\$4,457 million). (figure 4-4)

The construction sector required slightly more transportation services in producing output than the average sector, albeit substantially less transportation services than the sector depending the most on transportation services in 2012. In 2012 the construction sector required 4.1¢ worth of transportation services to produce one dollar of output, while the most dependent sector (wholesale and retail trade) required 10.2¢ worth of transportation services to produce one dollar of output. The construction sector relied more on in-house transportation operations than for-hire transportation services, requiring 2.5¢ worth of for-hire transportation services and 1.6¢ worth of in-house transportation operations to produce one dollar of output (figure 4-5).

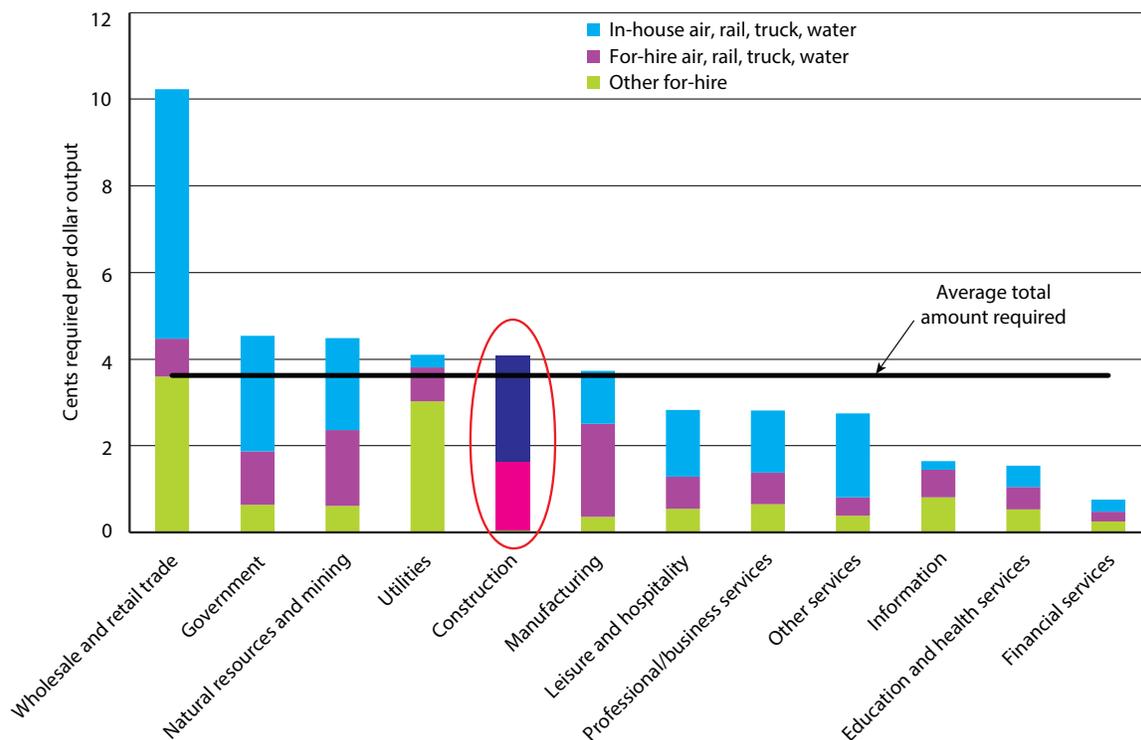
Figure 4-4 Construction Sector's Use of Transportation by Mode, 2012 (current dollars, millions)



NOTE: In-house transportation consists of transportation services (air, rail, truck, and water) provided by nontransportation industries for their own use. For-hire transportation consists of the services provided by transportation firms to industries and the public on a fee-basis. Airlines, railroads, transit agencies, common carrier trucking companies, and pipelines are examples of for-hire transportation industries. "Other" for-hire transportation includes: transit and passenger ground transportation (excluding State and local government passenger transit); pipeline; sightseeing transportation and transportation support; parcel delivery, courier, and messenger services (excluding U.S. Postal Service); and other transportation and support activities. The construction sector did not use a measurable amount of for-hire warehousing in 2012.

SOURCE: U.S. Department of Transportation, Bureau of Transportation Statistics, Transportation Satellite Accounts, available at <http://www.bts.gov> as of March 2016.

Figure 4-5 Transportation Required Per Dollar of Output by the Construction Sector, 2012



NOTE: In-house transportation consists of transportation services (air, rail, truck, and water) provided by nontransportation industries for their own use. For-hire transportation consists of the services provided by transportation firms to industries and the public on a fee-basis. Airlines, railroads, transit agencies, common carrier trucking companies, and pipelines are examples of for-hire transportation industries. “Other” for-hire transportation includes: Transit and passenger ground transportation (excluding State and local government transit); pipeline; sightseeing transportation and transportation support; parcel delivery, courier, and messenger services (excluding U.S. Postal Service); warehousing and storage; and other transportation and support activities.

SOURCE: U.S. Department of Transportation, Bureau of Transportation Statistics, Transportation Satellite Accounts, available at <http://www.bts.gov> as of March 2016.

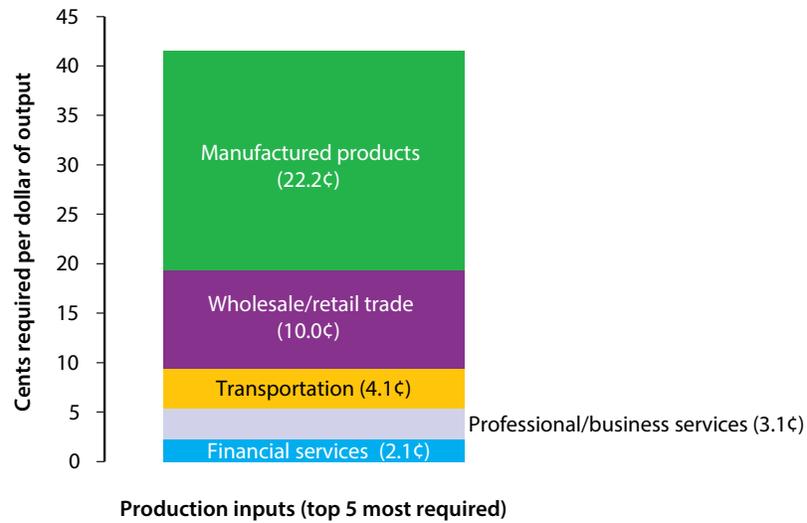
The overall transportation requirement for the construction sector (4.1¢) is relatively modest compared to other inputs. In 2012 transportation services were the third most important input, while manufactured products (e.g. nails, sheet metal, etc.) were the most important input. The construction sector required 22.2¢ worth of manufactured products to produce one dollar of output. (figure 4-6)

In 2014 the construction sector employed 199,420 transportation and material moving workers, accounting for 3.3 percent of its entire work force

(figure 4-7). Transportation workers include motor vehicle operators, ship engineers, aircraft pilots and flight engineers, etc. Material moving workers support transportation activities and include occupations such as cleaners of vehicles and ship loaders.

Transportation and material moving workers in the construction sector earned a median wage of \$36,840 in 2014, while workers of all occupations in the construction sector earned a higher median wage (\$42,340) (figure 4-8).

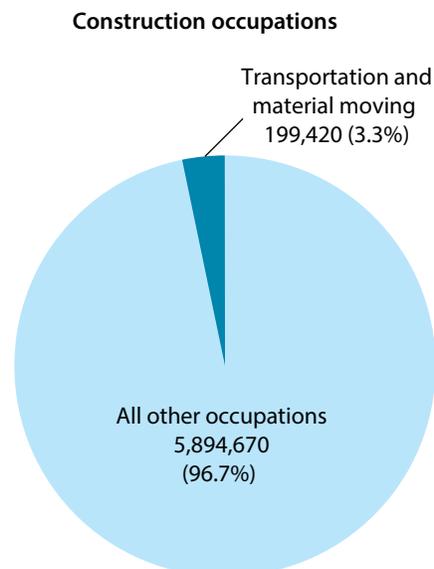
Figure 4-6 Top 5 Most Required Intermediate Inputs by the Construction Sector to Produce a Dollar of Output, 2012



NOTE: Transportation includes in-house and for-hire.

SOURCE: U.S. Department of Transportation, Bureau of Transportation Statistics, Transportation Satellite Accounts, available at <http://www.bts.gov> as of March 2016.

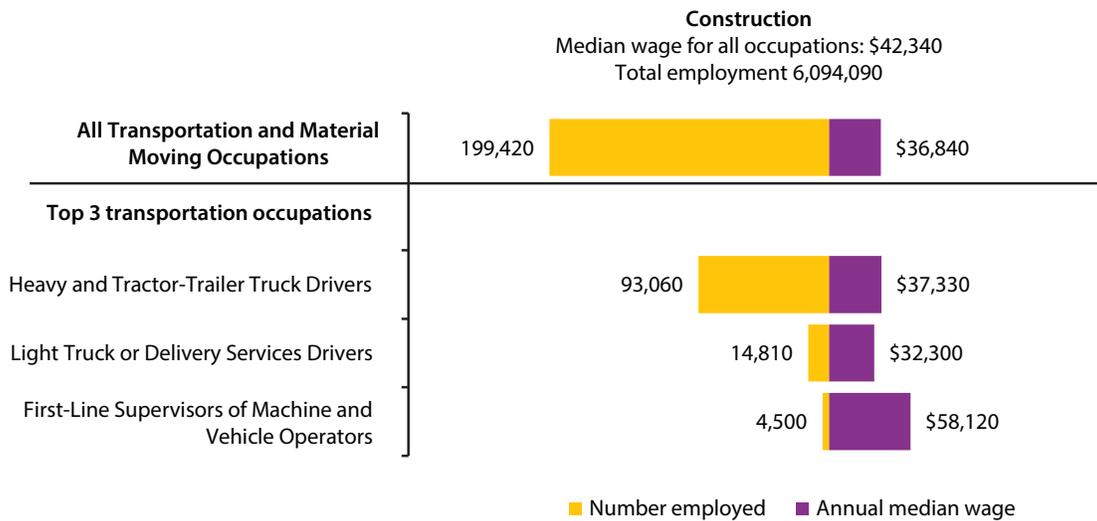
Figure 4-7 Number of Workers Employed in the Construction Sector by Occupation, 2014



NOTE: Number of transportation and material moving workers only available as aggregate total.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment and Wages, available at <http://www.bls.gov/oes> as of Nov. 23, 2015.

Figure 4-8 Median Annual Wage and Employment for Most Common Transportation Occupations (top 3) in the Construction Sector, 2014



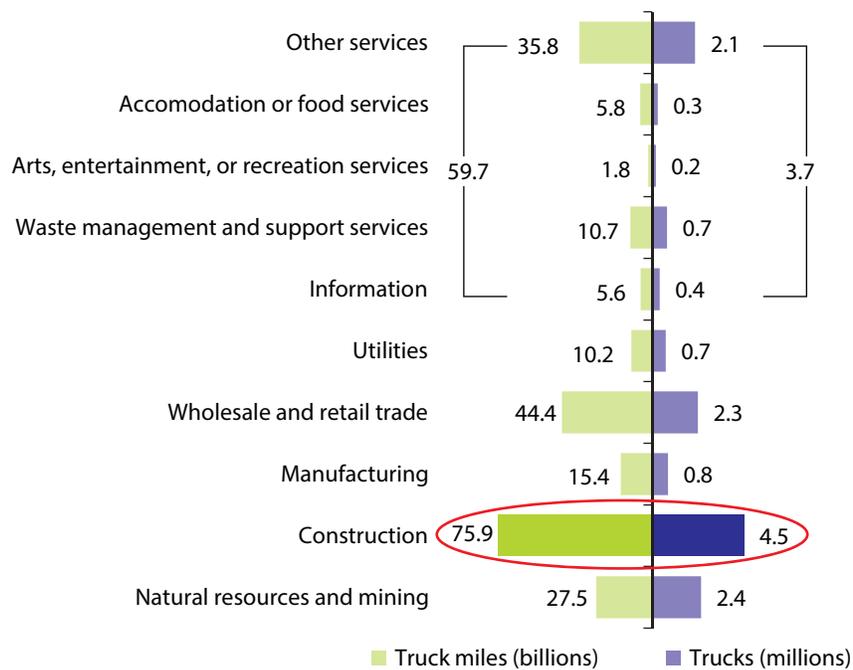
NOTE: Top three transportation occupations are the transportation occupations employing the largest number of workers and are selected from detailed occupation group in Bureau of Labor Statistics Occupational Employment and Wages table. Material moving occupations not included in the selection of the top three transportation occupations. The top three transportation occupations in the construction sector are: heavy and tractor-trailer truck drivers; light truck or delivery services drivers; and first-line supervisors of machine and vehicle operators. First-line supervisors of machine and vehicle operators includes first-line supervisors of material moving occupations.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Occupational Employment and Wages*, available at <http://www.bls.gov/oes> as of November 23, 2015.

The construction sector employed the largest number of workers as heavy and tractor-trailer truck drivers (93,060), followed by light truck or delivery services drivers (14,810). Workers in these two occupations collectively accounted for 54.1 percent of the sector’s entire transportation and material moving workforce. Heavy and tractor-trailer truck drivers earned a slightly higher median wage (\$37,330) than light truck or delivery services drivers (\$32,300) (figure 4-8).

The 2002 Vehicle Inventory and Use Survey (VIUS) is the most recent survey of vehicle ownership and use by industry. According to the 2002 VIUS, the construction industry operated, at 4.5 million, the largest number of trucks and accumulated the most truck miles (figure 4-9).

Figure 4-9 Trucks Used and Truck Miles Accumulated for Business by the Construction Industry, 2002



NOTE: Totals for trucks in use only.

SOURCE: U.S. Census Bureau, 2002 Economic Census Vehicle Inventory and Use Survey, Table 2a, available at <https://www.census.gov/prod/ec02/ec02tv-us.pdf> as of August 2012.

