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	$716.9 billion	2015
Use of transportation	$48.9 billion	2014
Amount of transportation required to produce a dollar of output	3.8¢	2014
Number of transportation and material moving workers	209,990	2015
Transportation and material moving workers as percent of sector's work force	3.3	2015
Median annual wage of transportation and material moving workers	$37,490	2015
Number of trucks used	4,542 thousand	2002
Truck miles accumulated	75,906 million	2002

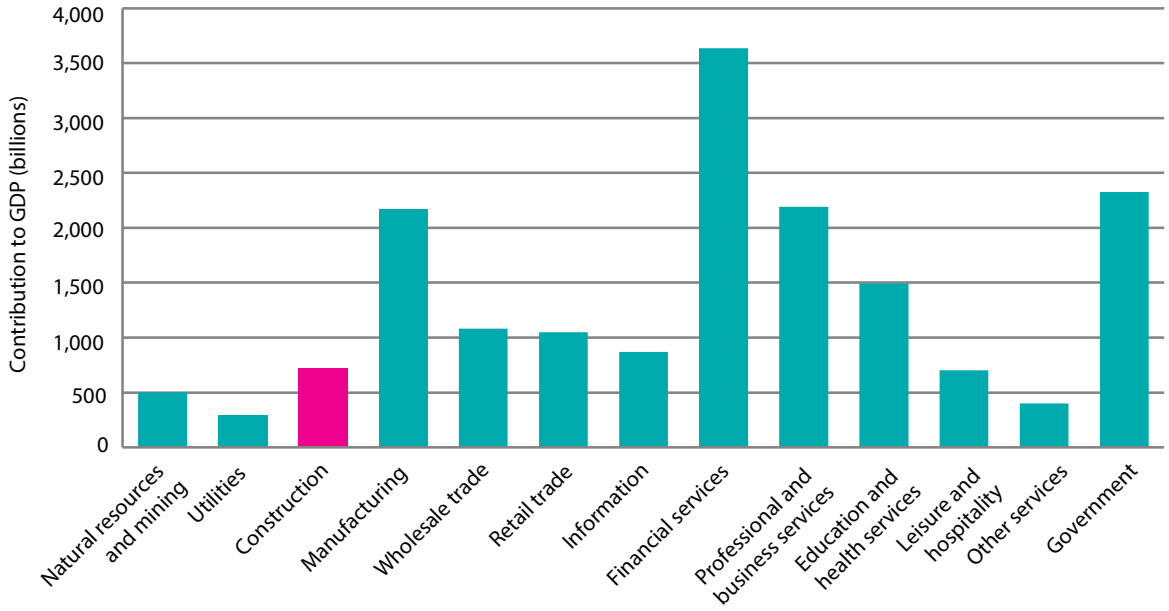
NOTE: Table presents latest data available, as of August 11, 2016.
*Data on number of trucks and truck miles accumulated was last collected in the Vehicle Inventory and Use Survey for 2002.

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

In 2015 the construction sector contributed $716.9 billion (4.0 percent) to the national economy, as measured by gross domestic product (GDP) (figure 4-1). The construction sector contributed less to

[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 Gross Domestic Product, 2015



NOTE: GDP = $17,947 billion

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, Value Added by Industry, available at http://bea.gov as of August 11, 2016.

the economy than many sectors but builds the transportation infrastructure needed to move the goods produced by other sectors throughout the economy.

The largest amount of construction activity occurred in California ($87.5 billion), followed by Texas ($84.9 billion), New York ($45.1 billion), and Florida ($40.8 billion)— each of which accounted for 4 percent or more of national activity in the construction sector (figure 4-2, table 4-2).

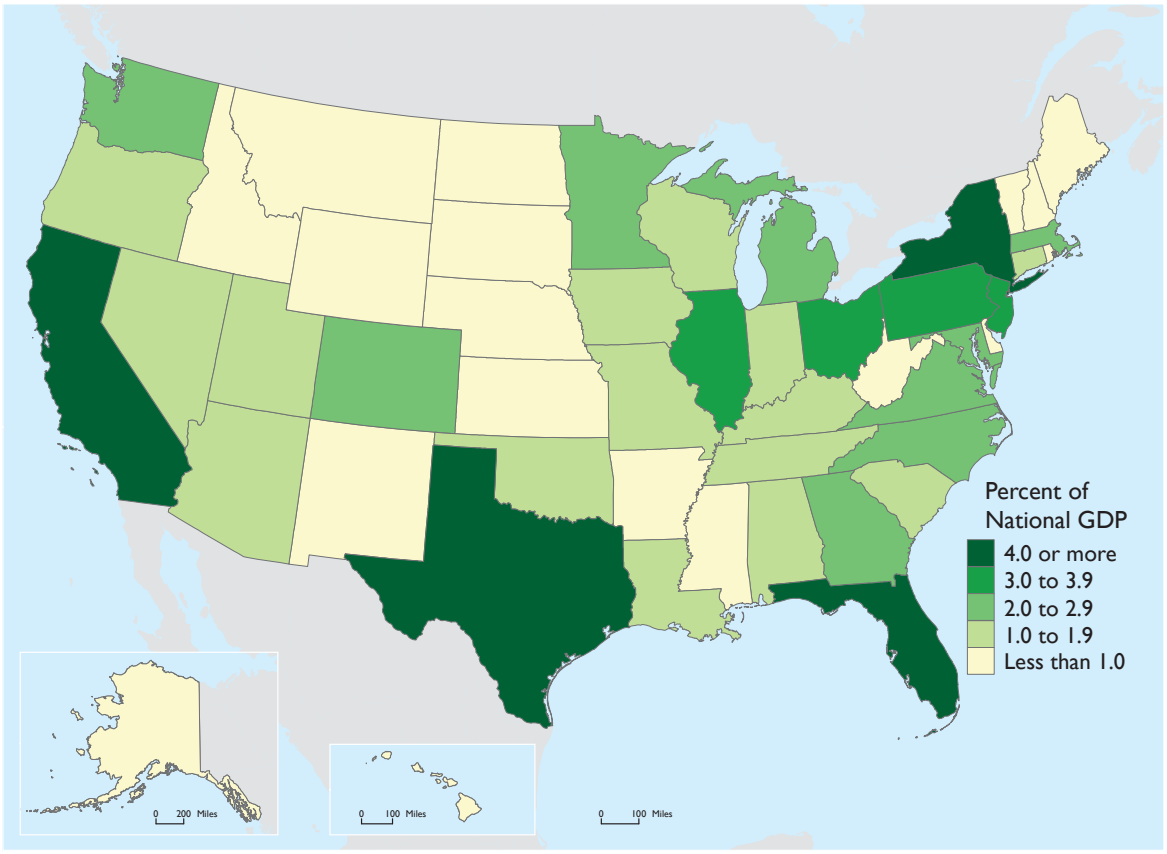
Computing the percent of construction sector activity as a percent of a state gross product (GSP), rather than as a share of GDP, also provides useful insights to U.S. production. Nationally, California, Texas, New York, and Florida lead in construction sector activity in 2015. However, construction was not the leading activity in these States and accounted for only a small share (less than 5.5 percent) of GSP. Construction accounted for the largest share of GSP in North Dakota (8.1 percent, or $4.5 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 2014 ($48.9 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 1.3 times as much in-house operations ($27.6 billion) as for-hire services ($20.8 billion) (figure 4-3).

The construction sector used $48.9 billion of transportation services in 2014. In 2014 the sector used:

- Almost exclusively truck transportation services (e.g., for hauling materials and

Figure 4-2 State Contributions to Construction Related GDP (percent of national GDP related to construction), 2015



SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, Gross Domestic Product by State, available at http://bea.gov as of August 2016.

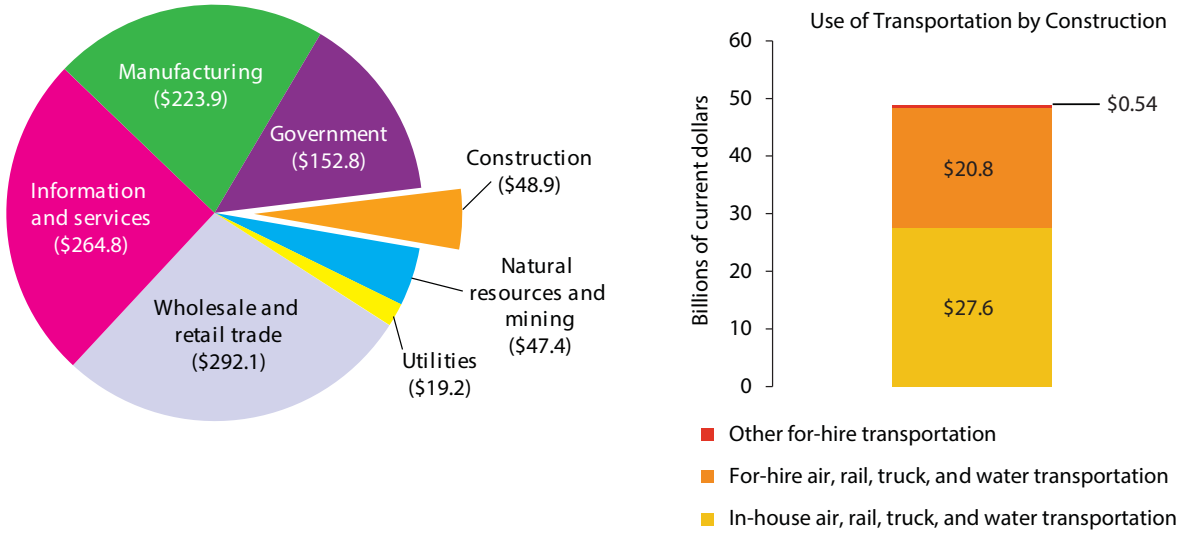
Table 4-2 States Contributing 4.0 Percent or More to National GDP Related to Construction in 2015

	Construction (Construction related GDP = $716.9 billion)			All products and services (Total National GDP = $17.8 trillion)	
State	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)
California	87.5	12.2	1	2,458.5	1
Texas	84.9	11.8	2	1,586.5	2
New York	45.1	6.3	3	1,441.0	3
Florida	40.8	5.7	4	882.8	4

NOTE: Latest available data do not sum to latest available industry totals (shown in figure 4-1) due to difference in source data vintage.

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, Gross Domestic Product by State, available at http://bea.gov as of August 11, 2016.

Figure 4-3 Use of Transportation by the Construction Sector, 2014 (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 2014.

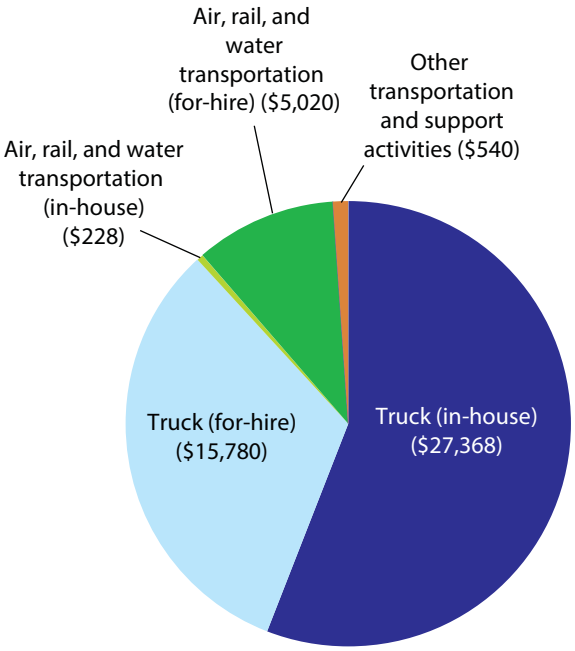
SOURCE: U.S. Department of Transportation, Bureau of Transportation Statistics, Transportation Satellite Accounts, available at http://www.bts.gov as of August 2016.

equipment to a construction site), which accounted for 88.2 percent ($43,148 million) of all transportation services used by the sector.

- More in-house truck transportation operations ($27,368 million) than for-hire truck transportation services ($15,780 million), with in-house truck transportation operations accounting for almost two-thirds (55.9 percent) of all transportation services used.
- A modest amount of air, rail, and water transportation services, which collectively accounted for 10.7 percent ($5,248 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 ($5,020 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 2014. In 2014 the construction sector required 3.8¢ worth of transportation services to produce one dollar of output, while the most dependent sector (wholesale and retail trade) required 9.9¢ 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 2.1¢ worth of in-

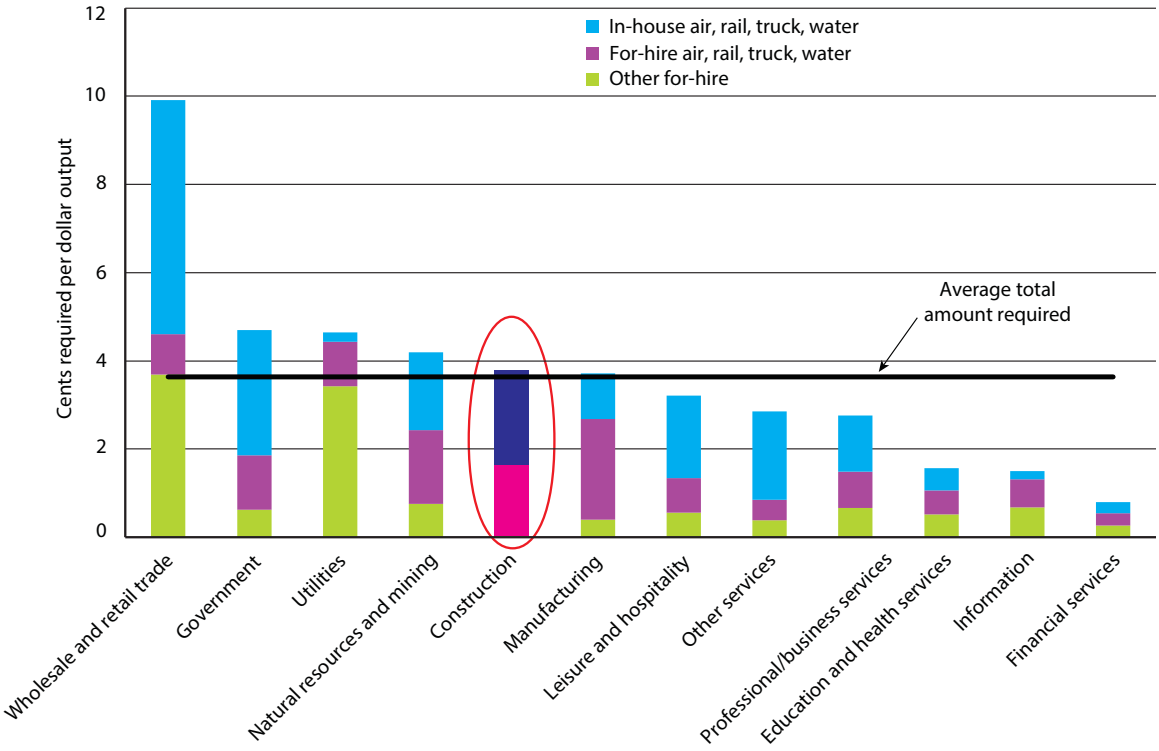
Figure 4-4 Construction Sector's Use of Transportation by Mode, 2014 (current dollars, millions)



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 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 any for-hire warehousing in 2014.

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

Figure 4-5 Transportation Required Per Dollar of Output by Construction Sector, 2014



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

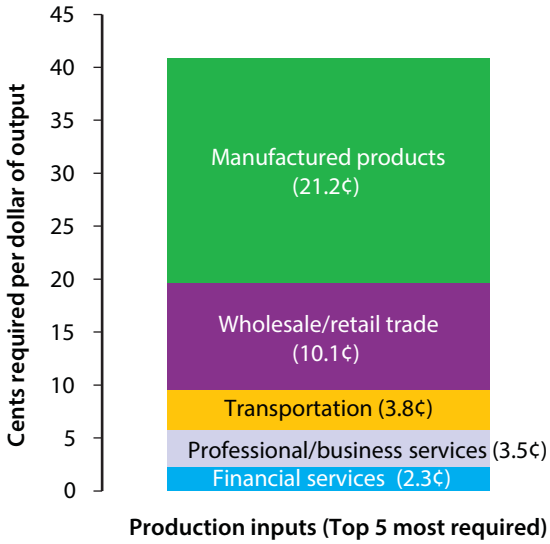
house transportation services and 1.7¢ worth of for-hire transportation operations to produce one dollar of output (figure 4-5).

The overall transportation requirement for the construction sector (3.8¢) is relatively modest compared to other inputs. In 2014 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 21.2¢ worth of manufactured products to produce one dollar of output. (figure 4-6)

In 2015 the construction sector employed 209,990 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 $37,490 in 2015, while workers of all occupations in the construction sector earned a higher median

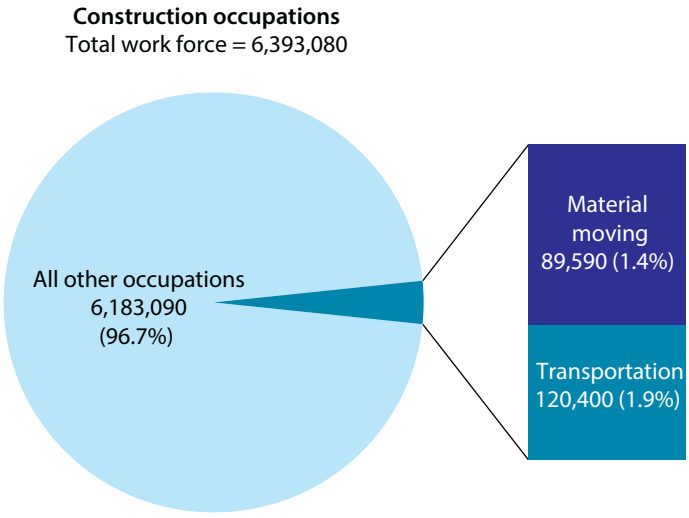
Figure 4-6 Inputs Required by the Construction Sector to Produce a Dollar of Output, 2014



NOTE: Transportation includes in-house and for-hire. The construction sector requires 2.1 cents per dollar of output of in-house transportation and 1.7 cents per dollar of output of for-hire transportation.

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

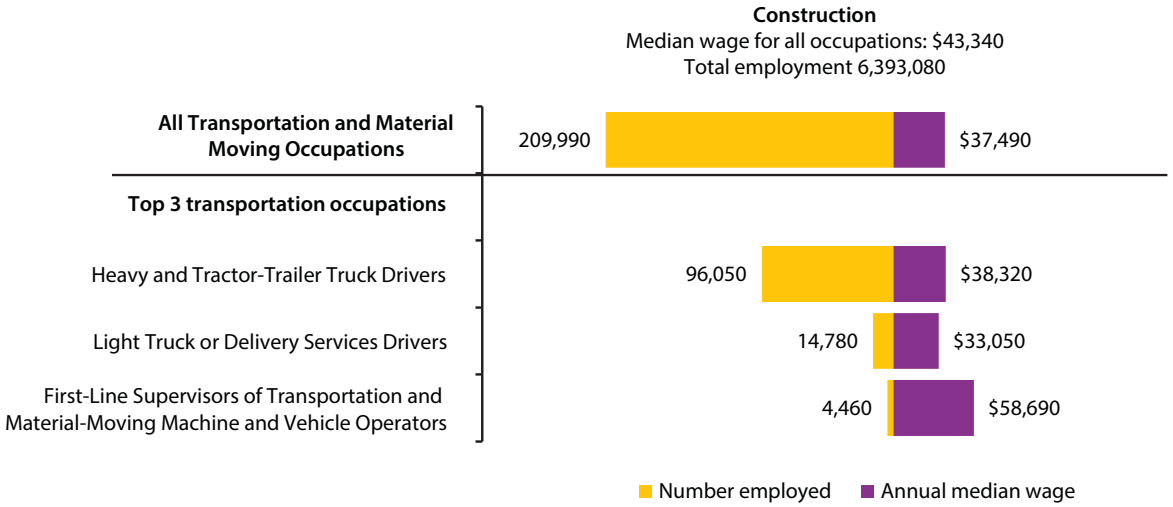
Figure 4-7 Number of Workers Employed in the Construction Sector by Occupation, 2015



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 August 2016.

Figure 4-8 Median Annual Wage and Employment for Most Common Transportation Occupations (Top 3) in Construction Sector, 2015



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. First-line supervisors of machine and vehicle operators includes first-line supervisors of material moving occupations.

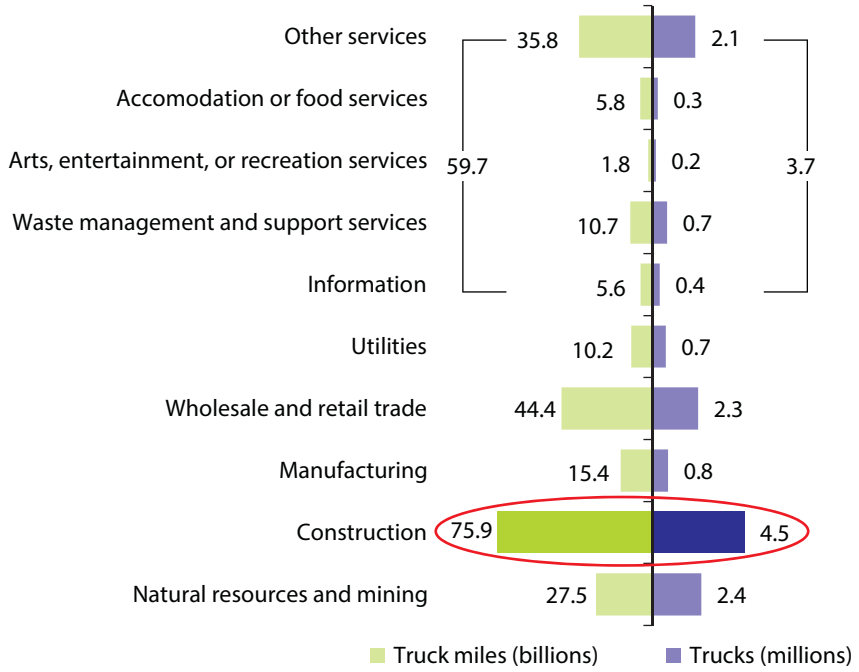
SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Occupational Employment and Wages*, available at http://www.bls.gov/oes as of August 2016.

wage ($43,340) (figure 4-8).

The construction sector employed the largest number of workers as heavy and tractor-trailer truck drivers (96,050), followed by light truck or delivery services drivers (14,780). Workers in these two occupations collectively accounted for 52.8 percent of the sector's entire transportation and material moving workforce. Heavy and tractor-trailer truck drivers earned a slightly higher median wage ($38,320) than light truck or delivery services drivers ($33,050) (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.