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# Economic Impacts of Commercial Real Estate

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NAIOP, the Commercial Real Estate Development Association, is the leading organization for developers, owners and related professionals in office, industrial, retail and mixed-use real estate. NAIOP comprises some 20,000 members in North America. NAIOP advances responsible commercial real estate development and advocates for effective public policy. For more information, visit [naiop.org](http://naiop.org).

The NAIOP Research Foundation was established in 2000 as a 501(c)(3) organization to support the work of individuals and organizations engaged in real estate development, investment and operations. The Foundation's core purpose is to provide information about how real properties, especially office, industrial and mixed-use properties, impact and benefit communities throughout North America. The initial funding for the Research Foundation was underwritten by NAIOP and its Founding Governors with an endowment established to support future research. For more information, visit [naiop.org/research](http://naiop.org/research).

## About Dodge Data & Analytics

**Dodge Data & Analytics** is the leading provider of data, analytics, news and intelligence serving the North American construction industry. The company's information enables building product manufacturers, general contractors and subcontractors, architects and engineers to size markets, prioritize prospects, target and build relationships, strengthen market positions and optimize sales strategies. The company's brands include Dodge, Dodge MarketShare™, Dodge BuildShare®, Dodge SpecShare®, Sweets, Architectural Record and Engineering News-Record. For more information, visit [construction.com](http://construction.com).

## Disclaimer

The data collection measures included in this report should be regarded as guidelines rather than as absolute standards. The data may differ according to the geographic area in question, and results may vary accordingly. Local and regional economic performance is a key factor. Further study and evaluation are recommended before any investment decisions are made.

This project is intended to provide information and insight to industry practitioners and does not constitute advice or recommendations. NAIOP disclaims any liability for action taken as a result of this project and its findings.



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# Introduction

Since 2008, NAIOP has conducted this study to estimate the annual economic contribution of commercial real estate development to the U.S. economy. The study uses key data sets from the U.S. Census Bureau and Dodge Data & Analytics. It applies several estimating and impact-assessment methodologies to take snapshots of the commercial real estate development industry from a variety of perspectives.

**Building and Nonbuilding Construction.** The broadest measure calculates the contribution of building and nonbuilding construction to the national economy for the year in review. Product types include residential, nonresidential and infrastructure projects in the construction pipeline, based on census data on the value of construction put in place. Multipliers from the Bureau of Economic Analysis (BEA) are applied to reflect the effects of construction expenditures on gross domestic product (GDP), the associated generation of new personal earnings and the jobs supported by these direct expenditures. (See Table 1.)

**TABLE 1**

**Economic Contributions from Building and Nonbuilding Construction**

Year	Direct Expenditures (In Billions of Dollars)	Total Economic Contribution <sup>1</sup> to GDP (In Trillions of Dollars, Includes Multiplier Effect)	Percent Contribution to GDP	Personal Earnings <sup>2</sup> (In Billions of Dollars, Includes Multiplier Effect)	Jobs Supported <sup>3</sup> (In Millions, Includes Multiplier Effect)
2019	\$1,291.1	\$3.898	18.1%	\$1,310.7	26.2
2018 <sup>4</sup>	1,277.4	3.857	18.6	1,296.8	26.0
2017	1,247.5	3.586	18.2	1,136.0	24.0
2016	1,160.0	3.376	18.3	1,068.2	23.8
2015	1,104.2	3.214	17.9	1,016.9	22.7
2014	993.4	2.891	16.6	914.8	20.4
2013	910.8	2.80	16.7	887.0	21.3
2012	857.0	2.65	16.3	836.9	20.1
2011	787.4	2.27	15.0	677.0	17.2
2010	803.6	2.31	15.9	691.0	17.6
2009	907.8	2.90	20.5	870.0	24.0

Sources: U.S. Census, Value of Construction Put in Place; GMU Schar School of Policy and Government, Stephen S. Fuller Institute

<sup>1</sup> The total value of goods and services generated directly and indirectly as a result of construction and related expenditures within the U.S.

<sup>2</sup> The additional earnings (wages and salaries) generated within the U.S. from construction and related expenditures.

<sup>3</sup> The jobs supported by the spending and re-spending of direct expenditures for all phases of development and operations.

<sup>4</sup> Revised third-quarter 2018 value of construction put in place, U.S. Census.



**Development of New Commercial Real Estate Buildings.** Zeroing in on commercial real estate — the core of this study — the analysis begins with Dodge Data & Analytics data relating to square footage and construction values for office, industrial, warehouse and retail projects. These data provide the foundation for estimating expenditures made during four distinct phases of the development process: preconstruction (soft costs), site development, on-site construction (hard costs) and tenant improvements. (Financing fees, insurance and taxes are not included in this analysis within the soft construction costs category, because they have little immediate economic impact.)



This study also examines the contribution of building operations, which are reported as a stand-alone phase that follows development. Additionally, it shows the impacts for the estimated 563.3 million square feet of commercial buildings that commenced construction in 2019, according to Dodge Data & Analytics, and for the nationwide 49.6 billion square foot inventory of commercial space existing at the end of the third quarter of 2019, according to Newmark Knight Frank.

Multipliers are applied to the direct expenditures to calculate the contribution to GDP, personal earnings and jobs supported during each distinct development phase. Residential and hotel properties and government buildings are not included in these calculations. (See Table 2.)

The full measure of the economic impact of office, industrial, warehouse and retail development includes all expenditures associated with each phase of the development process. In addition to the wide range of on-site construction services, these expenditures also support professional and business services, including:

- Architecture and engineering services;
- Legal services;
- Marketing and management services;
- Grading, paving and landscaping services;
- Site engineering services; and
- Interior design and construction services.

The combined spending for preconstruction, construction and post-construction activities required to deliver buildings ready for occupancy represents the development industry's total direct contribution to national, state and local economies. It provides the appropriate basis for calculating the economic impacts of this spending as represented by its contribution to GDP, personal earnings (wages and salaries) and employment.

**Existing Inventory of Commercial Real Estate Buildings.** This study also includes the economic contributions of existing buildings. Based on the existing stock of commercial buildings — totaling 49.6 billion square feet at the end of the third quarter of 2019 — direct expenditures for building operations totaled an estimated \$173.0 billion and contributed \$464.0 billion to GDP. These direct expenditures also generated \$151.7 billion in personal earnings (wages and salaries) and supported 4.45 million jobs. (See Table 3.)

**Combining New and Existing Commercial Real Estate Buildings.** Combining the economic contributions of new development with the economic contributions from operations of existing buildings in 2019 (data from Tables 2 and 3) resulted in direct expenditures of \$392.2 billion and the following impacts on the U.S. economy:

- Contributed \$1.14 trillion to GDP
- Generated \$396.4 billion in personal earnings
- Supported a total of 9.2 million jobs

TABLE 2

## Economic Contributions to the U.S. Economy from Development of Commercial Real Estate Buildings, 2014-2019 (In Billions of Dollars)

	Development Phases					Operations Phase	
	Pre-Construction	Construction			Totals	Post-Construction	
	Soft Construction (Soft Costs)	Site Development	Hard Construction (Hard Costs)	Tenant Improvements		Building Operations	
	architecture, engineering, legal, marketing, management, administration	grading, paving, landscaping, roadway, parking, off-site improvements	labor, materials, construction management	interior design and construction (excludes furniture and equipment)		maintenance, repairs, custodial, utilities, property management	
	<b>2019</b>	\$34.05	\$29.52	\$114.31	\$39.27	\$217.15	\$2.02
<b>Direct Expenditures</b> (In Billions of Dollars)	<b>2018</b>	31.71	27.88	109.01	38.27	207.77	1.76
	<b>2017</b>	28.58	24.73	98.55	35.23	187.09	1.66
	<b>2016</b>	25.06	21.42	82.96	30.60	160.04	1.42
	<b>2015</b>	23.84	20.20	81.17	29.80	155.01	1.39
	<b>2014</b>	27.64	28.56	87.76	30.35	174.31	1.34
<b>In 2019, direct expenditures of \$217.2 billion contributed \$667.4 billion to U.S. GDP.</b>							
<b>Total Economic Contribution<sup>1</sup> to GDP</b> (In Billions of Dollars, Includes Multiplier Effect)	<b>2019</b>	\$97.27	\$91.92	\$355.98	\$122.28	\$667.45	\$5.41
	<b>2018</b>	94.66	80.15	315.96	110.03	600.80	4.47
	<b>2017</b>	85.33	71.09	283.31	101.28	541.01	4.22
	<b>2016</b>	72.19	62.34	241.40	89.06	464.99	3.74
	<b>2015</b>	68.68	58.79	236.20	86.71	450.38	3.67
	<b>2014</b>	75.54	88.12	270.77	93.66	528.09	3.71
<b>In 2019, direct expenditures of \$217.2 billion generated \$242.9 billion in personal earnings in the U.S.</b>							
<b>Personal Earnings<sup>2</sup></b> (In Billions of Dollars, Includes Multiplier Effect)	<b>2019</b>	\$34.98	\$33.52	\$129.81	\$44.59	\$242.91	\$1.77
	<b>2018</b>	32.39	25.39	100.08	34.85	192.71	1.39
	<b>2017</b>	29.20	22.52	89.74	32.08	173.54	1.32
	<b>2016</b>	26.18	19.73	76.39	28.18	150.49	1.07
	<b>2015</b>	24.91	18.60	74.75	27.44	145.70	1.05
	<b>2014</b>	25.18	27.89	85.70	29.65	168.42	1.17
<b>In 2019, direct expenditures of \$217.2 billion supported 4.7 million jobs in the U.S. economy.</b>							
<b>Jobs Supported<sup>3</sup></b> (Includes Multiplier Effect)	<b>2019</b>	644,661	657,281	2,545,622	874,410	4,721,974	51,870
	<b>2019</b>	635,078	535,778	2,111,982	735,486	4,018,323	44,795
	<b>2017</b>	572,497	475,171	1,893,727	677,023	3,618,418	42,330
	<b>2016</b>	538,680	439,801	1,703,149	628,352	3,309,982	27,833
	<b>2015</b>	512,509	414,765	1,666,470	611,755	3,205,499	27,299
	<b>2014</b>	508,712	668,953	2,055,112	710,831	3,943,608	29,398

Sources: NAIOP; Dodge Data and Analytics; GMU Schar School, Stephen S. Fuller Institute

<sup>1</sup> The total value of goods and services generated directly and indirectly as a result of construction and related expenditures within the U.S.

<sup>2</sup> The additional earnings (wages and salaries) generated from construction and related expenditures.

<sup>3</sup> The jobs supported by the spending and re-spending of direct expenditures for all phases of development and operations.

Note: Data include office, industrial, warehouse/flex and retail buildings under construction in the year indicated and excludes existing inventory. Operations figures are based on buildings delivered in the year indicated.

The economic contributions of new development and the operations of existing buildings in 2019 supported a total of 9.2 million jobs.

**TABLE 3**

**Economic Contribution to the Economy from Operations of Existing Buildings, 2012-2019**  
(In Billions of Current Year Dollars)

Year	Total Square Feet (In Billions)	Direct Expenditures for Building Operations	Total Economic Contribution <sup>1</sup> to GDP	Personal Earnings <sup>2</sup>	Jobs Supported <sup>3</sup> (In Millions)
2019	49.550	\$173.0	\$464.0	\$151.7	4.448
2018	49.190	168.2	427.2	133.2	4.285
2017	46.380	155.2	394.1	112.9	3.952
2016	45.820	150.1	396.0	113.9	2.944
2015	45.070	145.6	384.1	110.1	2.856
2014	44.010	138.1	381.3	120.1	3.023
2013	43.934	134.3	370.9	116.8	2.941
2012	43.208	134.5	371.5	117.0	2.945

Sources: BOMA; Newmark Knight Frank; GMU Schar School, Stephen S. Fuller Institute

<sup>1</sup> The total value of goods and services generated directly and indirectly as a result of building operating expenditures within the U.S.

<sup>2</sup> The earnings generated within the U.S. from direct expenditures for building operations.

<sup>3</sup> The jobs supported by the spending and re-spending of direct outlay associated with building operations.

Note: Building operations include maintenance repair, cleaning, utilities, security, building management and administrative expenses; see Appendices for state and building type data.



# Economic Contributions

## Building and Nonbuilding Expenditures

Estimates show that the U.S. economy grew 2.3 percent in 2019 after rising 2.9 percent in 2018, its best performance of the decade. This slower but still above-trend growth in 2019 reflects the combination of continuing stimulus from the Tax Cuts and Jobs Act of 2017, increased federal government spending, rising consumer spending, and strong job and personal earnings growth. However, these were offset in part by slowing economic growth among major U.S. trading partners, weaker exports, and actual and threatened disruptions in national and global economies. Still, the U.S. economy extended its expansion to a record ten and a half years as of January 1, 2020. The Federal



Reserve's three one-quarter-point reductions in its federal funds rate in 2019 and expected increases in federal spending (with increased deficits) will further stimulate the economy into 2020.

In spite of the economy's continued above-trend growth in 2019, the construction sector struggled. Residential activity declined during the year's first half, and nonresidential construction slowed through the third quarter. For the full year, residential housing starts underperformed beginning-of-the-year forecasts, gaining only 0.4 percent rather than the expected

1.0 percent<sup>1</sup>. Both growth rates were well off the 3.4-percent gain registered in 2018. Reasons for this weaker-than-expected increase in residential building activity include less favorable treatment of ownership-related expenses by the Tax Cuts and Jobs Act of 2017 (reduced deductibility of mortgage interest rates and state and local taxes); continuing demographic trends (lower marriage and fertility rates); housing price increases that continue to outpace increases in household incomes; and moderating consumer expectations (consumer confidence in the future). The unusually wet weather in many regions of the U.S. during the spring months of 2019 also contributed to slower residential construction that carried over into the post-Labor Day selling season. As of October 2019, the U.S. Census reported that the value of residential construction put in place was up only 1.1 percent from a year earlier.

Nonresidential construction, including infrastructure, was also hampered by many of the factors that slowed residential construction. Additionally, the accumulated productive capacity brought on line since 2010 in anticipation of future growth generated increased vacancies in most building types in many regions. As a result, demand for new space has slowed in these markets. Consequently, while the value of nonresidential construction put in place between October 2018 and 2019 increased 1.4 percent overall, most of this gain came from nonresidential, nonbuilding construction spending (largely publicly-funded infrastructure), which increased 7.4 percent during this period. In contrast, private-sector construction saw a 1.5-percent decline in spending between October 2018 and October 2019.

**Construction Activity Contributes to Ongoing Economic Expansion in 2019.** Construction spending remained a key contributor to the economy's continuing expansion in 2019. It has increased each year since 2011, gaining 61.9 percent between October 2011 and October 2019. For the year ending in October 2019, total construction spending was up 1.1 percent. It increased more slowly than the year's estimated 2.3-percent inflation-adjusted GDP gain, and it lagged projected GDP growth for the first time since 2011.

<sup>1</sup>Macroeconomic Advisors by IHS Markit, "Executive Summary: U.S. Economic Outlook," January 2019.



**Residential construction** spending gained 0.5 percent for the 12-month period ending in October 2019 after rising 1.7 percent during the same period in 2018. For 2019, projections show that residential starts could reach 1.264 million units, up 1.1 percent from 2018. That marks the fifth consecutive year in which starts exceeded 1 million units. Residential starts are projected to increase 1.278 million units in 2020 (up 1.1 percent) and hold at that level in 2021 before slowing slightly amid higher mortgage interest rates and a weaker national economy.

Several factors that slowed the rate of increase in housing starts in 2019 were also in play in 2018. Many will likely continue to dampen residential building activity at least until mid-decade. These include increasing relative housing costs favoring renting over ownership; rising mortgage interest rates; wage growth that trails housing price growth; moderating consumer expectations (consumer confidence in the future);

student loan burdens; changing demographic factors (lower marriage rates, slower immigration, lower fertility rates); and changing generational values and preferences.

The value of **nonresidential building construction** fell 1.5 percent in 2019 (October 2018–October 2019), the first decline since 2011. However, this decrease reflects a mixed performance among the building categories as shown in Table 4. Strong gains in transportation (structures), public safety, educational and office buildings were more than offset by a 16.3-percent decrease in retail (commercial). Smaller declines in religious and amusement/recreation added to this. Still, over the full economic expansion, nonresidential building construction spending increased 61.9 percent between October 2011 and October 2019. That reflects an increase of \$493.6 billion in construction spending.

**TABLE 4**

**Nonresidential Construction Spending, 2018 and 2019**

(In Billions of Current Year Dollars)

Type of Structure	2018 <sup>1</sup>	2019 <sup>2</sup>	Percent Change 2018-2019 <sup>3</sup>
Transportation	\$51.8	\$55.2	6.5%
Health Care	43.1	43.8	1.2
Retail	96.9	81.1	-16.3
Manufacturing <sup>4</sup>	71.7	71.5	-0.3
Amusement/Recreation	29.2	26.5	-9.1
Education	97.6	101.7	4.1
Public Safety	10.0	10.9	9.0
Office	77.6	79.9	3.0
Religious	3.1	2.8	-10.0
Lodgings	32.9	33.0	0.4
<b>Total<sup>5</sup></b>	<b>\$513.9</b>	<b>\$506.3</b>	<b>-1.5%</b>

Source: U.S. Census, Value of Construction Put In Place, December 2019


<sup>1</sup> Change in construction values between October 2017 and 2018.

<sup>2</sup> Change in construction values between October 2018 and 2019.

<sup>3</sup> Percentage change between October 2018 and 2019 calculated based on unrounded totals.

<sup>4</sup> Includes warehouse/flex space.

<sup>5</sup> Totals include some miscellaneous state and local government buildings but exclude spending for nonbuilding construction on items relating to communications, power, highways, sewer and water.



Taken as a whole, this \$3.9 trillion in construction spending accounted for 18.1 percent of all U.S. economic activity in 2019.

**Building and Nonbuilding Construction, Output Multipliers and GDP.** Based on U.S. census data, the estimated total value of building and nonbuilding construction spending put in place in 2019 is \$1.3 trillion. This directly accounted for 6.0 percent of the nation's estimated GDP of \$21.5 trillion in 2019 (third quarter). With an output multiplier of 3.0195, each \$1 of construction spending generated \$3.02 of value to the economy, reflecting the cumulative effects of the initial construction expenditures as they cycle throughout the economy. Applying this multiplier to the total value of direct construction spending in 2019 increases the value of its overall contribution to GDP — direct, indirect and induced — to \$3.9 trillion.

**Contribution of Building and Nonbuilding Construction Expenditures to GDP.** Taken as a whole, this \$3.9 trillion in construction spending accounted for 18.1 percent of all U.S. economic activity in 2019. For the year, estimates show that GDP increased by \$775.0 billion from its 2018 value in current dollars. In comparison to this overall gain in GDP during 2019, the total value of construction spending (\$1.3 trillion) was 1.7 times greater than the year's annual GDP growth in dollar value. This underscores the importance of construction spending as a source of GDP growth.

**The Bottom Line.** The total contribution to GDP of building and nonbuilding expenditures also generated new personal earnings and supported jobs across all sectors of the economy. (See Table 1 on page 1.) In 2019, the \$1.3 trillion in construction spending:

- Contributed \$3.9 trillion to U.S. GDP;
- Generated \$1.3 trillion in new personal earnings; and
- Supported a total of 26.2 million jobs throughout the U.S. economy.

### Office, Industrial, Warehouse and Retail Development Expenditures

Construction data provided by Dodge Data & Analytics for office, industrial, warehouse and retail buildings provides a more refined definition of hard construction expenditures over time. As presented in Table 5, total hard construction expenditures for these four building types totaled \$114.3 billion, down \$7.37 billion, or 6.0 percent, from the revised annual total for 2018.

Office construction expenditures totaled \$50.8 billion in 2019, up 5.4 percent from 2018, building on its 12.3-percent gain the previous year.

Retail construction expenditures totaled \$14.4 billion in 2019, a decrease of 15.1 percent from 2018. That marks four straight years of decline; expenditures fell 9.5 percent in 2018, 0.8 percent in 2017 and 7.0 percent in 2016. The last time retail construction spending increased was in 2015.

Warehouse construction outlays rose in 2019, gaining 12.6 percent from 2018. Construction spending had declined slightly in 2018 (0.7 percent) after increasing in each of the preceding seven years.

Industrial construction spending, which fell sharply in 2015 and 2016 before increasing in 2017 and 2018, declined 31.7 percent in 2019. This reflects the manufacturing sector's weaker performance during the year, caused in part by tariffs that have disrupted foreign trade.



TABLE 5

### Comparing Construction Expenditures (Hard Costs), 2018 and 2019 (In Billions of Current Year Dollars)

Building Type	2018*	2019	Change (2018-2019)
Office	\$48.22	\$50.84	\$2.62
Industrial	32.79	22.40	-10.39
Warehouse	23.66	26.63	2.97
Retail/Entertainment	17.01	14.44	-2.57
<b>Total</b>	<b>\$121.68</b>	<b>\$114.31</b>	<b>-\$7.37</b>

Source: Dodge Data & Analytics; GMU Schar School, Stephen S. Fuller Institute

\*Revised year-end data

**Expenditures and Square Footage (All Structures Combined).** The total amount of new construction in 2019, as measured in square feet for these four building types, decreased 5.4 percent from revised year-end construction data for 2018. Square footage for 2018 was revised lower, falling 1.1 percent below the final 2017 construction level. These two declines follow strong gains from 2014 to 2017 that averaged better than 5 percent annually.

A change in the mix of building types was one factor affecting the square footage of new construction in 2019. In 2018, manufacturing buildings accounted

for 14.2 percent of new construction space; they were only 10.9 percent in 2019. Warehouses accounted for 49.2 percent of all new space in 2018; their share increased to 53.7 percent in 2019. Retail space also changed significantly as a share of total new construction. In 2018, it accounted for 13.7 percent of the total square footage added; in 2019, this share declined to 11.4 percent. Office increased its share of space constructed in 2019 by 1.1 percentage points (from 22.9 percent to 24.0 percent) compared to 2018. This changing mix of building space is further magnified in the value of construction by building type as shown in Table 6.

TABLE 6

### Office, Industrial, Warehouse and Retail Construction, 2018 and 2019

Building Type	Square Feet (In Millions)		Construction Value <sup>1</sup> (In Billions of Dollars)	
	2018*	2019	2018*	2019
Office	136.5	135.1	\$48.22	\$50.84
Industrial	84.7	61.4	32.79	22.40
Warehouse	293.1	302.5	23.66	26.63
Retail/Entertainment	81.4	64.2	17.01	14.44
<b>Total</b>	<b>595.8</b>	<b>563.3</b>	<b>\$121.68</b>	<b>\$114.31</b>

Sources: Dodge Data & Analytics; GMU Schar School, Stephen S. Fuller Institute

\*Revised year-end data

<sup>1</sup> Hard costs only; columns may not add up due to rounding

**Hard Construction Expenditures (All Structures Combined), Multipliers and GDP.** Applying national construction multipliers (nonresidential structures) from the BEA yields the economic impact of this construction activity. The multipliers measure contribution to GDP (3.1141), personal earnings (1.1356) and employment (22.2689 jobs per \$1 million of construction expenditure).

State-level direct spending and associated economic impacts for spending on preconstruction (soft costs), construction and post-construction (operations) are included in the appendices. Note that individual state construction multipliers are smaller than the U.S. multipliers. They measure only the share of construction-related expenditures retained within the respective state economies. Construction-related spending flows that leak out of one state economy to other states (spill-over effects) are excluded. Smaller states, or states with less-well-developed economies, tend to retain smaller portions of construction-related spending benefits than larger states or those with more complex economies. In other words, a greater share of the smaller states' direct construction spending leaks out to other states.

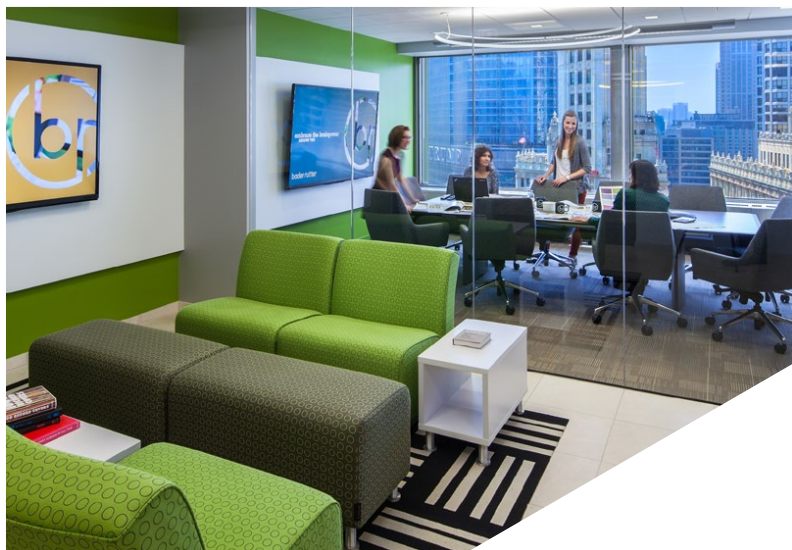


Photo Credit: Eppstein Uhen Architects; C + N Photography

**The Bottom Line.** The four phases of development tracked in this study make substantial contributions to GDP. Applying the latest BEA multipliers (issued August 30, 2019) shows that direct expenditures of \$217.15 billion in 2019 resulted in a contribution of \$667.45 billion to U.S. GDP, generated \$242.91 billion in personal earnings and supported 4.7 million jobs, as presented below in Table 7.

**TABLE 7**

**Office, Industrial, Warehouse and Retail Construction and Operations Contribution to the Economy, 2019** (In Billions of 2019 Dollars)

	<b>Direct Expenditures</b>	<b>Total Economic Contribution to GDP<sup>1</sup></b>	<b>Personal Earnings<sup>2</sup></b>	<b>Jobs Supported<sup>3</sup></b>
<b>Development Phase</b>	<b>\$217.15</b>	<b>\$667.45</b>	<b>\$242.91</b>	<b>4,721,974</b>
Soft Construction (Soft Costs)	34.05	97.27	34.98	644,661
Site Development <sup>4</sup>	29.52	91.91	33.52	657,281
Hard Construction (Hard Costs)	114.31	355.98	129.81	2,545,622
Tenant Improvements <sup>5</sup>	39.27	122.28	44.59	874,410
<b>Annual Operations</b>	<b>\$2.018</b>	<b>\$5.412</b>	<b>\$1.770</b>	<b>51,870</b>

Sources: Dodge Data & Analytics; GMU Schar School, Stephen S. Fuller Institute

Column totals may not add up due to rounding

<sup>1</sup> The total value of goods and services generated directly and indirectly as a result of direct construction expenditures within the U.S.

<sup>2</sup> The additional earnings generated within the U.S. from direct expenditures during the construction phase and post-construction phase for building operations.

<sup>3</sup> The jobs supported nationwide by the spending and re-spending of direct expenditures associated with building construction or operations.

<sup>4</sup> Site development includes grading, infrastructure, parking and landscaping.

<sup>5</sup> Tenant improvements exclude furniture and equipment.

Note: See Appendices for state-level data.





**IHS Markit projects that GDP will increase 2.1 percent in 2020 followed by some additional slowing in 2021, when it will fall to 2.0 percent. Slower growth is expected during 2021 through 2024 as the stimulus effects of the Tax Cuts and Jobs Act of 2017 diminish and increased deficit spending moderates.**

### **Outlook: The U.S. Economy and Residential and Nonresidential Construction**

**The U.S. economy has been in recovery since July 2009. This expansion now extends to ten and a half years as of January 2020, making it the longest in American history. It is estimated that this expansion will extend beyond 2020 despite slowing global and U.S. economic growth.**

The U.S. economy is projected to grow 2.3 percent in 2019 following its strongest performance of the decade in 2018, when GDP increased by 2.9 percent. This acceleration in the economy's growth can be largely attributed to the fiscal stimulus provided by the Tax Cuts and Jobs Act of 2017, which was enacted in December 2017, and increased federal government spending (budget deficits increased 17.0 percent in 2017, 28.2 percent in 2018 and, are projected to increase 14.0 percent in 2019). Continued strong job growth and gains in personal earnings that support strong consumer spending are also contributing to GDP growth. Consumption expenditures were up 2.5 percent in 2017 and 2.7 percent in 2018. 2019 estimates show a 2.6-percent increase.

This year's labor force performance remained strong even though job growth has slowed since 2018, when it increased by more than 2.4 million new jobs; 2019's gain is estimated at 2 million jobs. This is not surprising given the length of the expansion and an unemployment rate of 3.5 percent, the lowest in fifty years. With slowing population growth and the labor force's relatively sticky participation rates, the availability of labor is now a factor constraining economic growth; that is, there is a shortage of

qualified workers to fill the jobs being generated. Currently, there are nearly 6 million unfilled jobs — a record level.

The tight labor market and strong business earnings helped boost wages 2.8 percent in 2019. Combined with continuing strong job growth, higher wages have also boosted the economic effects that job growth has had on the economy's overall performance.

Still, there have been headwinds in 2019 that help explain the economy's slower performance. As the year began, the federal government was in a 35-day partial shutdown. That temporarily reduced federal spending and dampened GDP growth during the second quarter. Additionally, the tariff wars that began in 2018 have disrupted international trade. And the long GM auto strike and production cutbacks for Boeing's 737 Max airplane, combined with near-stagnant economic performance throughout the European Union, have reduced growth in the United States.

In response to weakening economic growth, the Federal Reserve reversed course this year and lowered its federal funds rate three times following three years of rate increases. While interest rates have been relatively neutral and historically low, especially when translated into 30-year fixed mortgages, this year's rate reductions aimed to bolster the domestic economy until the global economy re-establishes a stronger trajectory in 2020.

With full employment and steady prices — inflation continues to hover near 2 percent — the Federal Reserve has managed its monetary policies without

having to fend off threats from rising unemployment, recession or rapidly rising prices. Below-forecast energy prices have aided inflation stability this year despite actual and threatened production disruptions in the Middle East.

If the federal government had started its fiscal year on October 1 with all agencies and departments fully funded, performance could have been stronger in the final quarter of 2019. In August, Congress approved a two-year Bipartisan Budget Agreement, which sets higher spending limits for FY 2020 and 2021 and eliminates the threat of the sequester (spending limits set in the Budget Control Act of 2011). This additional fiscal stimulus was expected to boost spending beyond forecast. Unfortunately, 12 major agencies were operating under a Continuing Resolution, with FY 2019 spending levels, until December 20, 2019 when the FY 2020 budget was finally approved. But this was not in time to benefit the economy's performance in 2019. Now that this federal year's budget has been approved, its increases in spending should boost GDP growth in 2020 and 2021.



Photo Credit: GGLO; Derek Reeves

At the beginning of the year, GDP was projected to increase by 2.5 percent.<sup>2</sup> During 2019, this forecast was lowered to 2.3 percent because of many small disruptions and adjustments, but no major threats. Concerns over a recession starting in 2020 captured headlines over the summer, but these have

substantially receded. Forecasts for 2020 now call for “above-trend” performance; that is, for GDP to grow above 2.0 percent, which has been the average GDP growth rate over the expansion.

As of its December 2019 update, IHS Markit projects that GDP will increase 2.1 percent then it will fall to 2.0 percent in 2021.<sup>3</sup> It is then expected to track slightly below trend until mid-decade. Slower growth is expected during 2021 through 2024 as the stimulus effects of the Tax Cuts and Jobs Act of 2017 diminish and increased deficit spending moderates. 2020 is also a presidential election year. Due to greater political divisiveness than usual and continuing global trade disruptions, uncertainty is likely to dampen consumer spending and business investment as it did in 2019. This erosion of confidence will be revealed in weaker consumer spending, especially for items typically purchased in installments such as automobiles and home furnishings. Consumers’ aversion to risk will negatively impact housing sales — new homes and resales — as seen in some regions and price ranges in 2019.

Analysts cite several factors that will support above-trend growth in 2020. These include: (a) continuing spending stimuli flowing from the **Tax Cuts and Jobs Act of 2017**; (b) fiscal benefits resulting from higher federal spending under the **Bipartisan Budget Act of 2019**; (c) continuing **low interest rates**; (d) **personal income growth** resulting from job growth and higher wages supporting strong consumer spending; (e) improved **global economic activity** that will support U.S. export sales; and (f) **stronger domestic crude oil production**. IHS Markit notes that there are three factors contributing to GDP growth in 2020 that were not present during 2019: the six-week GM strike has been resolved, production of the Boeing 737 Max airliner could possibly resume in the second quarter of 2020, and there will be a one-time increase in hiring and spending to support the 2020 Census. As noted, 2020 is also an election year. Projections point to campaign spending at record levels, although the uncertainty generated by the political circus could offset the positive impacts of this once-in-every-four-years disbursement.

By 2021, many of these positives will weaken or expire, and they will no longer provide the same level of stimulus as seen in 2020. The benefits embodied in the Tax Cuts and Jobs Act of 2017 will play out by 2021; consumer spending should slow accordingly.

<sup>2</sup>Macroeconomic Advisors by IHS Markit, “Executive Summary: U.S. Economic Outlook,” January 2019.

<sup>3</sup>Macroeconomic Advisors by IHS Markit, “Executive Summary: U.S. Economic Outlook,” December 2019.



Interest rates for 30-year fixed mortgages should average below 4 percent in 2020, but they are projected to rise later in that year, increasing by a half point year-over-year in 2021.

Beginning in late 2020, the Federal Reserve is expected to reverse its interest-rate reductions from 2019. Look for slightly higher rates to continue into 2021. The slowing economy in 2020 and 2021 will result in a gradual rise in unemployment, as much as a full percentage point by the end of 2021 (4.5 percent). Job growth will slow further, resulting in weaker personal income growth that will dampen consumer spending. These factors will help weaken consumer confidence, which appears to have peaked in late 2019. Still, barring a major, unanticipated disruption at the global scale, the U.S. economy is not expected to fall into a recession in the near term.

**Residential building construction** spending has increased each year since 2010 and is up 120.6 percent through October 2019 from its low point in August 2010. Residential construction weakened during the first six months of 2019. The unusually wet and cold spring in many regions of the U.S. delayed housing starts. This effectively shortened the year for construction activity and cut into 2019's production totals. The value of residential construction put in place in June was the lowest for the year. However, it peaked in August, declined 2.0 percent by October and still managed to gain 0.5 percent in total value for the October 2018–October 2019 period.

End-of-the-year reports show that both housing starts and residential building permits have increased since Labor Day. Even re-sales improved in the second half of 2019. Still, rising prices and low inventory could be a short-term problem that will dampen market activity in 2019. With building activity picking up over the end of 2019, these short-term constraints may disappear as the housing market ramps up in the spring.

Another major factor contributing to slower residential building during the year was weaker demand for owner-occupied units due to the impacts of the Tax Cuts and

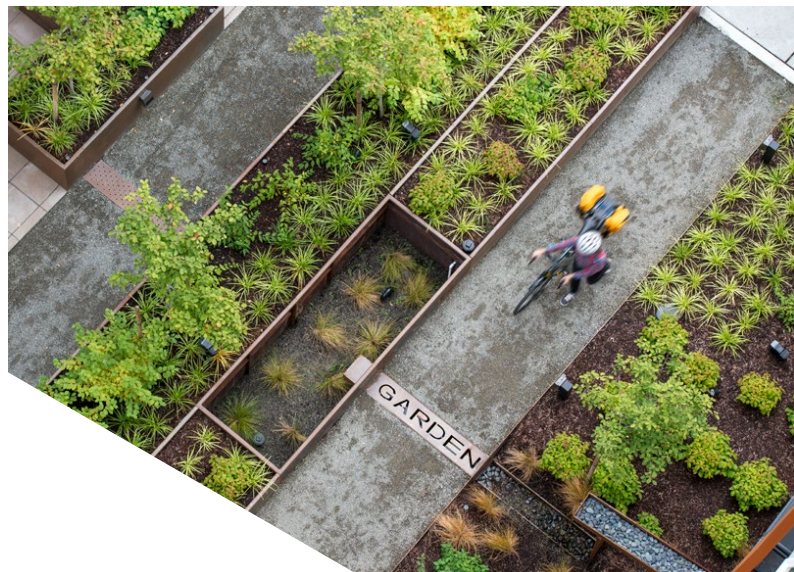


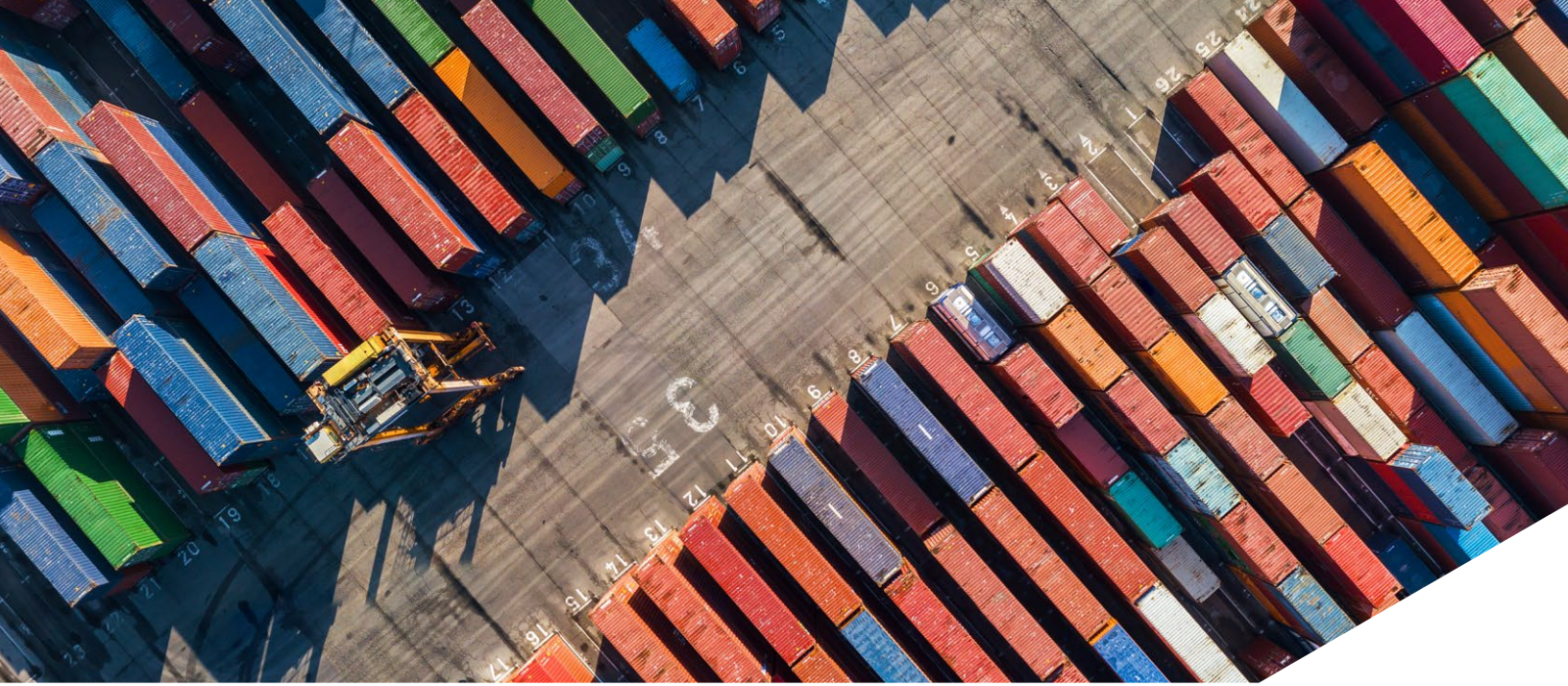
Photo Credit: GGLO; Derek Reeves

Jobs Act of 2017. These included changes in personal deductions that reduced the favorable treatment of mortgage interest payments and state and local taxes. About 20 percent of taxpayers — primarily upper-middle-income households — were affected. These tax changes may have reduced demand for new housing as well as more expensive resale units.

Demographic factors — lower household formation and fertility rates and changing cultural values among millennials and immigrants — also contributed to a shift favoring rental markets. The large college debt levels held by younger households, now the second-largest debt category after mortgages, has further slowed housing sales. Younger households are unable or unwilling to take on additional debt and are delaying home purchases.

Uncertainty continues to cast a shadow on the housing market. In spite of a strong labor market and growing incomes, concerns rose in early 2019 over the economy possibly slipping into a mild recession by the end of the year or in 2020. While mortgage rates declined in 2018 and continue to trail recent-year highs, they began moving higher in 2019's second half. Higher rates may have been a dampening factor on the housing market in the fourth quarter of the year. Interest rates for 30-year fixed mortgages should average below 4 percent in 2020, but they are projected to rise later in that year, increasing by a half point year-over-year in 2021. As 2019 progressed, there arose a growing uncertainty in “consumer expectations” that had been drifting lower from their all-time peak in 2018. The erosion in “consumer expectations” has been slow, but it is evident and is likely to depress homebuyer demand.





Buyers are less likely to commit to mortgages in an uncertain economic environment, and this dampens housing sales and slows price growth.

Residential fixed investment provides a broader measure of residential construction activity, including both new construction and renovation/remodeling outlays. In January 2019, residential fixed investment was projected to decrease slightly by 0.9 percent for the year; December's estimate saw residential fixed investment fall 1.6 percent. Because of these softening market conditions, new housing production should remain close to current levels for the first half of the coming decade.

**Nonresidential building construction** expenditures turned positive in April 2011 and increased each year through 2018. In 2019, the value of nonresidential construction fell by an estimated 1.5 percent (October 2018 to October 2019), its first decrease since 2011. Even with this decline, nonresidential building construction values have grown 66.9 percent since the beginning of the recovery through October 2019. During this period, investment has varied across the broad range of building types.

While construction spending for new manufacturing buildings climbed 116.2 percent from 2011 to 2019, fixed investment in manufacturing decreased by 5.1 percent in 2016, fell 15.2 percent in 2017 and declined 0.1 percent in 2018. While down in 2018, this decline was far less than the 7.8-percent drop projected for that year. Predictions for manufacturing investment at the beginning of 2019 showed it reversing this pattern to gain 2.2 percent in 2019. However, this was before the manufacturing sector fell into a technical recession in early 2019 after

experiencing lower production output for two consecutive quarters. It has struggled to reverse this decline in the year's second half. Exports continue to lag because of the tariff wars, the strong U.S. dollar and the weak economic performance of the United States' major trading partners. As of December 2019, fixed investment in manufacturing was projected to have increased in 2019 but is projected to decline at an increasing rate in each of the next four years.

Construction spending for office buildings (value put-in-place) increased 3.0 percent in 2019 after gaining 14.8 percent in 2018. In 2019, the value of retail construction put-in-place declined 15.1 percent after having sustained annual increases for eight consecutive years.

Construction spending for manufacturing inclusive of warehouse and flex space increased steadily starting in 2011 through 2015, declined by 5.5 percent in 2016, and decreased again in 2017 by 14.1 percent, based on the value of construction put in place. This two-year downward trend reversed in 2018, with the value of construction put-in-place increasing 3.4 percent. However, in 2019, construction spending again declined but only by 0.3 percent (see Table 4).

The projections for nonresidential construction reflect the slowing but continuing growth of the U.S. economy over the next year, followed by below-trend growth between 2021 and 2024. With GDP growth projected at 2.1 percent in 2020, demand for additional building space is likely to soften, as was the case in 2019. Unlike the past several years, which saw the U.S. economy accelerate to its peak growth level of the decade in 2018, demand will only support selective





growth in construction spending in 2020 and 2021. With the economy's growth trajectory projected at a below-trend rate of 1.75 percent through 2024, many uncertainties could grow into disruptions for the economy's performance beyond 2020. As the economic margin for error becomes smaller, these trends will require closer monitoring to anticipate and mitigate the consequences of a future downturn.

**Construction employment**, which declined by 2.2 million jobs between 2006 and 2010, began to add new jobs in early 2011, according to the Bureau of Labor Statistics. It has now increased for nine consecutive years. Between October 2018 and October 2019, the construction sector added 148,000 net new jobs, a 2.0 percent gain. This compares favorably with 1.4-percent growth in total jobs for this same period. From the low point in January 2011 through October 2019, construction has generated a total of 1.9 million net new jobs; nevertheless, employment in the sector remains 312,000 jobs below its 2006 peak.

**Conclusion.** The importance of the construction sector to the well-being of the U.S. economy is well established. The recovery's sluggishness between 2010 and 2016 is partially attributed to the magnitude of the correction within the construction sector. Its recession actually lasted until mid-2011, while the National Bureau of Economic Research says the overall recession officially ended in June 2009. Spending on residential and nonresidential building construction, which has increased steadily since its 2011 low, has contributed to the economy's sustained growth over the lengthy expansion. This is despite a disappointing performance in 2016, when GDP increased only 1.6 percent. In 2017, higher construction spending helped push the economy's growth up to 2.2 percent. The economy's peak performance in 2018 was due in part to above-average increases in construction spending starting in 2011.

Total construction spending was up 2.4 percent in 2018 and accounted for an estimated 18.5 percent of total GDP. As the economy slowed in 2019, and given the building capacity developed to support faster growth in 2018 and earlier, total construction spending growth slowed to 1.1 percent. Despite that, it still accounted for 18.1 percent of GDP through the third quarter. However, the public sector has been the principal source of this year's construction spending gains, mainly for infrastructure. Residential construction spending only rose 0.5 percent, and private nonresidential building construction spending fell 1.5 percent between October 2018 and October 2019.

Continued growth in construction activity has been a continuously positive force in the national economy's performance since 2009. Historically, construction spending leads an economic expansion, as it has since 2011. With substantial increases in inventory and the building capacity needed to support the expansion, vacancy rates will increase as growth rates abate, and business investment will slow. This pattern was already evident in 2019. Still, the economy has not stopped growing. To support continuing expansion at trend or near-trend growth rates and remain competitive nationally and globally, additional construction spending will be required to accommodate new technologies. Still, as the economy slows in 2020, there are good reasons to closely monitor the performance of individual building types and their changing market conditions.

TABLE 8

## Impacts of Operations on State Economies (in Four Categories), 2019

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	\$24,528	\$46,172	\$15,575	570
Alaska	2,366	3,823	1,337	47
Arizona	44,773	88,006	30,517	969
Arkansas	14,715	26,245	8,841	325
California	151,042	309,560	105,518	3,024
Colorado	35,061	71,528	24,690	741
Connecticut	7,063	12,703	4,111	123
Delaware	1,954	3,234	914	31
District of Columbia	31,331	38,349	3,967	141
Florida	146,685	289,776	100,523	3,509
Georgia	103,342	222,505	73,993	2,474
Hawaii	4,013	7,129	2,483	77
Idaho	11,758	20,227	7,039	266
Illinois	49,759	109,041	35,344	1,004
Indiana	38,265	76,258	24,830	791
Iowa	48,860	83,424	27,596	999
Kansas	16,122	29,983	9,017	291
Kentucky	27,958	53,287	16,582	569
Louisiana	13,164	24,425	8,291	300
Maine	979	1,713	591	21
Maryland	41,596	75,929	24,138	751
Massachusetts	137,022	253,025	82,734	2,420
Michigan	26,424	53,082	18,100	578
Minnesota	33,338	66,423	22,280	677
Mississippi	5,299	9,342	3,084	115
Missouri	16,201	31,701	9,890	342
Montana	1,827	3,024	1,068	41
Nebraska	24,918	43,333	14,555	521
Nevada	10,787	18,675	6,382	226
New Hampshire	2,254	3,975	1,236	37
New Jersey	45,060	90,941	28,271	819
New Mexico	5,454	9,109	3,161	120
New York	104,252	184,902	57,766	1,716
North Carolina	47,427	97,505	32,402	1,131
North Dakota	4,070	6,534	2,092	69
Ohio	76,468	160,369	52,396	1,627
Oklahoma	8,450	16,030	5,483	197
Oregon	24,367	45,464	15,129	463
Pennsylvania	59,679	122,079	39,382	1,168
Rhode Island	3,990	6,771	2,038	65
South Carolina	20,851	41,366	13,530	489
South Dakota	3,877	6,173	2,067	78
Tennessee	57,253	122,259	39,568	1,219
Texas	292,482	658,260	220,210	7,149
Utah	13,579	27,714	9,426	329
Vermont	1,017	1,663	555	21
Virginia	82,890	154,533	48,905	1,489
Washington	64,941	121,687	41,186	1,237
West Virginia	1,901	3,096	975	34
Wisconsin	25,690	48,637	16,354	548
Wyoming	760	1,155	390	15
<b>State Totals</b>	<b>\$2,017,861</b>	<b>\$4,002,144</b>	<b>\$1,316,513</b>	<b>41,963</b>
<b>Interstate Spillovers</b>		<b>1,409,759</b>	<b>453,151</b>	<b>9,906</b>
<b>U.S. Totals</b>	<b>\$2,017,861</b>	<b>\$5,411,903</b>	<b>\$1,769,664</b>	<b>51,870</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.



TABLE 9

## Total Impacts of Soft Cost, Site Development, Hard Costs and Tenant Improvements on State Economies (in Four Categories), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$8.541	\$18.672	\$7.201	155,265
Alaska	0.216	0.381	0.162	2,836
Arizona	4.049	8.784	3.525	73,498
Arkansas	2.838	5.803	2.243	47,863
California	15.421	34.473	13.624	235,797
Colorado	2.541	5.776	2.294	42,874
Connecticut	0.728	1.420	0.554	9,581
Delaware	0.564	0.993	0.337	6,059
District of Columbia	2.241	2.660	0.263	4,056
Florida	11.779	25.812	10.369	227,512
Georgia	11.516	27.521	10.513	223,750
Hawaii	0.850	1.618	0.671	12,117
Idaho	0.845	1.617	0.659	14,384
Illinois	5.743	14.034	5.170	92,787
Indiana	3.583	8.109	3.010	60,244
Iowa	4.173	8.103	3.138	64,126
Kansas	1.082	2.270	0.801	16,363
Kentucky	4.107	8.801	3.199	68,372
Louisiana	5.475	11.384	4.477	90,790
Maine	0.215	0.418	0.172	3,740
Maryland	4.861	9.519	3.542	63,790
Massachusetts	8.932	17.715	6.776	115,702
Michigan	5.681	12.722	5.020	98,340
Minnesota	3.049	6.851	2.619	47,459
Mississippi	0.583	1.171	0.451	9,758
Missouri	1.870	4.061	1.455	30,225
Montana	0.220	0.413	0.172	3,725
Nebraska	2.033	3.950	1.557	32,797
Nevada	1.670	3.206	1.295	25,737
New Hampshire	0.175	0.351	0.131	2,331
New Jersey	4.990	10.930	4.002	69,643
New Mexico	0.664	1.218	0.499	10,803
New York	16.983	31.828	11.921	202,316
North Carolina	4.761	10.914	4.181	88,991
North Dakota	2.305	4.160	1.522	27,290
Ohio	8.540	20.133	7.486	146,787
Oklahoma	0.933	2.005	0.791	17,022
Oregon	2.416	5.010	1.889	35,304
Pennsylvania	5.003	11.789	4.324	79,453
Rhode Island	0.331	0.601	0.215	4,162
South Carolina	2.267	5.068	1.901	41,139
South Dakota	0.363	0.665	0.271	5,715
Tennessee	4.575	10.909	3.974	73,927
Texas	20.906	54.149	20.420	378,700
Utah	0.911	2.091	0.815	16,850
Vermont	0.153	0.279	0.113	2,405
Virginia	13.792	28.199	10.499	207,506
Washington	4.540	9.533	3.762	66,102
West Virginia	1.287	2.324	0.857	18,087
Wisconsin	5.611	12.013	4.713	91,960
Wyoming	0.235	0.396	0.158	3,333
<b>State Totals</b>	<b>\$217.147</b>	<b>\$472.825</b>	<b>\$179.713</b>	<b>3,469,370</b>
<b>Interstate Spillovers</b>		<b>194.624</b>	<b>63.194</b>	<b>1,252,604</b>
<b>U.S. Totals</b>	<b>\$217.147</b>	<b>\$667.448</b>	<b>\$242.907</b>	<b>4,721,974</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

# Jobs Housed and Payroll Value

In addition to the annual operating expenditures associated with new building space, these structures represent new productive capacity within the national economy. While the value of this added capacity depends on how each building is used, two common measures are the number of jobs this new capacity can accommodate and the amount of payroll these new jobs can potentially generate. Using an average-jobs-per-square-foot estimate for each category of building, it is possible to estimate the total number of employees that could be housed within the buildings built in 2019. The total payroll value of these new workers can also be calculated by multiplying this employment estimate by the 2019 U.S. average wage earnings per worker for jobs associated with each building category.

These calculations are presented in Table 10. They show that the 563.3 million square feet of new office, industrial, warehouse and retail space constructed in 2019 has the capacity to house 1.4 million new workers with a total estimated annual payroll of \$83.5 billion.



**TABLE 10**

**Jobs Accommodated and Payroll Generated in Office, Industrial, Warehouse and Retail Space Constructed in 2019**

Building Type	Square Feet (In Millions)	Square Feet per Job	Jobs Accommodated (In Thousands)	Average Earnings per Job	Total Payroll (In Billions of Dollars)
Office	135.1	109	711.0	\$73,968	\$52.591
Industrial	61.4	750	81.9	55,826	4.572
Warehouse	302.5	600	504.2	43,221	21.792
Retail/Entertainment	64.2	475	135.2	34,735	4.568
<b>Total/Average</b>	<b>563.3</b>	<b>393</b>	<b>1,432.3</b>	<b>\$58,314</b>	<b>\$83.523</b>

Sources: Dodge Data & Analytics; GMU Schar School, Stephen S. Fuller Institute; U.S. Bureau of Labor Statistics; Newmark Knight Frank



# Note on 2019 Methodology

Previous editions of this study were based on actual construction values in a calendar year.

For 2019, full-year construction values were estimated to publish the economic results in January 2020 so that NAIOP members would have current data to use during their annual visit to Capitol Hill in Washington, D.C., which takes place in early February of each year.

The estimates are based on the following:

- actual construction values for the year's first nine months;
- the annual construction totals for the five preceding years (2014-2018); and
- the percentage of these values reported respectively for those years' first nine months, by building type (office, industrial/manufacturing, warehouse and retail) and by state, calculated and averaged for each independently.

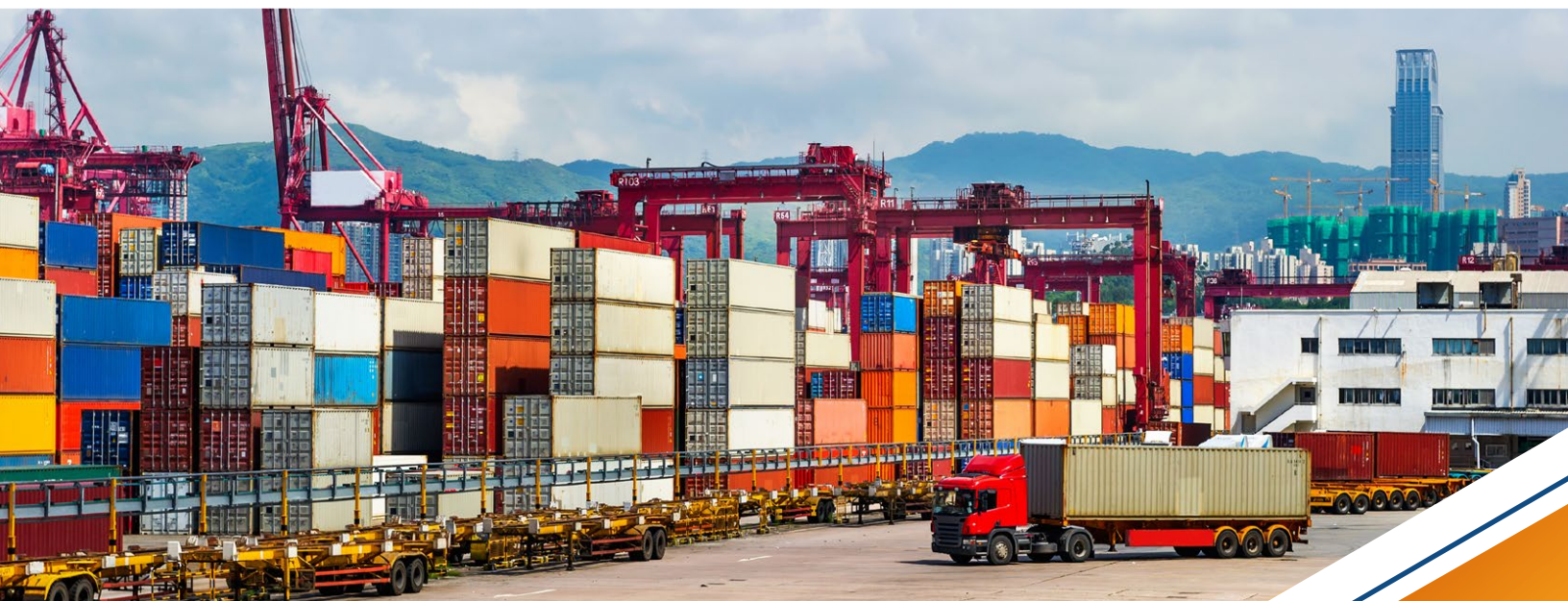
These nine-month averages were applied to the actual 2019 values for nine months to estimate the year's 12-month values by building type and by state. (For details regarding data cleaning, please contact the author.) Dodge Data & Analytics provided the data for these calculations. In 2014, Dodge Data & Analytics purchased McGraw-Hill Construction, which previously supplied the data. Dodge Data & Analytics has reported no changes to the McGraw-Hill Construction data or to the data-capture methodologies.

Please note that there are now just three listings of multipliers: construction (nonresidential structures), soft costs (A&E services) and operations (services to buildings).

## Economic Multipliers

The output (GDP), personal earnings (wages and salaries) and jobs-supported multipliers used in the 2019 report reflect the most recent revisions that the U.S. Department of Commerce's Bureau of Economic Analysis (BEA) released on August 30, 2019.

- Construction multipliers (nonresidential structures) are utilized for hard costs, site improvements and tenant improvements.
- Architectural and engineering services multipliers are utilized to represent the bundle of construction-related professional services considered in this report and identified as soft costs (preconstruction).
- Services-to-buildings multipliers are utilized to represent the bundle of building operations services (including building management, repair and maintenance, custodial, security, and sales and marketing, but excluding local taxes and finances costs).



# Survey of NAIOP Members

Since 2006, NAIOP has conducted five surveys of its members to determine the distribution of construction costs across the four major categories of building development — soft costs, site development, hard costs and tenant improvements — by type of building. The results of these surveys are shown in Table 11. For this year’s report, as in last year’s report, the percentages used to calculate these costs reflected the average of the survey results from 2016 and 2018.

**TABLE 11**

**Survey of NAIOP Members Building Cost Allocation Percentages (%), by Building Type 2006, 2008, 2013, 2016, 2018**

Building Type	Soft Construction Costs <sup>1</sup>	Site Development Costs	Building Construction Costs	Tenant Improvement Costs
<b>Office</b>				
2018	18.09%	11.61%	52.43%	17.87%
2016	16.44	13.71	49.21	20.63
2013	14.40	14.50	49.50	21.60
2008	17.43	14.24	49.74	18.58
2006	17.13	15.76	49.49	17.62
<b>Manufacturing</b>				
2018	10.03	14.88	56.18	18.93
2016	12.25	9.38	57.13	21.25
2013	16.90	13.80	54.00	15.30
2008	14.34	19.32	52.59	13.75
2006	12.05	18.58	55.69	13.68
<b>Warehouse/Flex</b>				
2018	14.67	17.54	54.93	12.86
2016	14.08	15.47	57.85	12.61
2013	14.60	19.00	53.30	13.10
2008	17.09	18.54	53.64	13.73
2006	14.23	16.81	55.00	14.07
<b>Retail</b>				
2018	19.10	13.67	45.97	21.27
2016	17.70	14.41	49.26	18.63
2013	17.00	21.80	44.30	16.90
2008	15.76	20.82	47.00	16.41
2006	17.72	16.06	52.39	13.83
<b>Combined<sup>2</sup></b>				
2018	15.47	14.42	52.38	17.73
2016	15.37	14.19	53.24	17.20
2013	15.20	17.32	49.12	17.30
2008	15.62	17.19	51.24	15.94
2006	16.29	16.40	52.48	14.85

<sup>1</sup> Professional services and administrative and management processes required to support the construction project.

<sup>2</sup> Weighted average reflecting the numbers of responses by type.

Note: these percentages were averaged for 2016 and 2018 to broaden the survey response base for use in this analysis.



# Definitions

**Area of Analysis** — the geographic unit of analysis, normally a political unit, for which economic, demographic and fiscal information is reported.

**Building Value** — construction value would include hard costs (costs of the structure) and soft costs (management, architecture and engineering, legal fees, communications); the finished commercial value would reflect cash flow potential or current performance. Assessed valuation for tax purposes may be accepted as an appropriate substitute for actual market value.

**Development Costs** — includes all of the construction-related expenditures associated with developing a building, which include soft construction costs, site development costs, hard construction costs and tenant improvement expenditures.

**Direct Expenditures** — all spending in support of all phases of new construction required to deliver the final product as well as the operation phase (after the building delivers), including payroll of the workers directly involved and all nonpayroll spending for materials, management, overhead, utilities, equipment leasing or purchases for or by subcontractors, suppliers and vendors.

**Economic Impact** — the generation of new spending within a jurisdiction as a result of investing in and operating new economic activity; in this case, office, industrial, warehouse and retail buildings.

**Fiscal Impact** — the effect of real estate development on the revenues and expenditures of the jurisdiction within which the building is located.

**Gross Domestic Product (GDP), Gross State Product (GSP), Gross County Product (GCP)** — the value of goods and services produced within the economy of the respective geographic area (nation, state, county/city).

**Gross Square Feet** — a measure of an individual building size or aggregate inventory of building space reflecting the total envelope of the structure, which is typically larger than the occupied or usable building area.

**Hard Construction Costs** — a category of construction costs that reflects the expenditures for the building's hard construction phase. Costs for labor, materials and construction management are the three basic types of hard costs. Soft construction costs, site development costs and tenant improvement expenditures are reported independently from hard construction costs.

**Indirect Benefit** — the additional economic benefits (measured in dollars or jobs) resulting from the accumulated additional value generated by direct expenditures, as these dollars are re-spent within the economy. Indirect effects are calculated using **Multipliers** and include sales and purchases by businesses supplying goods and services in support of building construction and operation as well as the re-spending of payroll by workers (**Induced Effects**) associated with the new building.

**Induced Effects** — the contributions of the payroll spending by workers in a specific industry or sector on local businesses providing goods and services to households.

**Infrastructure** — utilities, roads, parking lots, storm drainage structures; other site improvements could be included in estimating these costs if not included elsewhere. If these improvements are financed by the private sector, whether on-site or off-site, their costs should be included in the base values for calculating industry economic contributions.

**Interstate Spillovers** — economic contributions that are generated by direct construction expenditures in a given state that are realized by another state due to workers commuting across state lines (i.e., earning wages in one state and spending these earnings in their home state) and the importation of building materials from another state. These economic impacts are not reflected in the benefiting states' multipliers but are captured in the U.S. multipliers and reported in the U.S. totals.

**Multiplier** — a number used to calculate the final economic impact of one dollar spent. Types of multipliers include:

**output multiplier** measures the contribution of a direct expenditure on the overall economy (gross domestic product or gross state product).

**employment multiplier** measures the total number of jobs that can be supported by a direct expenditure (expressed in jobs supported per \$1 million in direct spending).

**personal earnings multiplier** measures the total personal earnings (wages and salaries) generated within the state or nation as a result of a direct expenditure and the jobs it supports.

**Operating Costs** — Costs (expenditures) associated with the day-to-day operation of an office, industrial, warehouse or retail building including building management, utilities, normal maintenance and repair, custodial services and security. These costs do not include the operating costs of building tenants.

**Output** — the goods and services produced for sale to other firms or industries as intermediate goods or services or for sale to consumers as final goods or services.

**Personal Earnings** — wages and salaries (payroll) paid out to all workers related directly or indirectly to the construction activity (pre-construction, construction, post-construction) for which direct expenditures are made. These wages and salaries include payment to the workers directly related to construction work being performed, employees of suppliers and vendors related to that work, and employees of businesses and organizations benefiting from the spending of these new wages and salaries generated as a result of these direct expenditures; that is, employees working in retail and consumer services, health care, education, local government and so on, whose business sales and cash flow have increased because of the new wages and salaries paid to workers in construction-related activities.

**Sector** — industries or firms grouped by similar characteristics of operations (e.g., retail trade sector, manufacturing sector, construction sector, services sector, government sector, etc.).

**Site Development** — a category of construction costs that reflects improvements made to the site before a building can be constructed. These costs include grading, infrastructure, landscaping, surface and structured parking, and other costs to prepare the site to support the functions of the building constructed on the site.

**Soft Construction Costs** — a category of development costs that reflects the professional services and administrative and management processes required to support the construction project. These may precede actual on-site construction by several years and may include legal and other consultant services, architectural and engineering services, management and administration.

**Tenant Improvement Costs** — a category of construction costs that reflects improvements made to the interior of a building to meet the needs of a specific tenant. Costs may include interior walls and partitions, floor coverings and cabinets, but excludes furnishings. The building owner or the tenant may pay for these improvements.

**Total Output** — the sum of the direct and indirect benefits (expenditures) reflecting the combination of the initial expenditures by a firm and its subsequent accumulated value as this spending is recirculated throughout the economy. This includes benefits (induced) generated by the re-spending of personal earnings. This represents the total contribution to gross domestic product or gross state product.

**Value Added** — a measure of the incremental dollar value created by an industry, firm or individual employee as a result of its production process (work performed); the value created beyond the value of the individual inputs.

# Appendix A: Soft Cost Impacts by State

**Appendix A-1:** Impacts of Soft Costs on State Economies (**Office**), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.160	\$0.315	\$0.120	2,263
Alaska	0.012	0.020	0.008	127
Arizona	0.388	0.831	0.319	6,042
Arkansas	0.095	0.173	0.066	1,294
California	1.430	3.166	1.204	19,590
Colorado	0.165	0.369	0.141	2,444
Connecticut	0.066	0.127	0.047	749
Delaware	0.026	0.045	0.013	228
District of Columbia	0.312	0.428	0.056	797
Florida	0.690	1.486	0.573	11,809
Georgia	0.888	2.047	0.764	15,086
Hawaii	0.041	0.079	0.031	541
Idaho	0.105	0.192	0.075	1,530
Illinois	0.437	1.023	0.370	6,197
Indiana	0.138	0.281	0.104	2,023
Iowa	0.545	0.962	0.365	6,868
Kansas	0.069	0.136	0.046	833
Kentucky	0.056	0.109	0.039	773
Louisiana	0.075	0.147	0.057	1,049
Maine	0.022	0.040	0.016	316
Maryland	0.541	1.082	0.383	6,277
Massachusetts	1.202	2.440	0.897	14,246
Michigan	0.194	0.407	0.157	2,762
Minnesota	0.221	0.471	0.176	3,076
Mississippi	0.012	0.022	0.008	169
Missouri	0.089	0.180	0.060	1,129
Montana	0.025	0.043	0.017	342
Nebraska	0.279	0.519	0.198	3,686
Nevada	0.054	0.100	0.039	707
New Hampshire	0.014	0.026	0.009	161
New Jersey	0.228	0.497	0.173	2,825
New Mexico	0.060	0.106	0.042	838
New York	1.711	3.249	1.100	17,309
North Carolina	0.261	0.568	0.213	4,199
North Dakota	0.022	0.037	0.014	222
Ohio	0.570	1.230	0.452	8,750
Oklahoma	0.099	0.196	0.076	1,537
Oregon	0.276	0.551	0.206	3,842
Pennsylvania	0.348	0.752	0.271	4,813
Rhode Island	0.010	0.017	0.006	111
South Carolina	0.210	0.441	0.163	3,223
South Dakota	0.031	0.052	0.020	388
Tennessee	0.484	1.084	0.394	7,066
Texas	1.903	4.687	1.729	30,466
Utah	0.063	0.139	0.053	1,085
Vermont	0.010	0.018	0.007	132
Virginia	2.078	4.220	1.477	25,303
Washington	0.458	0.921	0.351	5,727
West Virginia	0.003	0.006	0.002	41
Wisconsin	0.096	0.186	0.071	1,386
Wyoming	0.004	0.007	0.003	50
<b>State Totals</b>	<b>\$17.277</b>	<b>\$36.229</b>	<b>\$13.181</b>	<b>232,426</b>
<b>Interstate Spillovers</b>		<b>13.124</b>	<b>4.569</b>	<b>94,656</b>
<b>U.S. Total</b>	<b>\$17.277</b>	<b>\$49.354</b>	<b>\$17.751</b>	<b>327,082</b>

Source: CRA, Dodge Data & Analytics, BEA and NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.



## Appendix A-2: Impacts of Soft Costs on State Economies (**Industrial**), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.763	\$1.501	\$0.575	10,799
Alaska	0.009	0.015	0.006	97
Arizona	0.046	0.100	0.038	724
Arkansas	0.233	0.424	0.163	3,179
California	0.024	0.052	0.020	324
Colorado	0.016	0.035	0.013	232
Connecticut	0.004	0.007	0.003	40
Delaware	0.022	0.037	0.011	187
District of Columbia	–	–	–	–
Florida	0.050	0.107	0.041	849
Georgia	0.219	0.506	0.189	3,727
Hawaii	0.001	0.001	0.000	7
Idaho	0.005	0.009	0.004	72
Illinois	0.048	0.113	0.041	686
Indiana	0.113	0.230	0.085	1,658
Iowa	0.055	0.097	0.037	691
Kansas	0.010	0.020	0.007	122
Kentucky	0.061	0.119	0.043	847
Louisiana	0.495	0.970	0.375	6,939
Maine	0.001	0.001	0.000	9
Maryland	0.029	0.058	0.021	339
Massachusetts	0.047	0.095	0.035	557
Michigan	0.390	0.820	0.315	5,556
Minnesota	0.084	0.179	0.067	1,172
Mississippi	0.012	0.022	0.008	169
Missouri	0.033	0.067	0.022	416
Montana	0.000	0.000	0.000	1
Nebraska	0.021	0.038	0.015	271
Nevada	0.026	0.049	0.019	347
New Hampshire	0.004	0.008	0.003	49
New Jersey	0.033	0.071	0.025	406
New Mexico	0.001	0.002	0.001	17
New York	0.181	0.344	0.116	1,830
North Carolina	0.108	0.235	0.088	1,734
North Dakota	0.209	0.357	0.131	2,125
Ohio	0.225	0.486	0.179	3,457
Oklahoma	0.004	0.007	0.003	58
Oregon	0.009	0.018	0.007	127
Pennsylvania	0.019	0.042	0.015	266
Rhode Island	0.003	0.006	0.002	40
South Carolina	0.023	0.049	0.018	355
South Dakota	0.001	0.002	0.001	15
Tennessee	0.052	0.117	0.043	764
Texas	0.143	0.351	0.130	2,284
Utah	0.006	0.013	0.005	99
Vermont	0.003	0.005	0.002	34
Virginia	0.031	0.063	0.022	375
Washington	0.023	0.047	0.018	290
West Virginia	0.121	0.205	0.075	1,459
Wisconsin	0.390	0.761	0.291	5,658
Wyoming	0.001	0.002	0.001	17
<b>State Totals</b>	<b>\$4.406</b>	<b>\$8.863</b>	<b>\$3.324</b>	<b>61,478</b>
<b>Interstate Spillovers</b>		<b>3.722</b>	<b>1.202</b>	<b>21,931</b>
<b>U.S. Total</b>	<b>\$4.406</b>	<b>\$12.586</b>	<b>\$4.527</b>	<b>83,408</b>

Source: CRA, Dodge Data & Analytics, BEA and NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

### Appendix A-3: Impacts of Soft Costs on State Economies (Warehouse), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.024	\$0.048	\$0.018	346
Alaska	0.000	0.000	0.000	2
Arizona	0.138	0.295	0.113	2,147
Arkansas	0.007	0.013	0.005	101
California	0.665	1.472	0.560	9,111
Colorado	0.124	0.278	0.106	1,837
Connecticut	0.022	0.042	0.015	248
Delaware	0.020	0.035	0.010	177
District of Columbia	0.010	0.013	0.002	25
Florida	0.609	1.312	0.506	10,424
Georgia	0.448	1.033	0.386	7,616
Hawaii	0.008	0.015	0.006	100
Idaho	0.010	0.017	0.007	138
Illinois	0.252	0.591	0.214	3,580
Indiana	0.185	0.377	0.140	2,721
Iowa	0.026	0.045	0.017	324
Kansas	0.021	0.041	0.014	254
Kentucky	0.409	0.798	0.285	5,657
Louisiana	0.026	0.050	0.019	360
Maine	0.004	0.007	0.003	51
Maryland	0.131	0.263	0.093	1,524
Massachusetts	0.105	0.213	0.078	1,246
Michigan	0.035	0.074	0.028	501
Minnesota	0.088	0.187	0.070	1,226
Mississippi	0.037	0.067	0.025	507
Missouri	0.089	0.180	0.060	1,130
Montana	0.006	0.010	0.004	77
Nebraska	0.011	0.020	0.008	143
Nevada	0.142	0.264	0.102	1,870
New Hampshire	0.002	0.004	0.001	23
New Jersey	0.392	0.855	0.298	4,856
New Mexico	0.019	0.034	0.014	272
New York	0.470	0.893	0.302	4,755
North Carolina	0.207	0.450	0.169	3,322
North Dakota	0.025	0.044	0.016	259
Ohio	0.303	0.654	0.240	4,655
Oklahoma	0.016	0.032	0.012	250
Oregon	0.080	0.159	0.060	1,109
Pennsylvania	0.288	0.622	0.224	3,978
Rhode Island	0.020	0.035	0.012	227
South Carolina	0.067	0.141	0.052	1,034
South Dakota	0.009	0.014	0.006	107
Tennessee	0.076	0.171	0.062	1,116
Texas	0.678	1.670	0.616	10,855
Utah	0.042	0.093	0.035	725
Vermont	0.004	0.007	0.003	55
Virginia	0.073	0.148	0.052	886
Washington	0.176	0.353	0.135	2,197
West Virginia	0.001	0.002	0.001	13
Wisconsin	0.164	0.320	0.122	2,382
Wyoming	0.023	0.036	0.014	271
<b>State Totals</b>	<b>\$6.789</b>	<b>\$14.500</b>	<b>\$5.340</b>	<b>96,789</b>
<b>Interstate Spillovers</b>		<b>4.893</b>	<b>1.635</b>	<b>31,739</b>
<b>U.S. Total</b>	<b>\$6.789</b>	<b>\$19.394</b>	<b>\$6.975</b>	<b>128,528</b>

Source: CRA, Dodge Data & Analytics, BEA and NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

**Appendix A-4: Impacts of Soft Costs on State Economies (Retail and Entertainment), 2019**

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.110	\$0.217	\$0.083	1,564
Alaska	0.012	0.021	0.008	133
Arizona	0.078	0.168	0.064	1,220
Arkansas	0.027	0.049	0.019	363
California	0.423	0.936	0.356	5,790
Colorado	0.106	0.237	0.091	1,571
Connecticut	0.029	0.056	0.021	329
Delaware	0.014	0.024	0.007	121
District of Columbia	0.068	0.093	0.012	174
Florida	0.570	1.227	0.473	9,746
Georgia	0.237	0.546	0.204	4,025
Hawaii	0.102	0.194	0.076	1,334
Idaho	0.023	0.041	0.016	331
Illinois	0.188	0.441	0.160	2,673
Indiana	0.090	0.183	0.068	1,321
Iowa	0.064	0.113	0.043	807
Kansas	0.081	0.160	0.054	978
Kentucky	0.071	0.139	0.050	986
Louisiana	0.078	0.152	0.059	1,090
Maine	0.010	0.019	0.008	150
Maryland	0.101	0.202	0.072	1,174
Massachusetts	0.151	0.306	0.113	1,788
Michigan	0.150	0.316	0.121	2,143
Minnesota	0.074	0.158	0.059	1,035
Mississippi	0.026	0.047	0.018	356
Missouri	0.081	0.164	0.054	1,026
Montana	0.007	0.012	0.005	95
Nebraska	0.029	0.053	0.020	377
Nevada	0.025	0.047	0.018	333
New Hampshire	0.009	0.017	0.006	103
New Jersey	0.119	0.260	0.091	1,479
New Mexico	0.032	0.057	0.022	448
New York	0.401	0.761	0.258	4,053
North Carolina	0.154	0.336	0.126	2,482
North Dakota	0.023	0.039	0.014	234
Ohio	0.205	0.443	0.163	3,149
Oklahoma	0.039	0.078	0.030	612
Oregon	0.033	0.065	0.024	456
Pennsylvania	0.149	0.323	0.116	2,064
Rhode Island	0.019	0.034	0.011	219
South Carolina	0.069	0.144	0.053	1,055
South Dakota	0.021	0.035	0.014	259
Tennessee	0.142	0.317	0.115	2,070
Texas	0.716	1.763	0.651	11,462
Utah	0.036	0.079	0.030	618
Vermont	0.008	0.013	0.005	99
Virginia	0.180	0.365	0.128	2,191
Washington	0.084	0.168	0.064	1,044
West Virginia	0.032	0.054	0.020	385
Wisconsin	0.076	0.149	0.057	1,107
Wyoming	0.007	0.011	0.004	83
<b>State Totals</b>	<b>\$5.580</b>	<b>\$11.835</b>	<b>\$4.353</b>	<b>78,707</b>
<b>Interstate Spillovers</b>		<b>4.106</b>	<b>1.380</b>	<b>26,936</b>
<b>U.S. Total</b>	<b>\$5.580</b>	<b>\$15.941</b>	<b>\$5.733</b>	<b>105,643</b>

Source: CRA, Dodge Data & Analytics, BEA and NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.



**Appendix A-5: Impacts of Soft Costs on State Economies (in Four Categories), 2019**

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$1.057	\$2.082	\$0.797	14,971
Alaska	0.033	0.057	0.022	359
Arizona	0.651	1.394	0.535	10,133
Arkansas	0.362	0.659	0.253	4,937
California	2.542	5.626	2.139	34,815
Colorado	0.412	0.920	0.352	6,084
Connecticut	0.121	0.231	0.085	1,365
Delaware	0.082	0.141	0.042	713
District of Columbia	0.389	0.534	0.071	996
Florida	1.919	4.132	1.592	32,828
Georgia	1.792	4.131	1.543	30,454
Hawaii	0.151	0.288	0.112	1,983
Idaho	0.143	0.259	0.102	2,071
Illinois	0.926	2.168	0.785	13,137
Indiana	0.525	1.071	0.396	7,723
Iowa	0.689	1.217	0.462	8,690
Kansas	0.182	0.357	0.121	2,186
Kentucky	0.598	1.165	0.416	8,263
Louisiana	0.673	1.319	0.510	9,438
Maine	0.037	0.067	0.026	527
Maryland	0.803	1.606	0.569	9,315
Massachusetts	1.505	3.055	1.123	17,838
Michigan	0.769	1.617	0.621	10,963
Minnesota	0.467	0.996	0.373	6,509
Mississippi	0.088	0.158	0.060	1,202
Missouri	0.292	0.591	0.196	3,702
Montana	0.037	0.065	0.026	514
Nebraska	0.339	0.631	0.240	4,478
Nevada	0.247	0.460	0.177	3,257
New Hampshire	0.028	0.054	0.020	336
New Jersey	0.772	1.684	0.586	9,566
New Mexico	0.112	0.200	0.079	1,574
New York	2.763	5.246	1.777	27,947
North Carolina	0.731	1.589	0.596	11,737
North Dakota	0.279	0.477	0.174	2,840
Ohio	1.303	2.813	1.034	20,011
Oklahoma	0.158	0.313	0.122	2,457
Oregon	0.398	0.794	0.297	5,533
Pennsylvania	0.805	1.738	0.625	11,121
Rhode Island	0.052	0.093	0.031	596
South Carolina	0.369	0.775	0.286	5,667
South Dakota	0.062	0.103	0.040	770
Tennessee	0.755	1.690	0.614	11,016
Texas	3.439	8.471	3.126	55,067
Utah	0.148	0.323	0.123	2,527
Vermont	0.025	0.043	0.017	321
Virginia	2.361	4.796	1.678	28,754
Washington	0.741	1.488	0.567	9,258
West Virginia	0.157	0.266	0.098	1,899
Wisconsin	0.726	1.416	0.541	10,531
Wyoming	0.036	0.057	0.022	421
<b>State Totals</b>	<b>\$34.052</b>	<b>\$71.428</b>	<b>\$26.199</b>	<b>469,399</b>
<b>Interstate Spillovers</b>		<b>25.846</b>	<b>8.787</b>	<b>175,262</b>
<b>U.S. Total</b>	<b>\$34.052</b>	<b>\$97.274</b>	<b>\$34.985</b>	<b>644,661</b>

Source: CRA, Dodge Data & Analytics, BEA and NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

# Appendix B: Site Development Impacts by State

**Appendix B-1: Impacts of Site Development on State Economies (Office), 2019**

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.117	\$0.260	\$0.100	2,196
Alaska	0.009	0.015	0.007	117
Arizona	0.284	0.618	0.250	5,303
Arkansas	0.070	0.144	0.056	1,206
California	1.049	2.349	0.935	16,364
Colorado	0.121	0.277	0.111	2,095
Connecticut	0.049	0.095	0.038	659
Delaware	0.019	0.034	0.012	214
District of Columbia	0.228	0.262	0.024	378
Florida	0.506	1.113	0.450	9,992
Georgia	0.651	1.566	0.600	12,939
Hawaii	0.030	0.058	0.024	439
Idaho	0.077	0.149	0.061	1,355
Illinois	0.320	0.789	0.292	5,295
Indiana	0.101	0.232	0.086	1,732
Iowa	0.399	0.789	0.307	6,354
Kansas	0.051	0.108	0.038	801
Kentucky	0.041	0.089	0.032	702
Louisiana	0.055	0.115	0.045	929
Maine	0.016	0.032	0.013	291
Maryland	0.397	0.774	0.291	5,326
Massachusetts	0.881	1.739	0.670	11,608
Michigan	0.142	0.321	0.127	2,526
Minnesota	0.162	0.367	0.141	2,567
Mississippi	0.009	0.019	0.007	157
Missouri	0.065	0.144	0.052	1,097
Montana	0.018	0.035	0.015	319
Nebraska	0.205	0.401	0.159	3,425
Nevada	0.039	0.076	0.031	621
New Hampshire	0.010	0.020	0.007	134
New Jersey	0.167	0.366	0.135	2,380
New Mexico	0.044	0.081	0.033	731
New York	1.255	2.345	0.895	15,385
North Carolina	0.192	0.443	0.171	3,674
North Dakota	0.016	0.029	0.011	193
Ohio	0.418	0.999	0.372	7,314
Oklahoma	0.073	0.158	0.063	1,364
Oregon	0.203	0.424	0.160	2,990
Pennsylvania	0.255	0.611	0.225	4,155
Rhode Island	0.007	0.013	0.005	91
South Carolina	0.154	0.348	0.131	2,879
South Dakota	0.023	0.042	0.017	373
Tennessee	0.355	0.856	0.312	5,843
Texas	1.395	3.648	1.381	25,846
Utah	0.047	0.108	0.042	873
Vermont	0.007	0.014	0.006	121
Virginia	1.523	3.119	1.175	23,820
Washington	0.336	0.712	0.283	5,028
West Virginia	0.002	0.005	0.002	36
Wisconsin	0.070	0.152	0.060	1,167
Wyoming	0.003	0.005	0.002	45
<b>State Totals</b>	<b>\$12.665</b>	<b>\$27.467</b>	<b>\$10.463</b>	<b>201,446</b>
<b>Interstate Spillovers</b>		<b>11.973</b>	<b>3.920</b>	<b>80,594</b>
<b>U.S. Totals</b>	<b>\$12.665</b>	<b>\$39.441</b>	<b>\$14.383</b>	<b>282,040</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

**Appendix B-2: Impacts of Site Development on State Economies (Industrial), 2019**

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.830	\$1.841	\$0.711	15,566
Alaska	0.010	0.017	0.007	132
Arizona	0.051	0.110	0.045	944
Arkansas	0.254	0.527	0.204	4,400
California	0.026	0.058	0.023	402
Colorado	0.017	0.039	0.016	295
Connecticut	0.004	0.008	0.003	53
Delaware	0.023	0.041	0.014	260
District of Columbia	0.000	0.000	0.000	–
Florida	0.054	0.119	0.048	1,067
Georgia	0.239	0.575	0.220	4,748
Hawaii	0.001	0.001	0.000	8
Idaho	0.005	0.010	0.004	94
Illinois	0.053	0.130	0.048	871
Indiana	0.123	0.282	0.105	2,108
Iowa	0.060	0.118	0.046	950
Kansas	0.011	0.023	0.008	174
Kentucky	0.067	0.145	0.053	1,143
Louisiana	0.539	1.129	0.445	9,126
Maine	0.001	0.001	0.001	13
Maryland	0.032	0.062	0.023	428
Massachusetts	0.051	0.101	0.039	674
Michigan	0.424	0.959	0.380	7,548
Minnesota	0.092	0.208	0.080	1,453
Mississippi	0.013	0.028	0.011	233
Missouri	0.036	0.079	0.029	601
Montana	0.000	0.000	0.000	1
Nebraska	0.022	0.044	0.017	374
Nevada	0.029	0.055	0.023	453
New Hampshire	0.004	0.009	0.003	60
New Jersey	0.036	0.078	0.029	508
New Mexico	0.001	0.002	0.001	22
New York	0.197	0.368	0.141	2,416
North Carolina	0.118	0.272	0.105	2,253
North Dakota	0.228	0.414	0.151	2,747
Ohio	0.245	0.586	0.218	4,292
Oklahoma	0.004	0.009	0.003	76
Oregon	0.010	0.021	0.008	147
Pennsylvania	0.021	0.050	0.018	341
Rhode Island	0.004	0.007	0.003	49
South Carolina	0.025	0.057	0.021	471
South Dakota	0.001	0.002	0.001	22
Tennessee	0.057	0.138	0.050	939
Texas	0.155	0.406	0.154	2,878
Utah	0.006	0.015	0.006	118
Vermont	0.003	0.005	0.002	47
Virginia	0.034	0.069	0.026	525
Washington	0.025	0.054	0.021	379
West Virginia	0.132	0.240	0.089	1,888
Wisconsin	0.425	0.921	0.363	7,079
Wyoming	0.002	0.003	0.001	23
<b>State Totals</b>	<b>\$4.797</b>	<b>\$10.437</b>	<b>\$4.017</b>	<b>81,398</b>
<b>Interstate Spillovers</b>		<b>4.502</b>	<b>1.431</b>	<b>25,433</b>
<b>U.S. Totals</b>	<b>\$4.797</b>	<b>\$14.939</b>	<b>\$5.448</b>	<b>106,832</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.



**Appendix B-3: Impacts of Site Development on State Economies (Warehouse), 2019**

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.028	\$0.062	\$0.024	526
Alaska	0.000	0.000	0.000	3
Arizona	0.158	0.344	0.139	2,952
Arkansas	0.008	0.018	0.007	147
California	0.764	1.711	0.681	11,921
Colorado	0.143	0.326	0.130	2,466
Connecticut	0.025	0.049	0.019	341
Delaware	0.024	0.042	0.014	261
District of Columbia	0.011	0.013	0.001	18
Florida	0.700	1.539	0.623	13,816
Georgia	0.515	1.238	0.475	10,231
Hawaii	0.009	0.017	0.007	127
Idaho	0.011	0.021	0.009	192
Illinois	0.290	0.714	0.264	4,791
Indiana	0.212	0.489	0.182	3,649
Iowa	0.029	0.058	0.023	469
Kansas	0.024	0.052	0.018	382
Kentucky	0.470	1.022	0.372	8,045
Louisiana	0.029	0.062	0.024	499
Maine	0.004	0.008	0.003	74
Maryland	0.151	0.294	0.111	2,025
Massachusetts	0.121	0.238	0.092	1,590
Michigan	0.040	0.091	0.036	717
Minnesota	0.101	0.229	0.088	1,602
Mississippi	0.043	0.087	0.034	737
Missouri	0.102	0.225	0.082	1,720
Montana	0.006	0.012	0.005	112
Nebraska	0.012	0.024	0.010	208
Nevada	0.163	0.314	0.128	2,571
New Hampshire	0.002	0.004	0.002	29
New Jersey	0.450	0.987	0.364	6,410
New Mexico	0.022	0.041	0.017	372
New York	0.540	1.009	0.385	6,619
North Carolina	0.237	0.549	0.211	4,552
North Dakota	0.029	0.053	0.019	353
Ohio	0.348	0.833	0.310	6,095
Oklahoma	0.019	0.040	0.016	348
Oregon	0.092	0.191	0.072	1,352
Pennsylvania	0.330	0.791	0.291	5,379
Rhode Island	0.023	0.042	0.015	293
South Carolina	0.077	0.175	0.066	1,447
South Dakota	0.010	0.018	0.008	161
Tennessee	0.088	0.212	0.077	1,446
Texas	0.778	2.036	0.771	14,423
Utah	0.049	0.113	0.044	914
Vermont	0.005	0.009	0.004	79
Virginia	0.084	0.171	0.064	1,306
Washington	0.202	0.427	0.170	3,021
West Virginia	0.001	0.002	0.001	18
Wisconsin	0.189	0.409	0.161	3,143
Wyoming	0.026	0.045	0.018	384
<b>State Totals</b>	<b>\$7.795</b>	<b>\$17.457</b>	<b>\$6.687</b>	<b>130,334</b>
<b>Interstate Spillovers</b>		<b>6.817</b>	<b>2.165</b>	<b>43,253</b>
<b>U.S. Totals</b>	<b>\$7.795</b>	<b>\$24.275</b>	<b>\$8.852</b>	<b>173,588</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

## Appendix B-4: Impacts of Site Development on State Economies (Retail and Entertainment), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.084	\$0.187	\$0.072	1,580
Alaska	0.009	0.017	0.007	127
Arizona	0.060	0.130	0.053	1,115
Arkansas	0.020	0.042	0.016	353
California	0.323	0.723	0.288	5,034
Colorado	0.081	0.185	0.074	1,402
Connecticut	0.022	0.044	0.017	301
Delaware	0.011	0.019	0.007	118
District of Columbia	0.052	0.060	0.005	86
Florida	0.435	0.956	0.387	8,585
Georgia	0.181	0.435	0.167	3,594
Hawaii	0.078	0.148	0.062	1,126
Idaho	0.017	0.034	0.014	305
Illinois	0.144	0.354	0.131	2,377
Indiana	0.069	0.158	0.059	1,177
Iowa	0.049	0.097	0.038	777
Kansas	0.062	0.132	0.047	978
Kentucky	0.054	0.118	0.043	932
Louisiana	0.059	0.124	0.049	1,005
Maine	0.008	0.016	0.007	144
Maryland	0.077	0.151	0.057	1,037
Massachusetts	0.115	0.227	0.088	1,517
Michigan	0.115	0.259	0.103	2,040
Minnesota	0.057	0.129	0.049	899
Mississippi	0.020	0.041	0.016	344
Missouri	0.062	0.136	0.049	1,038
Montana	0.005	0.010	0.004	92
Nebraska	0.022	0.043	0.017	365
Nevada	0.019	0.037	0.015	304
New Hampshire	0.007	0.013	0.005	90
New Jersey	0.091	0.200	0.074	1,298
New Mexico	0.024	0.045	0.019	407
New York	0.306	0.572	0.218	3,750
North Carolina	0.118	0.273	0.105	2,260
North Dakota	0.018	0.032	0.012	212
Ohio	0.156	0.374	0.139	2,740
Oklahoma	0.030	0.066	0.026	566
Oregon	0.025	0.052	0.020	369
Pennsylvania	0.114	0.273	0.100	1,855
Rhode Island	0.015	0.027	0.010	188
South Carolina	0.052	0.119	0.045	981
South Dakota	0.016	0.030	0.012	260
Tennessee	0.108	0.261	0.095	1,781
Texas	0.546	1.429	0.541	10,122
Utah	0.028	0.064	0.025	518
Vermont	0.006	0.011	0.004	94
Virginia	0.137	0.281	0.106	2,147
Washington	0.064	0.135	0.054	954
West Virginia	0.024	0.044	0.016	349
Wisconsin	0.058	0.126	0.050	970
Wyoming	0.005	0.009	0.004	78
<b>State Totals</b>	<b>\$4.258</b>	<b>\$9.443</b>	<b>\$3.618</b>	<b>70,738</b>
<b>Interstate Spillovers</b>		<b>3.817</b>	<b>1.218</b>	<b>24,083</b>
<b>U.S. Totals</b>	<b>\$4.258</b>	<b>\$13.260</b>	<b>\$4.835</b>	<b>94,821</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

## Appendix B-5: Impacts of Site Development on State Economies (in Four Categories), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$1.060	\$2.349	\$0.907	19,868
Alaska	0.028	0.049	0.021	378
Arizona	0.553	1.203	0.487	10,314
Arkansas	0.352	0.732	0.283	6,106
California	2.161	4.840	1.927	33,721
Colorado	0.362	0.826	0.330	6,257
Connecticut	0.100	0.196	0.077	1,355
Delaware	0.077	0.136	0.047	854
District of Columbia	0.291	0.335	0.030	482
Florida	1.695	3.726	1.508	33,460
Georgia	1.585	3.813	1.462	31,511
Hawaii	0.117	0.223	0.094	1,701
Idaho	0.111	0.215	0.088	1,946
Illinois	0.806	1.986	0.734	13,334
Indiana	0.505	1.161	0.431	8,664
Iowa	0.537	1.062	0.413	8,551
Kansas	0.148	0.315	0.112	2,335
Kentucky	0.632	1.375	0.501	10,821
Louisiana	0.682	1.430	0.564	11,558
Maine	0.029	0.057	0.024	521
Maryland	0.657	1.281	0.481	8,817
Massachusetts	1.168	2.305	0.889	15,390
Michigan	0.721	1.631	0.646	12,831
Minnesota	0.411	0.932	0.358	6,520
Mississippi	0.085	0.174	0.067	1,471
Missouri	0.265	0.583	0.211	4,455
Montana	0.030	0.057	0.024	524
Nebraska	0.261	0.512	0.203	4,372
Nevada	0.250	0.483	0.196	3,949
New Hampshire	0.023	0.047	0.018	314
New Jersey	0.744	1.631	0.603	10,597
New Mexico	0.092	0.169	0.070	1,531
New York	2.297	4.294	1.639	28,170
North Carolina	0.664	1.538	0.591	12,738
North Dakota	0.290	0.528	0.193	3,505
Ohio	1.167	2.793	1.040	20,440
Oklahoma	0.125	0.273	0.108	2,354
Oregon	0.329	0.688	0.260	4,857
Pennsylvania	0.721	1.725	0.635	11,729
Rhode Island	0.048	0.088	0.032	621
South Carolina	0.309	0.699	0.263	5,778
South Dakota	0.050	0.093	0.038	816
Tennessee	0.608	1.467	0.535	10,009
Texas	2.875	7.518	2.846	53,269
Utah	0.129	0.299	0.117	2,423
Vermont	0.021	0.039	0.016	340
Virginia	1.778	3.639	1.372	27,797
Washington	0.627	1.328	0.527	9,381
West Virginia	0.160	0.291	0.107	2,291
Wisconsin	0.741	1.608	0.633	12,359
Wyoming	0.036	0.062	0.025	531
<b>State Totals</b>	<b>\$29.516</b>	<b>\$64.805</b>	<b>\$24.784</b>	<b>483,916</b>
<b>Interstate Spillovers</b>		<b>27.110</b>	<b>8.734</b>	<b>173,364</b>
<b>U.S. Totals</b>	<b>\$29.516</b>	<b>\$91.91</b>	<b>\$33.52</b>	<b>657,281</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.



# Appendix C: Hard Cost Impacts of Construction by State

**Appendix C-1:** Impacts of Construction (**Hard Costs**) on State Economies (**Office**), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.470	\$1.042	\$0.402	8,815
Alaska	0.035	0.061	0.026	468
Arizona	1.142	2.483	1.005	21,288
Arkansas	0.279	0.580	0.224	4,840
California	4.209	9.428	3.754	65,690
Colorado	0.487	1.110	0.444	8,410
Connecticut	0.195	0.383	0.151	2,646
Delaware	0.077	0.137	0.047	858
District of Columbia	0.917	1.053	0.095	1,516
Florida	2.031	4.467	1.808	40,112
Georgia	2.613	6.285	2.410	51,938
Hawaii	0.121	0.231	0.097	1,760
Idaho	0.310	0.600	0.246	5,438
Illinois	1.285	3.166	1.170	21,254
Indiana	0.405	0.931	0.346	6,951
Iowa	1.603	3.169	1.231	25,508
Kansas	0.204	0.434	0.154	3,216
Kentucky	0.164	0.358	0.130	2,817
Louisiana	0.220	0.461	0.182	3,728
Maine	0.065	0.127	0.053	1,168
Maryland	1.593	3.106	1.167	21,381
Massachusetts	3.536	6.980	2.691	46,598
Michigan	0.570	1.289	0.511	10,140
Minnesota	0.650	1.473	0.565	10,304
Mississippi	0.036	0.075	0.029	630
Missouri	0.262	0.576	0.209	4,404
Montana	0.073	0.139	0.059	1,281
Nebraska	0.822	1.611	0.639	13,747
Nevada	0.158	0.305	0.124	2,492
New Hampshire	0.040	0.080	0.030	539
New Jersey	0.671	1.471	0.543	9,556
New Mexico	0.175	0.324	0.134	2,934
New York	5.036	9.415	3.593	61,758
North Carolina	0.769	1.780	0.684	14,746
North Dakota	0.064	0.117	0.043	775
Ohio	1.676	4.011	1.494	29,359
Oklahoma	0.291	0.636	0.252	5,477
Oregon	0.814	1.700	0.642	12,003
Pennsylvania	1.025	2.453	0.903	16,677
Rhode Island	0.029	0.052	0.019	367
South Carolina	0.618	1.399	0.526	11,558
South Dakota	0.091	0.170	0.070	1,497
Tennessee	1.424	3.437	1.253	23,454
Texas	5.599	14.643	5.544	103,750
Utah	0.187	0.433	0.169	3,505
Vermont	0.030	0.055	0.022	485
Virginia	6.115	12.519	4.719	95,618
Washington	1.349	2.856	1.134	20,183
West Virginia	0.010	0.018	0.007	144
Wisconsin	0.281	0.610	0.240	4,685
Wyoming	0.012	0.021	0.008	180
<b>State Totals</b>	<b>\$50.841</b>	<b>\$110.260</b>	<b>\$42.000</b>	<b>808,649</b>
<b>Interstate Spillovers</b>		<b>48.064</b>	<b>15.735</b>	<b>323,522</b>
<b>U.S. Totals</b>	<b>\$50.841</b>	<b>\$158.324</b>	<b>\$57.735</b>	<b>1,132,172</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

**Appendix C-2: Impacts of Construction (Hard Costs) on State Economies (Industrial), 2019**

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$3.877	\$8.595	\$3.318	72,686
Alaska	0.045	0.080	0.035	614
Arizona	0.236	0.514	0.208	4,409
Arkansas	1.185	2.462	0.953	20,548
California	0.120	0.269	0.107	1,876
Colorado	0.080	0.182	0.073	1,377
Connecticut	0.018	0.036	0.014	245
Delaware	0.110	0.194	0.067	1,216
District of Columbia	0.000	0.000	0.000	–
Florida	0.252	0.555	0.225	4,984
Georgia	1.115	2.683	1.029	22,170
Hawaii	0.003	0.005	0.002	39
Idaho	0.025	0.049	0.020	441
Illinois	0.246	0.606	0.224	4,067
Indiana	0.573	1.319	0.490	9,841
Iowa	0.279	0.551	0.214	4,436
Kansas	0.051	0.109	0.039	811
Kentucky	0.312	0.678	0.247	5,335
Louisiana	2.516	5.272	2.078	42,615
Maine	0.003	0.007	0.003	60
Maryland	0.149	0.290	0.109	1,997
Massachusetts	0.239	0.472	0.182	3,149
Michigan	1.981	4.479	1.774	35,243
Minnesota	0.428	0.970	0.372	6,783
Mississippi	0.063	0.129	0.050	1,089
Missouri	0.167	0.367	0.133	2,806
Montana	0.000	0.001	0.000	5
Nebraska	0.104	0.205	0.081	1,747
Nevada	0.134	0.258	0.105	2,115
New Hampshire	0.021	0.042	0.016	282
New Jersey	0.167	0.365	0.135	2,373
New Mexico	0.006	0.011	0.005	102
New York	0.920	1.720	0.656	11,283
North Carolina	0.549	1.270	0.488	10,519
North Dakota	1.062	1.932	0.707	12,827
Ohio	1.144	2.738	1.020	20,040
Oklahoma	0.019	0.041	0.016	354
Oregon	0.046	0.097	0.037	684
Pennsylvania	0.098	0.234	0.086	1,593
Rhode Island	0.018	0.032	0.012	227
South Carolina	0.118	0.266	0.100	2,198
South Dakota	0.006	0.012	0.005	102
Tennessee	0.266	0.642	0.234	4,383
Texas	0.725	1.897	0.718	13,441
Utah	0.029	0.068	0.027	552
Vermont	0.013	0.025	0.010	218
Virginia	0.157	0.321	0.121	2,450
Washington	0.118	0.250	0.099	1,768
West Virginia	0.615	1.121	0.414	8,815
Wisconsin	1.983	4.302	1.694	33,056
Wyoming	0.008	0.013	0.005	109
<b>State Totals</b>	<b>\$22.401</b>	<b>\$48.735</b>	<b>\$18.755</b>	<b>380,081</b>
<b>Interstate Spillovers</b>		<b>21.023</b>	<b>6.683</b>	<b>118,760</b>
<b>U.S. Totals</b>	<b>\$22.401</b>	<b>\$69.758</b>	<b>\$25.438</b>	<b>498,841</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

### Appendix C-3: Impacts of Construction (Hard Costs) on State Economies (Warehouse), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.096	\$0.212	\$0.082	1,795
Alaska	0.001	0.001	0.001	9
Arizona	0.541	1.176	0.476	10,086
Arkansas	0.029	0.060	0.023	501
California	2.610	5.846	2.327	40,728
Colorado	0.488	1.112	0.445	8,424
Connecticut	0.086	0.169	0.067	1,166
Delaware	0.080	0.142	0.049	892
District of Columbia	0.038	0.044	0.004	63
Florida	2.390	5.256	2.128	47,201
Georgia	1.758	4.230	1.622	34,955
Hawaii	0.030	0.057	0.024	435
Idaho	0.037	0.072	0.030	656
Illinois	0.990	2.438	0.901	16,368
Indiana	0.726	1.671	0.620	12,466
Iowa	0.101	0.199	0.077	1,604
Kansas	0.083	0.176	0.063	1,305
Kentucky	1.605	3.492	1.272	27,486
Louisiana	0.101	0.211	0.083	1,704
Maine	0.014	0.028	0.011	253
Maryland	0.515	1.005	0.378	6,920
Massachusetts	0.412	0.814	0.314	5,433
Michigan	0.138	0.311	0.123	2,450
Minnesota	0.345	0.783	0.300	5,473
Mississippi	0.146	0.298	0.115	2,518
Missouri	0.349	0.769	0.279	5,875
Montana	0.022	0.041	0.017	382
Nebraska	0.043	0.083	0.033	711
Nevada	0.556	1.073	0.437	8,784
New Hampshire	0.007	0.015	0.006	101
New Jersey	1.538	3.371	1.245	21,901
New Mexico	0.076	0.140	0.058	1,270
New York	1.844	3.447	1.316	22,614
North Carolina	0.811	1.877	0.722	15,551
North Dakota	0.100	0.182	0.067	1,207
Ohio	1.189	2.845	1.060	20,823
Oklahoma	0.063	0.138	0.055	1,188
Oregon	0.313	0.654	0.247	4,618
Pennsylvania	1.129	2.703	0.995	18,377
Rhode Island	0.078	0.142	0.052	1,001
South Carolina	0.264	0.598	0.225	4,943
South Dakota	0.034	0.063	0.026	551
Tennessee	0.300	0.724	0.264	4,940
Texas	2.659	6.955	2.633	49,278
Utah	0.166	0.385	0.151	3,123
Vermont	0.017	0.030	0.012	268
Virginia	0.285	0.584	0.220	4,462
Washington	0.690	1.461	0.580	10,320
West Virginia	0.004	0.008	0.003	62
Wisconsin	0.644	1.397	0.550	10,737
Wyoming	0.090	0.153	0.061	1,313
<b>State Totals</b>	<b>\$26.632</b>	<b>\$59.643</b>	<b>\$22.848</b>	<b>445,293</b>
<b>Interstate Spillovers</b>		<b>23.292</b>	<b>7.396</b>	<b>147,777</b>
<b>U.S. Totals</b>	<b>\$26.632</b>	<b>\$82.935</b>	<b>\$30.243</b>	<b>593,069</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.



## Appendix C-4: Impacts of Construction (Hard Costs) on State Economies (Retail and Entertainment), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.286	\$0.634	\$0.245	5,358
Alaska	0.032	0.056	0.024	430
Arizona	0.203	0.441	0.178	3,780
Arkansas	0.069	0.143	0.055	1,196
California	1.094	2.450	0.975	17,071
Colorado	0.275	0.628	0.251	4,754
Connecticut	0.076	0.148	0.058	1,022
Delaware	0.036	0.064	0.022	402
District of Columbia	0.176	0.202	0.018	291
Florida	1.474	3.242	1.312	29,111
Georgia	0.613	1.475	0.566	12,186
Hawaii	0.263	0.501	0.211	3,819
Idaho	0.059	0.114	0.047	1,034
Illinois	0.488	1.201	0.444	8,061
Indiana	0.232	0.535	0.199	3,990
Iowa	0.166	0.327	0.127	2,635
Kansas	0.211	0.448	0.159	3,318
Kentucky	0.185	0.402	0.146	3,161
Louisiana	0.201	0.422	0.166	3,407
Maine	0.027	0.053	0.022	487
Maryland	0.262	0.511	0.192	3,518
Massachusetts	0.390	0.770	0.297	5,144
Michigan	0.389	0.879	0.348	6,918
Minnesota	0.192	0.436	0.167	3,049
Mississippi	0.067	0.138	0.053	1,165
Missouri	0.209	0.460	0.167	3,519
Montana	0.018	0.034	0.014	312
Nebraska	0.074	0.145	0.058	1,237
Nevada	0.065	0.126	0.051	1,031
New Hampshire	0.022	0.045	0.017	304
New Jersey	0.309	0.677	0.250	4,400
New Mexico	0.082	0.152	0.063	1,379
New York	1.037	1.938	0.740	12,716
North Carolina	0.400	0.925	0.356	7,662
North Dakota	0.060	0.108	0.040	719
Ohio	0.530	1.269	0.473	9,291
Oklahoma	0.102	0.223	0.088	1,918
Oregon	0.085	0.177	0.067	1,251
Pennsylvania	0.386	0.925	0.340	6,289
Rhode Island	0.050	0.091	0.033	637
South Carolina	0.178	0.403	0.151	3,328
South Dakota	0.054	0.100	0.041	881
Tennessee	0.367	0.885	0.323	6,041
Texas	1.852	4.844	1.834	34,322
Utah	0.094	0.217	0.085	1,757
Vermont	0.020	0.036	0.015	318
Virginia	0.465	0.953	0.359	7,279
Washington	0.216	0.458	0.182	3,235
West Virginia	0.083	0.151	0.056	1,185
Wisconsin	0.197	0.428	0.169	3,290
Wyoming	0.018	0.031	0.012	264
<b>State Totals</b>	<b>\$14.439</b>	<b>\$32.021</b>	<b>\$12.267</b>	<b>239,873</b>
<b>Interstate Spillovers</b>		<b>12.943</b>	<b>4.130</b>	<b>81,668</b>
<b>U.S. Totals</b>	<b>\$14.439</b>	<b>\$44.964</b>	<b>\$16.397</b>	<b>321,541</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

## Appendix C-4: Impacts of Construction (**Hard Costs**) on State Economies (in **Four Categories**), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$4.729	\$10.484	\$4.047	88,655
Alaska	0.113	0.199	0.086	1,522
Arizona	2.122	4.614	1.867	39,562
Arkansas	1.562	3.246	1.256	27,085
California	8.034	17.994	7.164	125,365
Colorado	1.329	3.032	1.212	22,965
Connecticut	0.375	0.735	0.290	5,080
Delaware	0.303	0.536	0.186	3,367
District of Columbia	1.131	1.298	0.117	1,869
Florida	6.149	13.520	5.473	121,408
Georgia	6.100	14.672	5.627	121,250
Hawaii	0.417	0.794	0.334	6,054
Idaho	0.432	0.835	0.342	7,569
Illinois	3.009	7.412	2.739	49,750
Indiana	1.936	4.456	1.655	33,248
Iowa	2.148	4.246	1.650	34,183
Kansas	0.549	1.167	0.415	8,651
Kentucky	2.266	4.929	1.796	38,799
Louisiana	3.037	6.366	2.509	51,453
Maine	0.109	0.215	0.089	1,967
Maryland	2.519	4.912	1.846	33,816
Massachusetts	4.578	9.036	3.484	60,324
Michigan	3.078	6.958	2.757	54,752
Minnesota	1.614	3.662	1.404	25,608
Mississippi	0.313	0.640	0.247	5,403
Missouri	0.988	2.172	0.788	16,604
Montana	0.113	0.215	0.090	1,981
Nebraska	1.043	2.044	0.811	17,442
Nevada	0.913	1.762	0.717	14,422
New Hampshire	0.090	0.182	0.068	1,226
New Jersey	2.684	5.884	2.174	38,231
New Mexico	0.340	0.627	0.259	5,685
New York	8.837	16.521	6.305	108,371
North Carolina	2.529	5.852	2.250	48,479
North Dakota	1.286	2.339	0.856	15,528
Ohio	4.539	10.863	4.047	79,513
Oklahoma	0.476	1.038	0.411	8,938
Oregon	1.258	2.628	0.992	18,557
Pennsylvania	2.638	6.315	2.324	42,936
Rhode Island	0.174	0.318	0.115	2,232
South Carolina	1.178	2.666	1.003	22,026
South Dakota	0.185	0.345	0.141	3,032
Tennessee	2.358	5.689	2.073	38,817
Texas	10.837	28.340	10.729	200,791
Utah	0.476	1.103	0.432	8,935
Vermont	0.080	0.146	0.059	1,289
Virginia	7.022	14.377	5.419	109,809
Washington	2.373	5.025	1.996	35,506
West Virginia	0.712	1.297	0.479	10,205
Wisconsin	3.106	6.737	2.652	51,768
Wyoming	0.128	0.217	0.087	1,867
<b>State Totals</b>	<b>\$114.313</b>	<b>\$250.659</b>	<b>\$95.871</b>	<b>1,873,896</b>
<b>Interstate Spillovers</b>		<b>105.322</b>	<b>33.943</b>	<b>671,726</b>
<b>U.S. Totals</b>	<b>\$114.313</b>	<b>\$355.982</b>	<b>\$129.814</b>	<b>2,545,622</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

## Appendix D: Tenant Improvement Impacts by State

**Appendix D-1:** Impacts of Tenant Improvements on State Economies (**Office**), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.178	\$0.395	\$0.152	3,339
Alaska	0.013	0.023	0.010	177
Arizona	0.432	0.940	0.381	8,064
Arkansas	0.106	0.220	0.085	1,833
California	1.595	3.571	1.422	24,883
Colorado	0.184	0.421	0.168	3,186
Connecticut	0.074	0.145	0.057	1,002
Delaware	0.029	0.052	0.018	325
District of Columbia	0.347	0.399	0.036	574
Florida	0.769	1.692	0.685	15,194
Georgia	0.990	2.381	0.913	19,674
Hawaii	0.046	0.087	0.037	667
Idaho	0.118	0.227	0.093	2,060
Illinois	0.487	1.199	0.443	8,051
Indiana	0.153	0.353	0.131	2,633
Iowa	0.607	1.200	0.466	9,662
Kansas	0.077	0.164	0.058	1,218
Kentucky	0.062	0.136	0.049	1,067
Louisiana	0.083	0.175	0.069	1,412
Maine	0.025	0.048	0.020	442
Maryland	0.603	1.176	0.442	8,099
Massachusetts	1.340	2.644	1.020	17,651
Michigan	0.216	0.488	0.193	3,841
Minnesota	0.246	0.558	0.214	3,903
Mississippi	0.014	0.028	0.011	239
Missouri	0.099	0.218	0.079	1,668
Montana	0.028	0.053	0.022	485
Nebraska	0.311	0.610	0.242	5,207
Nevada	0.060	0.115	0.047	944
New Hampshire	0.015	0.030	0.011	204
New Jersey	0.254	0.557	0.206	3,620
New Mexico	0.066	0.123	0.051	1,111
New York	1.908	3.566	1.361	23,393
North Carolina	0.291	0.674	0.259	5,586
North Dakota	0.024	0.044	0.016	294
Ohio	0.635	1.519	0.566	11,121
Oklahoma	0.110	0.241	0.095	2,075
Oregon	0.308	0.644	0.243	4,547
Pennsylvania	0.388	0.929	0.342	6,317
Rhode Island	0.011	0.020	0.007	139
South Carolina	0.234	0.530	0.199	4,378
South Dakota	0.035	0.064	0.026	567
Tennessee	0.540	1.302	0.475	8,884
Texas	2.121	5.547	2.100	39,299
Utah	0.071	0.164	0.064	1,327
Vermont	0.011	0.021	0.008	184
Virginia	2.316	4.742	1.787	36,219
Washington	0.511	1.082	0.430	7,645
West Virginia	0.004	0.007	0.003	54
Wisconsin	0.106	0.231	0.091	1,775
Wyoming	0.005	0.008	0.003	68
<b>State Totals</b>	<b>\$19.258</b>	<b>\$41.765</b>	<b>\$15.909</b>	<b>306,307</b>
<b>Interstate Spillovers</b>		<b>18.206</b>	<b>5.960</b>	<b>122,546</b>
<b>U.S. Totals</b>	<b>\$19.258</b>	<b>\$59.971</b>	<b>\$21.869</b>	<b>428,853</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.



## Appendix D-2: Impacts of Tenant Improvements on State Economies (Industrial), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$1.375	\$3.049	\$1.177	25,781
Alaska	0.016	0.029	0.012	218
Arizona	0.084	0.182	0.074	1,564
Arkansas	0.420	0.873	0.338	7,288
California	0.043	0.096	0.038	665
Colorado	0.028	0.064	0.026	488
Connecticut	0.006	0.013	0.005	87
Delaware	0.039	0.069	0.024	431
District of Columbia	0.000	0.000	0.000	–
Florida	0.090	0.197	0.080	1,768
Georgia	0.396	0.952	0.365	7,864
Hawaii	0.001	0.002	0.001	14
Idaho	0.009	0.017	0.007	156
Illinois	0.087	0.215	0.079	1,443
Indiana	0.203	0.468	0.174	3,491
Iowa	0.099	0.195	0.076	1,574
Kansas	0.018	0.039	0.014	288
Kentucky	0.110	0.240	0.088	1,892
Louisiana	0.892	1.870	0.737	15,115
Maine	0.001	0.002	0.001	21
Maryland	0.053	0.103	0.039	708
Massachusetts	0.085	0.167	0.065	1,117
Michigan	0.703	1.589	0.629	12,501
Minnesota	0.152	0.344	0.132	2,406
Mississippi	0.022	0.046	0.018	386
Missouri	0.059	0.130	0.047	995
Montana	0.000	0.000	0.000	2
Nebraska	0.037	0.073	0.029	620
Nevada	0.047	0.092	0.037	750
New Hampshire	0.007	0.015	0.006	100
New Jersey	0.059	0.130	0.048	842
New Mexico	0.002	0.004	0.002	36
New York	0.326	0.610	0.233	4,002
North Carolina	0.195	0.450	0.173	3,731
North Dakota	0.377	0.685	0.251	4,550
Ohio	0.406	0.971	0.362	7,108
Oklahoma	0.007	0.015	0.006	126
Oregon	0.016	0.034	0.013	243
Pennsylvania	0.035	0.083	0.031	565
Rhode Island	0.006	0.011	0.004	81
South Carolina	0.042	0.094	0.035	779
South Dakota	0.002	0.004	0.002	36
Tennessee	0.094	0.228	0.083	1,555
Texas	0.257	0.673	0.255	4,767
Utah	0.010	0.024	0.009	196
Vermont	0.005	0.009	0.004	77
Virginia	0.056	0.114	0.043	869
Washington	0.042	0.089	0.035	627
West Virginia	0.218	0.397	0.147	3,127
Wisconsin	0.703	1.526	0.601	11,725
Wyoming	0.003	0.005	0.002	39
<b>State Totals</b>	<b>\$7.945</b>	<b>\$17.286</b>	<b>\$6.652</b>	<b>134,813</b>
<b>Interstate Spillovers</b>		<b>7.457</b>	<b>2.370</b>	<b>42,124</b>
<b>U.S. Totals</b>	<b>\$7.945</b>	<b>\$24.743</b>	<b>\$9.023</b>	<b>176,937</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

### Appendix D-3: Impacts of Tenant Improvements on State Economies (Warehouse), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.022	\$0.048	\$0.019	405
Alaska	0.000	0.000	0.000	2
Arizona	0.122	0.266	0.107	2,277
Arkansas	0.007	0.014	0.005	113
California	0.589	1.320	0.525	9,194
Colorado	0.110	0.251	0.100	1,902
Connecticut	0.019	0.038	0.015	263
Delaware	0.018	0.032	0.011	201
District of Columbia	0.009	0.010	0.001	14
Florida	0.540	1.187	0.480	10,656
Georgia	0.397	0.955	0.366	7,891
Hawaii	0.007	0.013	0.005	98
Idaho	0.008	0.016	0.007	148
Illinois	0.223	0.550	0.203	3,695
Indiana	0.164	0.377	0.140	2,814
Iowa	0.023	0.045	0.017	362
Kansas	0.019	0.040	0.014	295
Kentucky	0.362	0.788	0.287	6,205
Louisiana	0.023	0.048	0.019	385
Maine	0.003	0.006	0.003	57
Maryland	0.116	0.227	0.085	1,562
Massachusetts	0.093	0.184	0.071	1,227
Michigan	0.031	0.070	0.028	553
Minnesota	0.078	0.177	0.068	1,235
Mississippi	0.033	0.067	0.026	569
Missouri	0.079	0.174	0.063	1,326
Montana	0.005	0.009	0.004	86
Nebraska	0.010	0.019	0.007	161
Nevada	0.125	0.242	0.099	1,983
New Hampshire	0.002	0.003	0.001	23
New Jersey	0.347	0.761	0.281	4,944
New Mexico	0.017	0.032	0.013	287
New York	0.416	0.778	0.297	5,105
North Carolina	0.183	0.424	0.163	3,511
North Dakota	0.023	0.041	0.015	272
Ohio	0.268	0.642	0.239	4,701
Oklahoma	0.014	0.031	0.012	268
Oregon	0.071	0.148	0.056	1,043
Pennsylvania	0.255	0.610	0.225	4,148
Rhode Island	0.018	0.032	0.012	226
South Carolina	0.060	0.135	0.051	1,116
South Dakota	0.008	0.014	0.006	124
Tennessee	0.068	0.163	0.060	1,115
Texas	0.600	1.570	0.594	11,124
Utah	0.038	0.087	0.034	705
Vermont	0.004	0.007	0.003	61
Virginia	0.064	0.132	0.050	1,007
Washington	0.156	0.330	0.131	2,330
West Virginia	0.001	0.002	0.001	14
Wisconsin	0.145	0.315	0.124	2,424
Wyoming	0.020	0.035	0.014	297
<b>State Totals</b>	<b>\$6.012</b>	<b>\$13.464</b>	<b>\$5.158</b>	<b>100,524</b>
<b>Interstate Spillovers</b>		<b>5.258</b>	<b>1.670</b>	<b>33,360</b>
<b>U.S. Totals</b>	<b>\$6.012</b>	<b>\$18.723</b>	<b>\$6.827</b>	<b>133,885</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

**Appendix D-4: Impacts of Tenant Improvements on State Economies (Retail and Entertainment), 2019**

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.120	\$0.266	\$0.102	2,245
Alaska	0.013	0.024	0.010	180
Arizona	0.085	0.185	0.075	1,584
Arkansas	0.029	0.060	0.023	501
California	0.458	1.027	0.409	7,153
Colorado	0.115	0.263	0.105	1,992
Connecticut	0.032	0.062	0.024	428
Delaware	0.015	0.027	0.009	168
District of Columbia	0.074	0.085	0.008	122
Florida	0.618	1.358	0.550	12,198
Georgia	0.257	0.618	0.237	5,106
Hawaii	0.110	0.210	0.088	1,600
Idaho	0.025	0.048	0.020	433
Illinois	0.204	0.503	0.186	3,378
Indiana	0.097	0.224	0.083	1,672
Iowa	0.069	0.137	0.053	1,104
Kansas	0.088	0.188	0.067	1,390
Kentucky	0.077	0.168	0.061	1,324
Louisiana	0.084	0.177	0.070	1,428
Maine	0.011	0.022	0.009	204
Maryland	0.110	0.214	0.080	1,474
Massachusetts	0.164	0.323	0.124	2,155
Michigan	0.163	0.368	0.146	2,899
Minnesota	0.081	0.183	0.070	1,277
Mississippi	0.028	0.058	0.022	488
Missouri	0.088	0.193	0.070	1,474
Montana	0.007	0.014	0.006	131
Nebraska	0.031	0.061	0.024	518
Nevada	0.027	0.053	0.021	432
New Hampshire	0.009	0.019	0.007	127
New Jersey	0.129	0.284	0.105	1,844
New Mexico	0.035	0.064	0.026	578
New York	0.435	0.812	0.310	5,328
North Carolina	0.167	0.388	0.149	3,211
North Dakota	0.025	0.045	0.017	301
Ohio	0.222	0.532	0.198	3,893
Oklahoma	0.043	0.093	0.037	804
Oregon	0.036	0.074	0.028	524
Pennsylvania	0.162	0.388	0.143	2,635
Rhode Island	0.021	0.038	0.014	267
South Carolina	0.075	0.169	0.063	1,395
South Dakota	0.023	0.042	0.017	369
Tennessee	0.154	0.371	0.135	2,531
Texas	0.776	2.030	0.769	14,382
Utah	0.039	0.091	0.036	736
Vermont	0.008	0.015	0.006	133
Virginia	0.195	0.399	0.151	3,050
Washington	0.091	0.192	0.076	1,356
West Virginia	0.035	0.063	0.023	497
Wisconsin	0.083	0.179	0.071	1,379
Wyoming	0.008	0.013	0.005	111
<b>State Totals</b>	<b>\$6.050</b>	<b>\$13.418</b>	<b>\$5.140</b>	<b>100,514</b>
<b>Interstate Spillovers</b>		<b>5.424</b>	<b>1.731</b>	<b>34,221</b>
<b>U.S. Totals</b>	<b>\$6.050</b>	<b>\$18.841</b>	<b>\$6.871</b>	<b>134,735</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.



## Appendix D-5: Impacts of Tenant Improvements on State Economies (in Four Categories), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$1.695	\$3.757	\$1.450	31,771
Alaska	0.043	0.076	0.032	577
Arizona	0.723	1.573	0.637	13,488
Arkansas	0.562	1.167	0.451	9,736
California	2.685	6.013	2.394	41,896
Colorado	0.438	0.999	0.399	7,568
Connecticut	0.132	0.258	0.102	1,781
Delaware	0.101	0.179	0.062	1,126
District of Columbia	0.430	0.493	0.045	710
Florida	2.016	4.434	1.795	39,816
Georgia	2.039	4.905	1.881	40,535
Hawaii	0.164	0.312	0.131	2,379
Idaho	0.160	0.309	0.127	2,798
Illinois	1.002	2.468	0.912	16,566
Indiana	0.618	1.422	0.528	10,610
Iowa	0.798	1.578	0.613	12,702
Kansas	0.202	0.431	0.153	3,191
Kentucky	0.612	1.332	0.486	10,489
Louisiana	1.083	2.269	0.894	18,340
Maine	0.040	0.079	0.033	725
Maryland	0.882	1.720	0.646	11,843
Massachusetts	1.681	3.318	1.279	22,150
Michigan	1.113	2.516	0.997	19,794
Minnesota	0.556	1.261	0.484	8,822
Mississippi	0.097	0.199	0.077	1,682
Missouri	0.325	0.715	0.259	5,464
Montana	0.040	0.076	0.032	704
Nebraska	0.389	0.762	0.303	6,506
Nevada	0.260	0.502	0.204	4,109
New Hampshire	0.033	0.068	0.025	455
New Jersey	0.790	1.731	0.640	11,249
New Mexico	0.120	0.222	0.092	2,012
New York	3.085	5.767	2.201	37,829
North Carolina	0.837	1.936	0.744	16,038
North Dakota	0.449	0.816	0.298	5,417
Ohio	1.531	3.665	1.365	26,823
Oklahoma	0.174	0.380	0.150	3,273
Oregon	0.431	0.900	0.340	6,356
Pennsylvania	0.840	2.010	0.740	13,666
Rhode Island	0.056	0.101	0.037	713
South Carolina	0.410	0.928	0.349	7,668
South Dakota	0.067	0.125	0.051	1,097
Tennessee	0.855	2.064	0.752	14,085
Texas	3.755	9.820	3.718	69,573
Utah	0.158	0.366	0.143	2,964
Vermont	0.028	0.052	0.021	455
Virginia	2.631	5.387	2.030	41,145
Washington	0.799	1.692	0.672	11,958
West Virginia	0.258	0.469	0.173	3,692
Wisconsin	1.038	2.252	0.886	17,302
Wyoming	0.035	0.060	0.024	514
<b>State Totals</b>	<b>\$39.266</b>	<b>\$85.933</b>	<b>\$32.860</b>	<b>642,158</b>
<b>Interstate Spillovers</b>		<b>36.345</b>	<b>11.731</b>	<b>232,252</b>
<b>U.S. Totals</b>	<b>\$39.266</b>	<b>\$122.278</b>	<b>\$44.590</b>	<b>874,410</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

## Appendix E: Total Construction Cost Impacts by State

**Appendix E-1:** Total Impacts of Soft Cost, Site Development, Hard Costs, and Tenant Improvements on State Economies (**Office**), 2019

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.925	\$2.012	\$0.776	16,613
Alaska	0.068	0.120	0.051	889
Arizona	2.246	4.873	1.954	40,696
Arkansas	0.549	1.117	0.431	9,173
California	8.283	18.515	7.314	126,527
Colorado	0.958	2.177	0.864	16,135
Connecticut	0.385	0.750	0.293	5,056
Delaware	0.152	0.268	0.091	1,624
District of Columbia	1.804	2.142	0.211	3,264
Florida	3.997	8.758	3.517	77,107
Georgia	5.141	12.278	4.688	99,636
Hawaii	0.239	0.455	0.189	3,407
Idaho	0.611	1.168	0.476	10,384
Illinois	2.529	6.177	2.275	40,797
Indiana	0.796	1.797	0.667	13,338
Iowa	3.154	6.120	2.370	48,393
Kansas	0.402	0.843	0.297	6,069
Kentucky	0.324	0.691	0.251	5,358
Louisiana	0.433	0.897	0.353	7,117
Maine	0.127	0.248	0.102	2,217
Maryland	3.134	6.138	2.283	41,083
Massachusetts	6.959	13.803	5.279	90,103
Michigan	1.122	2.505	0.988	19,270
Minnesota	1.278	2.869	1.096	19,850
Mississippi	0.072	0.144	0.055	1,195
Missouri	0.516	1.118	0.400	8,299
Montana	0.143	0.269	0.112	2,428
Nebraska	1.618	3.142	1.238	26,065
Nevada	0.310	0.596	0.240	4,764
New Hampshire	0.078	0.157	0.058	1,039
New Jersey	1.320	2.891	1.058	18,380
New Mexico	0.345	0.633	0.260	5,614
New York	9.910	18.575	6.949	117,844
North Carolina	1.514	3.466	1.327	28,205
North Dakota	0.126	0.227	0.083	1,484
Ohio	3.298	7.760	2.885	56,543
Oklahoma	0.574	1.231	0.486	10,453
Oregon	1.601	3.319	1.251	23,382
Pennsylvania	2.016	4.745	1.740	31,962
Rhode Island	0.056	0.102	0.037	708
South Carolina	1.216	2.718	1.019	22,038
South Dakota	0.180	0.329	0.134	2,825
Tennessee	2.803	6.679	2.433	45,246
Texas	11.018	28.525	10.754	199,361
Utah	0.368	0.843	0.328	6,790
Vermont	0.059	0.107	0.043	922
Virginia	12.032	24.600	9.158	180,959
Washington	2.654	5.571	2.197	38,582
West Virginia	0.020	0.035	0.013	275
Wisconsin	0.553	1.179	0.462	9,013
Wyoming	0.024	0.041	0.016	344
<b>State Totals</b>	<b>\$100.041</b>	<b>\$215.722</b>	<b>\$81.554</b>	<b>1,548,828</b>
<b>Interstate Spillovers</b>		<b>91.368</b>	<b>30.184</b>	<b>621,319</b>
<b>U.S. Totals</b>	<b>\$100.041</b>	<b>\$307.089</b>	<b>\$111.737</b>	<b>2,170,147</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

**Appendix E-2: Total Impacts of Soft Cost, Site Development, Hard Costs, and Tenant Improvements on State Economies (Industrial), 2019**

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$6.845	\$14.986	\$5.780	124,832
Alaska	0.080	0.142	0.060	1,060
Arizona	0.417	0.906	0.365	7,641
Arkansas	2.093	4.287	1.657	35,416
California	0.212	0.475	0.188	3,267
Colorado	0.141	0.320	0.127	2,392
Connecticut	0.032	0.063	0.024	425
Delaware	0.193	0.341	0.116	2,094
District of Columbia	0.000	0.000	0.000	–
Florida	0.446	0.978	0.394	8,668
Georgia	1.969	4.714	1.803	38,508
Hawaii	0.005	0.009	0.004	69
Idaho	0.044	0.085	0.035	764
Illinois	0.434	1.064	0.392	7,067
Indiana	1.012	2.299	0.853	17,096
Iowa	0.492	0.961	0.373	7,652
Kansas	0.091	0.192	0.068	1,395
Kentucky	0.550	1.183	0.430	9,217
Louisiana	4.441	9.242	3.635	73,796
Maine	0.006	0.011	0.005	103
Maryland	0.263	0.514	0.192	3,472
Massachusetts	0.422	0.836	0.320	5,498
Michigan	3.498	7.846	3.099	60,848
Minnesota	0.755	1.701	0.651	11,814
Mississippi	0.111	0.225	0.087	1,878
Missouri	0.295	0.642	0.231	4,818
Montana	0.001	0.001	0.000	9
Nebraska	0.184	0.359	0.142	3,011
Nevada	0.236	0.454	0.184	3,665
New Hampshire	0.037	0.074	0.028	492
New Jersey	0.294	0.645	0.237	4,130
New Mexico	0.011	0.020	0.008	178
New York	1.625	3.042	1.146	19,532
North Carolina	0.969	2.227	0.854	18,237
North Dakota	1.876	3.388	1.239	22,248
Ohio	2.020	4.781	1.779	34,896
Oklahoma	0.033	0.072	0.028	613
Oregon	0.082	0.170	0.064	1,200
Pennsylvania	0.173	0.409	0.150	2,766
Rhode Island	0.031	0.057	0.020	396
South Carolina	0.208	0.466	0.175	3,802
South Dakota	0.011	0.020	0.008	176
Tennessee	0.470	1.125	0.410	7,640
Texas	1.281	3.328	1.256	23,371
Utah	0.052	0.119	0.047	964
Vermont	0.024	0.043	0.018	376
Virginia	0.277	0.566	0.212	4,219
Washington	0.209	0.439	0.174	3,065
West Virginia	1.086	1.963	0.724	15,289
Wisconsin	3.501	7.509	2.948	57,517
Wyoming	0.013	0.022	0.009	189
<b>State Totals</b>	<b>\$39.549</b>	<b>\$85.321</b>	<b>\$32.748</b>	<b>657,770</b>
<b>Interstate Spillovers</b>		<b>36.705</b>	<b>11.687</b>	<b>208,247</b>
<b>U.S. Totals</b>	<b>\$39.549</b>	<b>\$122.026</b>	<b>\$44.436</b>	<b>866,017</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP  
 Note: Appendices include data for the District of Columbia, resulting in 51 states.

**Appendix E-3: Total Impacts of Soft Cost, Site Development, Hard Costs, and Tenant Improvements on State Economies (Warehouse), 2019**

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.170	\$0.370	\$0.143	3,072
Alaska	0.001	0.002	0.001	16
Arizona	0.959	2.082	0.836	17,462
Arkansas	0.051	0.105	0.040	862
California	4.628	10.349	4.094	70,955
Colorado	0.865	1.966	0.781	14,629
Connecticut	0.153	0.298	0.117	2,018
Delaware	0.142	0.251	0.085	1,532
District of Columbia	0.067	0.079	0.008	120
Florida	4.239	9.294	3.737	82,096
Georgia	3.118	7.456	2.849	60,694
Hawaii	0.053	0.101	0.042	761
Idaho	0.066	0.127	0.052	1,135
Illinois	1.756	4.294	1.582	28,434
Indiana	1.287	2.914	1.082	21,650
Iowa	0.179	0.348	0.135	2,759
Kansas	0.147	0.309	0.109	2,235
Kentucky	2.846	6.100	2.217	47,393
Louisiana	0.178	0.370	0.146	2,947
Maine	0.025	0.048	0.020	435
Maryland	0.914	1.789	0.667	12,032
Massachusetts	0.731	1.449	0.555	9,496
Michigan	0.244	0.547	0.216	4,222
Minnesota	0.612	1.376	0.526	9,536
Mississippi	0.258	0.520	0.200	4,331
Missouri	0.620	1.348	0.483	10,051
Montana	0.039	0.073	0.030	657
Nebraska	0.075	0.147	0.058	1,223
Nevada	0.986	1.894	0.765	15,208
New Hampshire	0.013	0.026	0.010	175
New Jersey	2.727	5.973	2.188	38,112
New Mexico	0.135	0.247	0.101	2,200
New York	3.270	6.127	2.300	39,093
North Carolina	1.439	3.300	1.265	26,935
North Dakota	0.177	0.320	0.117	2,092
Ohio	2.108	4.974	1.850	36,274
Oklahoma	0.112	0.241	0.095	2,055
Oregon	0.555	1.152	0.434	8,121
Pennsylvania	2.002	4.726	1.734	31,882
Rhode Island	0.138	0.252	0.090	1,746
South Carolina	0.469	1.050	0.394	8,539
South Dakota	0.060	0.110	0.045	945
Tennessee	0.532	1.271	0.463	8,617
Texas	4.716	12.231	4.615	85,680
Utah	0.295	0.678	0.264	5,467
Vermont	0.029	0.053	0.022	463
Virginia	0.506	1.035	0.386	7,662
Washington	1.223	2.571	1.015	17,867
West Virginia	0.008	0.014	0.005	107
Wisconsin	1.142	2.442	0.958	18,685
Wyoming	0.160	0.269	0.107	2,266
<b>State Totals</b>	<b>\$47.229</b>	<b>\$105.065</b>	<b>\$40.033</b>	<b>772,940</b>
<b>Interstate Spillovers</b>		<b>40.261</b>	<b>12.865</b>	<b>256,130</b>
<b>U.S. Totals</b>	<b>\$47.229</b>	<b>\$145.326</b>	<b>\$52.898</b>	<b>1,029,070</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.



**Appendix E-4: Total Impacts of Soft Cost, Site Development, Hard Costs, and Tenant Improvements on State Economies (Retail and Entertainment), 2019**

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$0.600	\$1.303	\$0.502	10,748
Alaska	0.067	0.118	0.050	870
Arizona	0.426	0.923	0.370	7,699
Arkansas	0.145	0.294	0.114	2,413
California	2.298	5.135	2.028	35,048
Colorado	0.578	1.313	0.521	9,719
Connecticut	0.159	0.309	0.121	2,081
Delaware	0.076	0.134	0.045	810
District of Columbia	0.369	0.439	0.044	672
Florida	3.097	6.783	2.722	59,641
Georgia	1.288	3.073	1.173	24,911
Hawaii	0.553	1.053	0.437	7,880
Idaho	0.124	0.237	0.096	2,103
Illinois	1.024	2.499	0.920	16,489
Indiana	0.488	1.100	0.408	8,160
Iowa	0.348	0.674	0.261	5,323
Kansas	0.442	0.927	0.327	6,664
Kentucky	0.388	0.827	0.300	6,403
Louisiana	0.422	0.875	0.344	6,930
Maine	0.057	0.110	0.045	985
Maryland	0.550	1.078	0.401	7,204
Massachusetts	0.820	1.627	0.622	10,604
Michigan	0.817	1.823	0.718	14,000
Minnesota	0.404	0.905	0.346	6,260
Mississippi	0.142	0.283	0.109	2,353
Missouri	0.440	0.953	0.341	7,057
Montana	0.037	0.070	0.029	630
Nebraska	0.155	0.302	0.119	2,497
Nevada	0.137	0.263	0.106	2,100
New Hampshire	0.047	0.094	0.035	625
New Jersey	0.649	1.421	0.519	9,021
New Mexico	0.173	0.317	0.130	2,811
New York	2.178	4.083	1.526	25,847
North Carolina	0.840	1.921	0.736	15,614
North Dakota	0.125	0.225	0.082	1,466
Ohio	1.114	2.618	0.973	19,074
Oklahoma	0.214	0.460	0.182	3,900
Oregon	0.178	0.369	0.139	2,600
Pennsylvania	0.812	1.908	0.700	12,843
Rhode Island	0.104	0.190	0.068	1,311
South Carolina	0.374	0.835	0.313	6,760
South Dakota	0.113	0.206	0.084	1,770
Tennessee	0.771	1.835	0.668	12,424
Texas	3.891	10.066	3.794	70,288
Utah	0.197	0.451	0.175	3,629
Vermont	0.041	0.075	0.030	644
Virginia	0.978	1.999	0.744	14,666
Washington	0.454	0.953	0.376	6,589
West Virginia	0.174	0.312	0.115	2,417
Wisconsin	0.415	0.883	0.346	6,746
Wyoming	0.038	0.064	0.025	535
<b>State Totals</b>	<b>\$30.328</b>	<b>\$66.716</b>	<b>\$25.378</b>	<b>489,832</b>
<b>Interstate Spillovers</b>		<b>26.290</b>	<b>8.458</b>	<b>166,908</b>
<b>U.S. Totals</b>	<b>\$30.328</b>	<b>\$93.006</b>	<b>\$33.836</b>	<b>656,740</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

**Appendix E-5: Total Impacts of Soft Cost, Site Development, Hard Costs, and Tenant Improvements on State Economies (in Four Categories), 2019**

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	\$8.541	\$18.672	\$7.201	155,265
Alaska	0.216	0.381	0.162	2,836
Arizona	4.049	8.784	3.525	73,498
Arkansas	2.838	5.803	2.243	47,863
California	15.421	34.473	13.624	235,797
Colorado	2.541	5.776	2.294	42,874
Connecticut	0.728	1.420	0.554	9,581
Delaware	0.564	0.993	0.337	6,059
District of Columbia	2.241	2.660	0.263	4,056
Florida	11.779	25.812	10.369	227,512
Georgia	11.516	27.521	10.513	223,750
Hawaii	0.850	1.618	0.671	12,117
Idaho	0.845	1.617	0.659	14,384
Illinois	5.743	14.034	5.170	92,787
Indiana	3.583	8.109	3.010	60,244
Iowa	4.173	8.103	3.138	64,126
Kansas	1.082	2.270	0.801	16,363
Kentucky	4.107	8.801	3.199	68,372
Louisiana	5.475	11.384	4.477	90,790
Maine	0.215	0.418	0.172	3,740
Maryland	4.861	9.519	3.542	63,790
Massachusetts	8.932	17.715	6.776	115,702
Michigan	5.681	12.722	5.020	98,340
Minnesota	3.049	6.851	2.619	47,459
Mississippi	0.583	1.171	0.451	9,758
Missouri	1.870	4.061	1.455	30,225
Montana	0.220	0.413	0.172	3,725
Nebraska	2.033	3.950	1.557	32,797
Nevada	1.670	3.206	1.295	25,737
New Hampshire	0.175	0.351	0.131	2,331
New Jersey	4.990	10.930	4.002	69,643
New Mexico	0.664	1.218	0.499	10,803
New York	16.983	31.828	11.921	202,316
North Carolina	4.761	10.914	4.181	88,991
North Dakota	2.305	4.160	1.522	27,290
Ohio	8.540	20.133	7.486	146,787
Oklahoma	0.933	2.005	0.791	17,022
Oregon	2.416	5.010	1.889	35,304
Pennsylvania	5.003	11.789	4.324	79,453
Rhode Island	0.331	0.601	0.215	4,162
South Carolina	2.267	5.068	1.901	41,139
South Dakota	0.363	0.665	0.271	5,715
Tennessee	4.575	10.909	3.974	73,927
Texas	20.906	54.149	20.420	378,700
Utah	0.911	2.091	0.815	16,850
Vermont	0.153	0.279	0.113	2,405
Virginia	13.792	28.199	10.499	207,506
Washington	4.540	9.533	3.762	66,102
West Virginia	1.287	2.324	0.857	18,087
Wisconsin	5.611	12.013	4.713	91,960
Wyoming	0.235	0.396	0.158	3,333
<b>State Totals</b>	<b>\$217.147</b>	<b>\$472.825</b>	<b>\$179.713</b>	<b>3,469,370</b>
<b>Interstate Spillovers</b>		<b>194.624</b>	<b>63.194</b>	<b>1,252,604</b>
<b>U.S. Totals</b>	<b>\$217.147</b>	<b>\$667.448</b>	<b>\$242.907</b>	<b>4,721,974</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP  
 Note: Appendices include data for the District of Columbia, resulting in 51 states.

# Appendix F: Operating Impacts by State

**Appendix F-1:** Impacts of Operations on State Economies (**Office**), 2019

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	\$5,790	\$10,899	\$3,677	135
Alaska	1,162	1,877	656	23
Arizona	29,368	57,725	20,017	635
Arkansas	9,598	17,119	5,767	212
California	110,333	226,127	77,078	2,209
Colorado	23,607	48,160	16,624	499
Connecticut	4,626	8,319	2,692	81
Delaware	778	1,287	364	12
District of Columbia	29,520	36,132	3,737	133
Florida	82,956	163,880	56,850	1,985
Georgia	67,278	144,856	48,171	1,611
Hawaii	2,326	4,132	1,439	45
Idaho	10,498	18,060	6,285	237
Illinois	31,292	68,573	22,227	632
Indiana	15,680	31,248	10,174	324
Iowa	40,708	69,504	22,992	832
Kansas	9,862	18,341	5,516	178
Kentucky	8,998	17,150	5,337	183
Louisiana	9,340	17,329	5,882	213
Maine	159	279	96	3
Maryland	27,014	49,311	15,676	488
Massachusetts	128,579	237,435	77,636	2,271
Michigan	11,836	23,777	8,107	259
Minnesota	23,184	46,191	15,494	471
Mississippi	1,022	1,801	595	22
Missouri	5,582	10,922	3,408	118
Montana	1,412	2,337	826	31
Nebraska	22,090	38,415	12,903	462
Nevada	2,895	5,012	1,713	61
New Hampshire	1,220	2,152	669	20
New Jersey	24,409	49,263	15,314	444
New Mexico	3,851	6,432	2,232	85
New York	82,529	146,374	45,729	1,359
North Carolina	26,486	54,453	18,095	632
North Dakota	2,005	3,219	1,031	34
Ohio	42,602	89,345	29,191	906
Oklahoma	5,627	10,676	3,652	131
Oregon	19,063	35,568	11,836	362
Pennsylvania	39,328	80,449	25,953	770
Rhode Island	1,689	2,867	863	27
South Carolina	13,248	26,283	8,597	311
South Dakota	2,308	3,675	1,231	46
Tennessee	45,884	97,980	31,710	977
Texas	213,104	479,612	160,446	5,209
Utah	9,375	19,134	6,508	227
Vermont	662	1,082	361	13
Virginia	70,091	130,671	41,354	1,259
Washington	52,332	98,060	33,189	997
West Virginia	149	242	76	3
Wisconsin	8,905	16,860	5,669	190
Wyoming	381	579	195	7
<b>State Totals</b>	<b>\$1,382,739</b>	<b>\$2,731,174</b>	<b>\$895,840</b>	<b>28,373</b>
<b>Interstate Spillovers</b>		<b>977,332</b>	<b>316,823</b>	<b>7,170</b>
<b>U.S. Totals</b>	<b>\$1,382,739</b>	<b>\$3,708,506</b>	<b>\$1,212,662</b>	<b>35,544</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

## Appendix F-2: Impacts of Operations on State Economies (**Industrial**), 2019

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	\$9,352	\$17,605	\$5,939	217
Alaska	–	–	–	0
Arizona	2,344	4,607	1,597	51
Arkansas	3,151	5,620	1,893	70
California	1,029	2,109	719	21
Colorado	757	1,544	533	16
Connecticut	434	781	253	8
Delaware	–	–	–	0
District of Columbia	–	–	–	0
Florida	2,152	4,251	1,475	51
Georgia	4,631	9,972	3,316	111
Hawaii	–	–	–	0
Idaho	355	611	213	8
Illinois	2,933	6,428	2,084	59
Indiana	4,530	9,028	2,940	94
Iowa	1,624	2,773	917	33
Kansas	568	1,055	317	10
Kentucky	2,286	4,358	1,356	47
Louisiana	26	49	17	1
Maine	35	62	21	1
Maryland	455	831	264	8
Massachusetts	1,298	2,397	784	23
Michigan	6,614	13,287	4,530	145
Minnesota	2,980	5,938	1,992	60
Mississippi	206	363	120	4
Missouri	2,501	4,893	1,527	53
Montana	–	–	–	0
Nebraska	970	1,687	567	20
Nevada	737	1,277	436	15
New Hampshire	257	454	141	4
New Jersey	799	1,613	502	15
New Mexico	71	119	41	2
New York	3,446	6,113	1,910	57
North Carolina	2,664	5,476	1,820	64
North Dakota	37	59	19	1
Ohio	3,119	6,541	2,137	66
Oklahoma	146	276	95	3
Oregon	551	1,028	342	10
Pennsylvania	1,207	2,468	796	24
Rhode Island	132	224	67	2
South Carolina	879	1,743	570	21
South Dakota	117	187	63	2
Tennessee	2,154	4,600	1,489	46
Texas	7,165	16,126	5,395	175
Utah	417	851	290	10
Vermont	12	20	7	0
Virginia	653	1,218	385	12
Washington	1,404	2,631	890	27
West Virginia	79	129	41	1
Wisconsin	4,993	9,453	3,178	107
Wyoming	59	90	30	1
<b>State Totals</b>	<b>\$82,333</b>	<b>\$162,944</b>	<b>\$54,016</b>	<b>1,775</b>
<b>Interstate Spillovers</b>		<b>57,872</b>	<b>18,190</b>	<b>341</b>
<b>U.S. Totals</b>	<b>\$82,333</b>	<b>\$220,816</b>	<b>\$72,206</b>	<b>2,116</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.



### Appendix F-3: Impacts of Operations on State Economies (Warehouse), 2019

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	\$1,105	\$2,080	\$702	26
Alaska	–	–	–	0
Arizona	7,602	14,943	5,182	164
Arkansas	297	529	178	7
California	26,673	54,665	18,633	534
Colorado	4,613	9,411	3,248	97
Connecticut	481	866	280	8
Delaware	587	971	274	9
District of Columbia	298	365	38	1
Florida	29,924	59,114	20,507	716
Georgia	21,494	46,279	15,390	515
Hawaii	217	385	134	4
Idaho	296	509	177	7
Illinois	9,899	21,693	7,032	200
Indiana	12,263	24,439	7,957	253
Iowa	958	1,636	541	20
Kansas	1,162	2,162	650	21
Kentucky	13,098	24,965	7,769	267
Louisiana	1,355	2,513	853	31
Maine	103	181	62	2
Maryland	7,855	14,338	4,558	142
Massachusetts	3,520	6,501	2,126	62
Michigan	1,119	2,248	766	24
Minnesota	3,488	6,949	2,331	71
Mississippi	2,178	3,839	1,267	47
Missouri	4,012	7,850	2,449	85
Montana	184	305	108	4
Nebraska	681	1,185	398	14
Nevada	5,732	9,923	3,391	120
New Hampshire	131	231	72	2
New Jersey	14,173	28,603	8,892	258
New Mexico	476	795	276	10
New York	8,772	15,558	4,861	144
North Carolina	9,175	18,864	6,269	219
North Dakota	956	1,535	491	16
Ohio	15,726	32,980	10,775	335
Oklahoma	402	763	261	9
Oregon	3,214	5,996	1,995	61
Pennsylvania	13,221	27,045	8,725	259
Rhode Island	758	1,286	387	12
South Carolina	3,446	6,836	2,236	81
South Dakota	498	792	265	10
Tennessee	4,283	9,146	2,960	91
Texas	37,517	84,437	28,247	917
Utah	1,947	3,974	1,352	47
Vermont	254	415	139	5
Virginia	3,910	7,289	2,307	70
Washington	8,222	15,406	5,214	157
West Virginia	35	57	18	1
Wisconsin	8,047	15,235	5,123	172
Wyoming	139	210	71	3
<b>State Totals</b>	<b>\$296,494</b>	<b>\$598,298</b>	<b>\$197,937</b>	<b>6,331</b>
<b>Interstate Spillovers</b>		<b>196,900</b>	<b>62,088</b>	<b>1,290</b>
<b>U.S. Totals</b>	<b>\$296,494</b>	<b>\$795,197</b>	<b>\$260,025</b>	<b>7,621</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

**Appendix F-4: Impacts of Operations on State Economies (Retail and Entertainment), 2019**

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	\$8,281	\$15,588	\$5,258	192
Alaska	1,204	1,946	681	24
Arizona	5,460	10,731	3,721	118
Arkansas	1,669	2,977	1,003	37
California	13,007	26,659	9,087	260
Colorado	6,085	12,413	4,285	129
Connecticut	1,521	2,736	885	27
Delaware	590	977	276	9
District of Columbia	1,513	1,852	192	7
Florida	31,653	62,530	21,692	757
Georgia	9,938	21,399	7,116	238
Hawaii	1,470	2,612	910	28
Idaho	609	1,047	364	14
Illinois	5,634	12,347	4,002	114
Indiana	5,792	11,543	3,759	120
Iowa	5,570	9,510	3,146	114
Kansas	4,530	8,425	2,534	82
Kentucky	3,575	6,814	2,120	73
Louisiana	2,444	4,534	1,539	56
Maine	680	1,191	411	15
Maryland	6,272	11,448	3,639	113
Massachusetts	3,624	6,693	2,188	64
Michigan	6,855	13,772	4,696	150
Minnesota	3,686	7,345	2,464	75
Mississippi	1,894	3,339	1,102	41
Missouri	4,107	8,036	2,507	87
Montana	231	382	135	5
Nebraska	1,177	2,046	687	25
Nevada	1,423	2,463	842	30
New Hampshire	646	1,139	354	11
New Jersey	5,679	11,462	3,563	103
New Mexico	1,056	1,763	612	23
New York	9,505	16,857	5,266	156
North Carolina	9,102	18,713	6,218	217
North Dakota	1,072	1,720	551	18
Ohio	15,021	31,503	10,293	320
Oklahoma	2,274	4,314	1,476	53
Oregon	1,540	2,873	956	29
Pennsylvania	5,923	12,116	3,909	116
Rhode Island	1,411	2,394	721	23
South Carolina	3,278	6,504	2,127	77
South Dakota	954	1,519	509	19
Tennessee	4,932	10,532	3,409	105
Texas	34,695	78,085	26,122	848
Utah	1,840	3,755	1,277	45
Vermont	90	146	49	2
Virginia	8,236	15,354	4,859	148
Washington	2,983	5,590	1,892	57
West Virginia	1,638	2,668	840	29
Wisconsin	3,745	7,089	2,384	80
Wyoming	181	275	93	3
<b>State Totals</b>	<b>\$256,295</b>	<b>\$509,728</b>	<b>\$168,720</b>	<b>5,484</b>
<b>Interstate Spillovers</b>		<b>177,656</b>	<b>56,051</b>	<b>1,104</b>
<b>U.S. Totals</b>	<b>\$256,295</b>	<b>\$687,383</b>	<b>\$224,771</b>	<b>6,588</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

## Appendix F-5: Impacts of Operations on State Economies (in Four Categories), 2019

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	\$24,528	\$46,172	\$15,575	570
Alaska	2,366	3,823	1,337	47
Arizona	44,773	88,006	30,517	969
Arkansas	14,715	26,245	8,841	325
California	151,042	309,560	105,518	3,024
Colorado	35,061	71,528	24,690	741
Connecticut	7,063	12,703	4,111	123
Delaware	1,954	3,234	914	31
District of Columbia	31,331	38,349	3,967	141
Florida	146,685	289,776	100,523	3,509
Georgia	103,342	222,505	73,993	2,474
Hawaii	4,013	7,129	2,483	77
Idaho	11,758	20,227	7,039	266
Illinois	49,759	109,041	35,344	1,004
Indiana	38,265	76,258	24,830	791
Iowa	48,860	83,424	27,596	999
Kansas	16,122	29,983	9,017	291
Kentucky	27,958	53,287	16,582	569
Louisiana	13,164	24,425	8,291	300
Maine	979	1,713	591	21
Maryland	41,596	75,929	24,138	751
Massachusetts	137,022	253,025	82,734	2,420
Michigan	26,424	53,082	18,100	578
Minnesota	33,338	66,423	22,280	677
Mississippi	5,299	9,342	3,084	115
Missouri	16,201	31,701	9,890	342
Montana	1,827	3,024	1,068	41
Nebraska	24,918	43,333	14,555	521
Nevada	10,787	18,675	6,382	226
New Hampshire	2,254	3,975	1,236	37
New Jersey	45,060	90,941	28,271	819
New Mexico	5,454	9,109	3,161	120
New York	104,252	184,902	57,766	1,716
North Carolina	47,427	97,505	32,402	1,131
North Dakota	4,070	6,534	2,092	69
Ohio	76,468	160,369	52,396	1,627
Oklahoma	8,450	16,030	5,483	197
Oregon	24,367	45,464	15,129	463
Pennsylvania	59,679	122,079	39,382	1,168
Rhode Island	3,990	6,771	2,038	65
South Carolina	20,851	41,366	13,530	489
South Dakota	3,877	6,173	2,067	78
Tennessee	57,253	122,259	39,568	1,219
Texas	292,482	658,260	220,210	7,149
Utah	13,579	27,714	9,426	329
Vermont	1,017	1,663	555	21
Virginia	82,890	154,533	48,905	1,489
Washington	64,941	121,687	41,186	1,237
West Virginia	1,901	3,096	975	34
Wisconsin	25,690	48,637	16,354	548
Wyoming	760	1,155	390	15
<b>State Totals</b>	<b>\$2,017,861</b>	<b>\$ 4,002,144</b>	<b>\$1,316,513</b>	<b>41,963</b>
<b>Interstate Spillovers</b>		<b>1,409,759</b>	<b>453,151</b>	<b>9,906</b>
<b>U.S. Totals</b>	<b>\$2,017,861</b>	<b>\$5,411,903</b>	<b>\$1,769,664</b>	<b>51,870</b>

Source: GMU Schar School of Policy and Government, The Stephen S. Fuller Institute; Dodge Data & Analytics; BEA; NAIOP

Note: Appendices include data for the District of Columbia, resulting in 51 states.

# Appendix G: National and State Multipliers

## Appendix G-1: Output, Earnings and Employment Multipliers: **Non-Residential Construction**

State	MULTIPLIERS		
	Output	Earnings	Jobs
Alabama	2.2169	0.8558	18.7469
Alaska	1.7689	0.7596	13.5141
Arizona	2.1747	0.8800	18.6472
Arkansas	2.0772	0.8036	17.3345
California	2.2398	0.8917	15.6052
Colorado	2.2807	0.9120	17.2766
Connecticut	1.9588	0.7729	13.5375
Delaware	1.7688	0.6138	11.1009
District of Columbia	1.1483	0.1037	1.6527
Florida	2.1989	0.8902	19.7458
Georgia	2.4054	0.9225	19.8785
Hawaii	1.9035	0.8000	14.5076
Idaho	1.9325	0.7923	17.5226
Illinois	2.4632	0.9103	16.5342
Indiana	2.3014	0.8546	17.1734
Iowa	1.9766	0.7682	15.9122
Kansas	2.1265	0.7565	15.7581
Kentucky	2.1756	0.7928	17.1257
Louisiana	2.0959	0.8261	16.9404
Maine	1.9700	0.8193	18.0432
Maryland	1.9502	0.7328	13.4256
Massachusetts	1.9738	0.7611	13.1769
Michigan	2.2607	0.8956	17.7888
Minnesota	2.2682	0.8699	15.8617
Mississippi	2.0478	0.7909	17.2866
Missouri	2.1991	0.7978	16.8098
Montana	1.9068	0.8031	17.5888
Nebraska	1.9597	0.7776	16.7230
Nevada	1.9308	0.7853	15.8015
New Hampshire	2.0180	0.7574	13.5750
New Jersey	2.1920	0.8098	14.2420
New Mexico	1.8448	0.7624	16.7250
New York	1.8694	0.7134	12.2627
North Carolina	2.3139	0.8897	19.1689
North Dakota	1.8184	0.6652	12.0721
Ohio	2.3932	0.8916	17.5173
Oklahoma	2.1823	0.8639	18.7903
Oregon	2.0898	0.7889	14.7549
Pennsylvania	2.3939	0.8810	16.2755
Rhode Island	1.8244	0.6608	12.8156
South Carolina	2.2627	0.8511	18.6976
South Dakota	1.8637	0.7647	16.4021
Tennessee	2.4130	0.8795	16.4655
Texas	2.6152	0.9901	18.5289
Utah	2.3164	0.9062	18.7638
Vermont	1.8355	0.7472	16.1962
Virginia	2.0474	0.7717	15.6377
Washington	2.1175	0.8409	14.9615
West Virginia	1.8223	0.6725	14.3357
Wisconsin	2.1691	0.8540	16.6682
Wyoming	1.6972	0.6789	14.5722
<b>U.S. Totals</b>	<b>3.1141</b>	<b>1.1356</b>	<b>22.2689</b>

Source: BEA (2012-2018)

Note: Appendices include data for the District of Columbia, resulting in 51 states.



## Appendix G-2: Output, Earnings and Employment Multipliers: **Soft Costs**

### MULTIPLIERS

State	Output	Earnings	Jobs
Alabama	1.9688	0.7537	14.1606
Alaska	1.721	0.6766	10.8242
Arizona	2.1431	0.8222	15.5731
Arkansas	1.8198	0.6977	13.6369
California	2.2132	0.8415	13.6946
Colorado	2.2334	0.8543	14.7772
Connecticut	1.9091	0.7028	11.2715
Delaware	1.7115	0.5075	8.667
District of Columbia	1.3721	0.1812	2.5579
Florida	2.1532	0.8297	17.1057
Georgia	2.3049	0.8607	16.9905
Hawaii	1.9064	0.7432	13.1162
Idaho	1.8159	0.7152	14.5097
Illinois	2.3418	0.8478	14.1873
Indiana	2.0398	0.7551	14.7072
Iowa	1.7652	0.6703	12.608
Kansas	1.9604	0.6636	12.0148
Kentucky	1.95	0.6961	13.8259
Louisiana	1.9608	0.7572	14.0256
Maine	1.8323	0.7195	14.3767
Maryland	1.9996	0.7079	11.5984
Massachusetts	2.0306	0.7466	11.8549
Michigan	2.1035	0.808	14.2594
Minnesota	2.1314	0.7983	13.9358
Mississippi	1.792	0.682	13.6641
Missouri	2.0259	0.6719	12.6825
Montana	1.7435	0.6955	13.822
Nebraska	1.8594	0.707	13.1959
Nevada	1.8617	0.7184	13.1925
New Hampshire	1.9303	0.7006	11.9271
New Jersey	2.1806	0.7589	12.3879
New Mexico	1.7818	0.702	14.0506
New York	1.8985	0.643	10.1136
North Carolina	2.1746	0.8155	16.0633
North Dakota	1.7094	0.6247	10.1691
Ohio	2.1597	0.7936	15.3624
Oklahoma	1.9782	0.7694	15.5173
Oregon	1.9934	0.746	13.8975
Pennsylvania	2.1598	0.7769	13.8216
Rhode Island	1.7754	0.5939	11.3877
South Carolina	2.0994	0.7746	15.3426
South Dakota	1.6747	0.6568	12.4978
Tennessee	2.239	0.8136	14.5967
Texas	2.463	0.9089	16.0108
Utah	2.1864	0.8312	17.0914
Vermont	1.7286	0.671	13.0092
Virginia	2.031	0.7107	12.1771
Washington	2.0082	0.7654	12.4921
West Virginia	1.6913	0.6212	12.0652
Wisconsin	1.9502	0.7448	14.5049
Wyoming	1.5851	0.6202	11.812
<b>U.S. Totals</b>	<b>2.8566</b>	<b>1.0274</b>	<b>18.9315</b>

Source: BEA (2012-2018)

Note: Appendices include data for the District of Columbia, resulting in 51 states.

### Appendix G-3: Output, Earnings and Employment Multipliers: Operations

#### MULTIPLIERS

State	Output	Earnings	Jobs
Alabama	1.8824	0.635	23.243
Alaska	1.6159	1.6159	19.6713
Arizona	1.9656	0.6816	21.6331
Arkansas	1.7836	0.6008	22.0998
California	2.0495	0.6986	20.0226
Colorado	2.0401	0.7042	21.1285
Connecticut	1.7985	0.582	17.4356
Delaware	1.6547	0.4676	15.9653
District of Columbia	1.224	0.1266	4.4966
Florida	1.9755	0.6853	23.9238
Georgia	2.1531	0.716	23.9419
Hawaii	1.7766	0.6187	19.2654
Idaho	1.7203	0.5987	22.6058
Illinois	2.1914	0.7103	20.1853
Indiana	1.9929	0.6489	20.6631
Iowa	1.7074	0.5648	20.4453
Kansas	1.8597	0.5593	18.0454
Kentucky	1.906	0.5931	20.3643
Louisiana	1.8554	0.6298	22.7865
Maine	1.7507	0.6044	21.5935
Maryland	1.8254	0.5803	18.0475
Massachusetts	1.8466	0.6038	17.664
Michigan	2.0089	0.685	21.8747
Minnesota	1.9924	0.6683	20.2971
Mississippi	1.7629	0.582	21.7743
Missouri	1.9568	0.6105	21.1184
Montana	1.6557	0.5849	22.2476
Nebraska	1.739	0.5841	20.9199
Nevada	1.7313	0.5917	20.935
New Hampshire	1.7637	0.5484	16.569
New Jersey	2.0182	0.6274	18.1722
New Mexico	1.6702	0.5796	21.95
New York	1.7736	0.5541	16.4644
North Carolina	2.0559	0.6832	23.8503
North Dakota	1.6054	0.5139	16.9671
Ohio	2.0972	0.6852	21.2746
Oklahoma	1.8972	0.6489	23.2704
Oregon	1.8658	0.6209	19.0091
Pennsylvania	2.0456	0.6599	19.5793
Rhode Island	1.6968	0.5107	16.1863
South Carolina	1.9839	0.6489	23.4701
South Dakota	1.5923	0.5333	20.0443
Tennessee	2.1354	0.6911	21.2902
Texas	2.2506	0.7529	24.442
Utah	2.041	0.6942	24.2595
Vermont	1.6349	0.5456	20.3315
Virginia	1.8643	0.59	17.9643
Washington	1.8738	0.6342	19.0476
West Virginia	1.6288	0.5128	17.821
Wisconsin	1.8932	0.6366	21.3305
Wyoming	1.5189	0.5124	19.2957
<b>U.S. Totals</b>	<b>2.682</b>	<b>0.877</b>	<b>25.7053</b>

Source: BEA (2012-2018)

Note: Appendices include data for the District of Columbia, resulting in 51 states.

“The work of the Foundation is absolutely essential to anyone involved in industrial, office, retail and mixed-use development. The Foundation’s projects are a blueprint for shaping the future and a road map that helps to ensure the success of the developments where we live, work and play.”

Ronald L. Rayevich, Founding Chairman  
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