



2019 EDITION

Economic Impacts of Commercial Real Estate

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**Prepared for and funded by
the NAIOP Research Foundation**

**Construction data provided by
Dodge Data & Analytics**

By
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About NAIOP

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 19,000 members in North America. NAIOP advances responsible commercial real estate development and advocates for effective public policy. For more information, visit 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.

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.

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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.

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 taken calculates the contribution of building and nonbuilding construction to the U.S. economy for the year in review. The product types included in this reading are residential, nonresidential and infrastructure projects in the construction pipeline, based on U.S. Census data on the value of construction put in place. Appropriate multipliers supplied by the Bureau of Economic Analysis are applied to reflect the effects of construction expenditures on U.S. 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 ¹ to GDP (In Trillions of Dollars, Includes Multiplier Effect)	Percent Contribution to U.S. GDP	Personal Earnings ² (In Billions of Dollars, Includes Multiplier Effect)	Jobs Supported ³ (In Millions, Includes Multiplier Effect)
2018	\$1,302.3	\$3.744	18.1%	\$1,185.9	25.0
2017 ⁴	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

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

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

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

⁴ Revised third-quarter 2017 value of construction put in place, U.S. Census.

Note: Data include construction of residential and nonresidential buildings as well as infrastructure for water, sewer, highways and power. Values in all tables in this study may not add up due to rounding.

Development of New Commercial Real Estate Buildings. Zeroing in exclusively 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: pre-construction (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. The impacts are shown for the estimated 531.7 million square feet of commercial buildings that commenced construction in 2018, according to Dodge Data & Analytics, and for the 49.2 billion-square-foot nationwide inventory of commercial space existing at the end of the third quarter of 2018, per Newmark Knight Frank.

Multipliers are applied to the direct expenditures to calculate the contribution to U.S. 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.

This combination of spending for pre-construction, 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.

**Table 2
Economic Contributions to the U.S. Economy from Development of Commercial Real Estate Buildings**

		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
Direct Expenditures (In Billions of Dollars)	2018	\$31.71	\$27.88	\$109.01	\$38.27	\$207.77	\$1.76
	2017	28.58	24.73	98.55	35.23	187.09	1.66
	2016	25.06	21.42	82.96	30.60	160.04	1.42
	2015	23.84	20.20	81.17	29.80	155.01	1.39
	2014	27.64	28.56	87.76	30.35	174.31	1.34
	2013	19.66	21.07	61.65	21.84	124.22	1.11
In 2018, direct expenditures of \$207.8 billion contributed \$600.8 billion to U.S. GDP.							
Total Economic Contribution¹ to GDP (In Billions of Dollars, Includes Multiplier Effect)	2018	\$94.66	\$80.15	\$315.96	\$110.03	\$600.80	\$4.47
	2017	85.33	71.09	283.31	101.28	541.01	4.22
	2016	72.19	62.34	241.40	89.06	464.99	3.74
	2015	68.68	58.79	236.20	86.71	450.38	3.67
	2014	75.54	88.12	270.77	93.66	528.09	3.71
	2013	53.73	65.00	190.22	67.40	376.35	3.07
In 2018, direct expenditures of \$207.8 billion generated \$192.7 billion in personal earnings in the U.S.							
Personal Earnings² (In Billions of Dollars, Includes Multiplier Effect)	2018	\$32.39	\$25.39	\$100.08	\$34.85	\$192.71	\$1.39
	2017	29.20	22.52	89.74	32.08	173.54	1.32
	2016	26.18	19.73	76.39	28.18	150.49	1.07
	2015	24.91	18.60	74.75	27.44	145.70	1.05
	2014	25.18	27.89	85.70	29.65	168.42	1.17
	2013	17.91	20.57	60.21	21.33	120.02	0.97
In 2018, direct expenditures of \$207.8 billion supported 4.0 million jobs in the U.S. economy.							
Jobs Supported³ (Includes Multiplier Effect)	2018	635,078	535,778	2,111,982	735,486	4,018,323	44,795
	2017	572,497	475,171	1,893,727	677,023	3,618,418	42,330
	2016	538,680	439,801	1,703,149	628,352	3,309,982	27,833
	2015	512,509	414,765	1,666,470	611,755	3,205,499	27,299
	2014	508,712	668,953	2,055,112	710,831	3,943,608	29,398
	2013	361,866	493,314	1,443,779	511,530	2,810,510	24,285

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

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

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

³ 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.

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 49.2 billion square feet in 2018 (at the end of the third quarter) — direct expenditures for building operations totaled an estimated \$168.2 billion and contributed \$427.2 billion to GDP. These direct expenditures also generated \$133.2 billion in personal earnings (wages and salaries) and supported a total of 4.3 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 2018 (data from Tables 2 and 3), direct expenditures of \$376.0 billion resulted in the following economic contributions to the U. S. economy:

- Contributed \$1.0 trillion to U.S. GDP
- Generated \$325.9 billion in personal earnings
- Supported a total of 8.3 million jobs

Year	Total Square Feet (In Billions)	Direct Expenditures for Building Operations	Total Economic Contribution ¹ to GDP	Personal Earnings ²	Jobs Supported ³ (In Millions)
2018	49.190	\$168.2	\$427.2	\$1,33.2	4.285
2017	46.380	155.2	394.1	1,12.9	3.952
2016	45.820	150.1	396.0	1,13.9	2.944
2015	45.070	145.6	384.1	1,10.1	2.856
2014	44.010	138.1	381.3	1,20.1	3.023
2013	43.934	134.3	370.9	1,16.8	2.941
2012	43.208	134.5	371.5	1,17.0	2.945
2011	42.098	140.7	366.6	1,07.6	2.758

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

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

² The earnings generated within the U.S. from direct expenditures for building operations.

³ 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 (U.S. Census Data)

The U.S. economy is estimated to have grown 2.9 percent in 2018 for its best performance of the decade, up from 2.2 percent in 2017. This strong performance resulted from the fiscal stimulus contained in the Tax Cuts and Jobs Act of 2017, increased federal government spending, rising consumer spending, a stronger global economy, increased exports, and continuing above-trend job growth and accelerating gains in personal earnings. These factors are expected to remain positive but not as strong in 2019, with economic growth slowing slightly to 2.5 percent (IHS Macroeconomic Advisors, January 2019).

In spite of the economy's best-of-the-decade performance in 2018, the construction sector saw residential activity slow unexpectedly in the second half of the year. For the full year, residential housing starts underperformed beginning-of-the-year forecasts, gaining 4.2 percent rather than the expected 6.4 percent (HIS Markit, January 2018). Reasons for this weaker-than-expected increase in residential building activity include higher interest rates, housing price increases that continue to outpace increases in household incomes, moderating consumer expectation (consumer confidence in the future) and growing economic uncertainty. In October 2018, the U.S. Census reported that the value of residential construction put in place was up only 1.7 percent from October 2017. In contrast, non-residential construction (including infrastructure) continued its strong recovery from the Great Recession and is estimated to have increased 7.3 percent during 2018, substantially outperforming the U.S. economy.

Construction Activity Contributes to Ongoing Economic Expansion in 2018.

Construction spending remained a key contributor to the U.S. economy's continuing expansion in 2018. It has increased each year since 2011, gaining 64.5 percent between October 2011 and October 2018. For the year ending in October 2018, total construction spending was up 4.9 percent, exceeding the GDP growth rate (2.9 percent) for the same period.

Residential construction spending registered a gain of 1.7 percent for the 12-month period ending in October 2018, after gaining 7.2 percent for the same period in 2017. For 2018, residential starts are estimated to reach 1.259 million units, up 4.2 percent from 2017, marking the fourth consecutive year in which starts exceeded 1 million units. Residential starts are projected to continue to increase each year through 2022, peaking at 1.437 million units.

A number of factors have contributed to a slowing rate of increase in housing starts in 2018, and these may continue to dampen residential building activity into the next decade. These include 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. Housing starts in 2019 are projected to increase only 1.3 percent from their 2018 volume, but they will accelerate in 2020, gaining 8.2 percent. That reflects a stabilization of mortgage interest rates in combination with accelerating household formation and growing pent-up demand. Beyond 2020, housing starts appear to have reached their equilibrium at about 1.435 million units and are projected to grow only 3.6 percent in 2021 and 0.5 percent in 2022.

The value of **nonresidential building construction** continued its positive trend in 2018, increasing 7.9 percent. That reflects above-average gains in transportation/warehousing, amusement/recreation, education, office and lodgings, slower growth in manufacturing and retail construction, and an actual decline in health care construction spending for the year. (See Table 4.) Nonresidential building construction spending has increased 89.5 percent between October 2011 and October 2018, reflecting an increase of \$236.7 billion in construction spending over this period. All but one of the 10 building-type categories experienced growth. Only religious structure construction had larger construction value totals in 2011 than in 2018.

Table 4
U.S. Nonresidential Construction Spending, 2017–2018
(In Billions of Current Year Dollars)

Type of Structure	2017 ¹	2018 ²	% Change 2017-2018 ³
Transportation	\$47.5	\$53.4	12.5
Health Care	42.8	42.4	- 1.0
Retail	87.3	88.7	1.6
Manufacturing ⁴	65.4	67.1	2.6
Amusement/Recreation	24.0	27.9	16.2
Education	90.7	98.9	9.0
Public Safety	8.6	9.5	10.3
Office	66.2	76.0	14.8
Religious	3.2	3.0	- 9.1
Lodgings	28.9	34.3	18.9
Total⁵	\$464.6	\$501.2	7.9

Source: U.S. Census, Value of Construction Put In Place, 2018.

¹ Change in construction values between October 2016 and 2017.

² Change in construction values between October 2017 and 2018.

³ Percentage change between October 2017 and 2018 calculated based on unrounded totals.

⁴ Includes warehouse/flex space.

⁵ 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.

Building and Nonbuilding Construction, Output Multipliers and GDP.

The estimated total value of building and nonbuilding construction spending put in place in the U.S. in 2018, based on U.S. Census data, is \$1.3 trillion. This accounted directly for 6.3 percent of the nation’s estimated GDP of \$20.7 trillion in 2018 (third quarter). With an output multiplier of 2.87, each \$1 of this construction spending generated a total of \$2.87 of value to the economy, reflecting the cumulative effects of the initial construction expenditures as they are present throughout the economy. Applying this multiplier to the total value of direct construction spending in 2018 increases the value of its overall contribution to GDP — direct, indirect and induced — to \$3.744 trillion.

Contribution of Building and Nonbuilding Construction Expenditures to GDP. The total impact of this \$3.7 trillion in construction spending on the U.S. economy accounted for 18.1 percent of all economic activity in 2018. For the year, GDP is estimated to have increased by \$823.8 billion from its 2017 value (in current dollars). In comparison to this overall gain in GDP during 2018, the total value of construction spending (\$1.3 trillion) was 1.6 times greater than the year's annual GDP growth in dollar value, underscoring that growth in the construction sector outpaced growth in the overall economy.

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 2018, the \$1.3 trillion in construction spending:

- Contributed \$3.7 trillion to U.S. GDP;
- Generated \$1.2 trillion in new personal earnings; and
- Supported a total of 25 million jobs throughout the U.S. economy.

Office, Industrial, Warehouse and Retail Development Expenditures (Dodge Data & Analytics Data)

Construction data provided by Dodge Data & Analytics for office, industrial, warehouse and retail buildings offer 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 \$109.9 billion and increased by \$11.4 billion, or 11.5 percent, from 2017.

Office construction expenditures totaled \$41.2 billion in 2018, a strong 13.6 percent increase from 2017, after registering a slight decrease of 1.7 percent in 2017.

Retail construction expenditures totaled \$15.5 billion in 2018, a decrease of 9.5 percent from their 2017 level, after declining 0.8 percent in 2017 and 7.0 percent in 2016. These decreases follow gains in retail construction expenditures in 2015 (8.2 percent) and 2014 (1.1 percent).

Warehouse construction outlays declined in 2018 by 0.7 percent after having increased in each of the previous seven years.

Industrial construction spending, which had decreased sharply in 2015 and 2016, increased for a second consecutive year in 2018, gaining 34.2 percent after increasing 52.5 percent in 2017. The pullback in industrial/manufacturing construction in 2015 and 2016 was attributed to the downturn in the energy sector and weakening global demand for U.S. manufactured goods, while the gains made in 2017 and 2018 reflect a turnaround in the energy sector, the strengthening of the global economy and increased export sales, and continued growth of domestic consumer sales of durable goods, especially automobiles and trucks.

Table 5
Comparing Construction Expenditures (Hard Costs), 2017 and 2018
(In Billions of Current Year Dollars)

Building Type	2017	2018	\$ Change (2017-2018)
Office	\$36.45	\$41.42	\$4.97
Industrial	23.86	32.02	8.16
Warehouse	21.13	20.99	- 0.14
Retail/Entertainment	17.10	15.48	- 0.62
Total	\$98.55	\$109.91	\$11.37

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

Expenditures and Square Footage (All Structures Combined). The total amount of new construction in 2018, as measured in square feet for these four building types, increased just 1.5 percent from 2017 after having increased in 2017 by 27.4 percent following decreases in 2016 of 4.5 percent. The amount of space built increased for office (8.5 percent) and industrial (26.9 percent) building types, while it decreased for warehouse (- 2.2 percent) and retail (- 12.6 percent) buildings. Changes in the value of this added building space reflected this same pattern, increasing for office and industrial buildings and decreasing for warehouse and retail buildings. (See Table 6.)

Table 6
Office, Industrial/Manufacturing, Warehouse and Retail Construction, 2017 and 2018

Building Type	Square Feet (In Millions)		Construction Value ¹ (In Billions of Dollars)	
	2017	2018	2017	2018
Office	117.6	127.6	\$36.45	\$41.42
Industrial	53.9	68.4	23.86	32.02
Warehouse	267.9	262.1	21.13	20.99
Retail	84.2	73.6	17.10	15.48
Total	523.6	531.7	\$98.55	\$109.09

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

¹ Hard costs only

Hard Construction Expenditures (All Structures Combined), Multipliers and GDP. Applying national construction multipliers from the U.S. Department of Commerce Bureau of Economic Analysis (BEA) can help determine the economic impact of this construction activity. The multipliers are contribution to GDP (2.8748), personal earnings (0.9106), and employment (19.2163 jobs per \$1 million of construction expenditure).

State-level direct spending and associated economic impacts for pre-construction (soft costs), construction and post-construction (operations) spending are included in the appendices. It should be noted that individual state construction multipliers are smaller than the U.S. multipliers. They measure only the share of construction-related expenditures that are retained within the respective state economies. This means that construction-related spending flows that leak out of each state economy to other states (spill-over effects) are excluded. Smaller states and state economies that are less well developed tend to retain smaller portions of the benefits from construction-related spending than do states with larger and more complex economies; that is, a greater share of the smaller states' direct construction spending leaks out to other states.

The Bottom Line. The total contribution to U.S. GDP from the four phases of development tracked in this study is substantial. When the latest BEA multipliers are applied, direct expenditures of \$207.77 billion in 2018 resulted in a contribution of \$600.80 billion to U.S. GDP, generated \$192.71 billion in personal earnings (labor income) and supported 4.0 million jobs. (See Table 7.)

Table 7
Office, Industrial, Warehouse, and Retail Construction and Operations Contribution to the U.S. Economy, 2018
(In Billions of 2018 Dollars)

	Direct Expenditures	Total Economic Contribution to GDP ¹	Personal Earnings ²	Jobs Supported ³
Development Phase	\$207.77	\$600.80	\$192.71	4,018,323
Soft Construction (Soft Costs)	31.71	94.66	32.39	635,078
Site Development ⁴	27.88	80.15	25.39	535,778
Hard Construction (Hard Costs)	109.91	315.96	100.08	2,111,982
Tenant Improvements ⁵	38.27	110.03	34.85	735,486
Annual Operations	\$1.759	\$4.466	\$1.393	44,795

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

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

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

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

⁴ Site development includes grading, infrastructure, parking and landscaping.

⁵ Tenant improvements exclude furniture and equipment.

Note: See Appendices for state-level data.

Outlook: Residential and Nonresidential Construction and the U.S. Economy

The U.S. economy has been in recovery since July 2009. This recovery now extends to nine and a half years as of January 2019, making it the second longest in U.S. history. If this business cycle continues through June 2019, as expected, it will become the longest in U.S. history at 120 months.

The first seven years of the recovery were characterized by uneven and below-average growth rates for GDP and personal earnings. In 2017, the economy's growth rate accelerated to 2.2 percent from a much slower 1.6 percent gain in 2016. In 2018, GDP growth is expected to be 2.9 percent, the greatest gain of the decade. Following continuing strong job growth in 2017, job growth has remained solid throughout 2018, achieving a monthly average of 195,000 jobs. Unemployment has declined over the year and held steady at 3.7 percent beginning in September, the lowest rate in almost 50 years. Personal income increased in 2018 by an estimated 4.5 percent but so did the rate of inflation, estimated at 2.2 percent for the year. As expected, the Federal Reserve raised interest rates four times during the year, although rates on construction loans and home mortgages did not increase as much. By December, they had retreated slightly from the year's high. Overall, the economy in 2018 registered its best performance since before the Great Recession. This above-trend growth rate is expected to continue in 2019 but is forecast to moderate slightly as the year proceeds.

In 2018, an estimated 2.45 million net new workers entered the economy, a 1.6 percent employment growth rate. This equaled the rate in 2017 but was slightly down from 2016, when job growth was 1.8 percent. That reflected a normal pattern for job growth — faster rates in the early years of the business cycle and slower rates as the cycle ages. A stronger global market helped increase exports in 2018 despite higher tariffs beginning at mid-year and the continuing

threats of a trade war. Most important to the year's performance has been strong consumer spending supported by increased wages and job growth, as well as tax reductions enacted in December 2017 under the Tax Cuts and Jobs Act. Increased domestic demand helped the manufacturing sector reverse its production growth rate from a negative 1.9 percent in 2016 to a positive 1.6 percent in 2017 and an estimated increase of 4.0 percent in 2018. The increase in industrial production pushed factory utilization up in 2018 to 75.8 percent from 74.8 percent in 2017; this rate is projected to increase further in 2019 to 76.5 percent. The increase will put further pressure on the construction industry to supply new industrial space to support the expanding economy.

Other factors will impact economic growth in 2019 and beyond. Several key variables to watch are: (a) **interest rates** that are projected to move higher in 2019 as the Federal Reserve raises its federal funds rate an additional one-half to three-quarters of a point in two or three increments over the year; (b) **labor shortages** that are already appearing in several key sectors — construction is one of them — and will tighten further in 2019 with resulting increases in wage inflation; (c) **energy prices**, which unexpectedly declined during the second half of 2018 are expected to rebound in 2019 to their highest levels since 2014; and (d) the resolution of **trade wars and higher tariffs** instituted in 2018 and how these might affect U.S. exports, which increased their contribution to GDP expansion in 2018.

The stimulus that resulted from increased **federal spending** and benefits that flowed to businesses and consumers from the **Tax Cuts and Jobs Act of 2017** will have a diminishing effect on GDP going forward. These stimuli were important to the economy's 2018 strong performance, but they will not be as impactful in 2019. That is because the tax cut benefits will have been largely realized after refunds

flow to taxpayers from their 2018 returns. These refunds will have found their way into the economy, to the extent that they are spent, by mid-2019. As a consequence, GDP growth is projected to slow during the year's second half.

IHS Markit (January 2019) projects that the U.S. economy will grow 2.5 percent in 2019, with this rate slowing to 2.0 percent in 2020 and moderating further in 2021 to 1.6 percent. Even the most pessimistic forecast at this time, which includes two quarters of slightly negative performance in early 2020, has GDP still achieving a moderate level of annual growth in 2020. Still, the consensus forecast for 2020 does not include a short recession but rather a gradual slowing from the above-trend gains registered in 2018 and 2019.

Residential building construction spending has increased each year since 2010 and is up 133.7 percent through October 2018 from its monthly low value in August 2010. Still, during the year, the value of residential construction has fluctuated, peaking in May and slipping 5.6 percent through October. The factors contributing to slower residential building during the year's second half were not anticipated at the beginning of the year and do not appear to support a permanent shift in the long-term trend; residential construction is projected to reach its equilibrium production level of approximately 1.437 million units in 2022, up from 1.259 million units in 2018.

Residential construction activity and related spending in 2018 fell substantially below forecast. In January, 1.289 million starts were forecast for a gain of 6.4 percent from 2017. This compares to the current estimated full-year gain of 4.2 percent. A broader measure of residential construction activity, including both new construction and renovation/remodeling outlays, is provided by residential

fixed investment. In January 2018, residential fixed investment was projected to increase 2.7 percent for the year; year-end estimates had residential fixed investment decreasing 0.2 percent.

Multiple factors are contributing to this slowdown in residential building activity, and these have negatively impacted the single-family housing resale market as well. Key among these have been rising home mortgage interest rates, changing demographic patterns (deferred household formation, slowing birth rates, growing cultural diversity), the financial condition of potential homebuyers (high student debt, lack of savings for down payments), growing gap between household incomes and housing prices, and economic uncertainty and softening consumer expectations.

Thirty-year fixed home mortgage rates, which hovered near 4.0 percent for most of 2017, rose to near 5.0 percent by the third quarter of 2018. While these retreated slightly in the fourth quarter, they are projected to continue rising through 2019 and peak in 2020 at 5.25 percent (plus points). These higher rates will continue to have a dampening effect on the residential market. However, home buyers are expected to adapt once other factors impacting their decisions to buy for the first time or trade up are overcome or diminish in importance. The continuing historically low unemployment rate, strong job market, and rising salaries and wages will ease some of the uncertainty in the economy that may have had a negative effect on the housing market. With household economics continuing to improve and millennials entering the market in greater numbers, the residential construction sector can expect to continue toward its equilibrium production level by 2022. After that, more normal market dynamics such as population growth and household formation will drive production, and the recovery from the Great Recession will be complete.

Nonresidential construction expenditures turned positive in April 2011 and have increased each year since. They have now grown a total of 46.5 percent through October 2018. During this period, investment has varied across the broad range of building types. Construction spending for manufacturing structures increased steadily over the 2011 to 2015 period (up 92.8 percent), with 2015 registering a one-year gain of 33.4 percent. In contrast to this high rate of increase in construction spending for new buildings, fixed investment in manufacturing structures decreased 5.1 percent in 2016 and declined 15.2 percent in 2017. It is estimated to have declined for a third year in 2018, falling 7.8 percent. Projections for manufacturing investment show it reversing this pattern to gain 2.2 percent in 2019, to decline 1.7 percent in 2020 and rebound in 2021 by 4.1 percent.

Construction spending for office buildings increased an estimated 14.8 percent in 2018 after declining 3.4 percent in 2017. Prior to 2017, office construction spending had increases at double-digit rates for consecutive years. In 2018, the value of retail construction put in place slowed but extended its upward trend to an eighth consecutive year, gaining 1.6 percent (third quarter to third quarter).

Construction spending for warehouse and flex space increased steadily starting in 2011 through 2015, declined by 9.6 percent in 2016, and then rebounded 13.5 percent in 2017, based on the value of construction put in place. In 2018, the value of construction put in place for this category of building type increased 12.5 percent. (See Table 4 listed as Manufacturing.)

The growth projections for nonresidential construction reflect the continued strong performance of the U.S. economy over the next year, followed by a more moderate growth rate between 2020 and 2023. With GDP growth projected at 2.5 percent in 2019, demands for additional building space will support continued growth in construction spending. Beyond 2019 through 2023, the economy's growth trajectory is currently projected to remain positive but at a below-trend rate of 1.65 percent. Forecasts for the period beyond 2019 open the door to an increasing number of uncertainties, but for the short term, the positive forces appear sufficiently strong to drive this business cycle beyond 120 months (July 2019) to become the longest in U.S. history.

Construction employment, which declined by 2.3 million jobs between 2006 and 2010, began to add new jobs in early 2011, according to the Bureau of Labor Statistics. Construction employment now has increased for an eighth consecutive year. Between November 2017 and November 2018, the construction sector added 282,000 net new jobs, a 4.0 percent gain (compared to 1.6 percent growth in total jobs for this same period). From the low point in January 2011 through November 2018, a total of 1.885 million net new construction jobs were generated. However, employment in the construction sector remained 489,000 jobs below its April 2006 peak.

Outlook: The U.S. Economy. 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 can be partially attributed to the magnitude of the correction that the construction sector endured, with its recession extending to mid-2011. Now that residential and nonresidential building construction spending has increased steadily each year since its 2011 low, it has contributed essential stimulus to the economy's sustained growth over the lengthy expansion. This is despite the economy's disappointing performance in 2016, when GDP increased only 1.6 percent. In 2017, higher construction spending helped to push the economy's growth up to 2.2 percent. Through the first three quarters of 2018, total construction spending is up 7.0 percent compared to the same period in 2017. That sector of the economy is estimated to be responsible for a 2.9 percent gain in GDP. With construction spending growing faster than GDP, it will continue to represent an increasing share of the year's economic growth.

The outlook for the economy in 2019 is for above-trend growth to continue. GDP growth is forecast to register between 2.3 and 2.5 percent for the year, although this growth rate is expected to be stronger in the first half of the year than the second half. This will lead to slower growth in 2020 through 2023, when GDP growth is currently projected to average 1.6 percent. Forecasting these next several years is complicated by concerns about the durability of a business cycle that by historical measures should be in its latter stages. More problematic may be the higher interest rates and their effect on the economy by 2020, weaker-than-projected residential building spending, lower energy costs, higher tariffs with resultant reductions in exports, and growing inflation pressures, especially on wages. Perhaps the greatest uncertainty in the forecast relates to the fiscal policies of the federal government and whether federal spending will be reined in by the newly-elected Congress.

The "canary in the coal mine" could be consumers' loss of confidence due to a long list of factors, but especially confidence in the future. Loss of confidence will be revealed in weaker consumer spending, especially for items typically purchased in installments such as automobiles and home furnishings. In time, consumers' aversion to risk could negatively impact housing sales — new homes and resales — and the ripple effects could have national and global economic ramifications.

Continued growth in construction activity has been the one continuously positive force in the national economy's performance since 2009. While the construction sector appears positioned for stronger growth in 2019, there are good reasons to monitor the performance of individual building types and their changing market conditions as the U.S. economy's current expansion extends its run into record territory.

Table 8
**Total Impacts (Soft Costs, Site Development, Hard Costs, and Tenant Improvements)
on State Economies (in Four Categories), 2018**
(In Billions of 2018 Dollars)

State	Direct Spending	Total Output	Personal Earnings	Jobs Supported
Alabama	5.433	11.476	3.809	88,906
Alaska	0.193	0.325	0.116	2,186
Arizona	3.905	8.073	2.736	62,420
Arkansas	1.689	3.338	1.094	25,211
California	11.873	25.287	8.510	160,190
Colorado	6.581	14.279	4.821	102,845
Connecticut	1.045	1.965	0.638	11,673
Delaware	0.297	0.510	0.141	2,859
District of Columbia	1.202	1.408	0.102	1,689
Florida	9.566	19.965	6.799	161,122
Georgia	6.938	15.931	5.273	122,892
Hawaii	0.606	1.111	0.387	7,725
Idaho	1.215	2.251	0.763	17,994
Illinois	6.514	15.052	4.814	91,748
Indiana	2.249	4.886	1.562	34,028
Iowa	2.044	3.880	1.275	28,104
Kansas	2.489	5.000	1.501	33,317
Kentucky	5.742	11.839	3.676	85,088
Louisiana	1.546	3.051	1.048	22,151
Maine	0.232	0.437	0.149	3,511
Maryland	2.716	5.117	1.607	31,437
Massachusetts	4.748	9.040	2.913	54,123
Michigan	3.632	7.736	2.599	56,160
Minnesota	4.100	9.010	2.915	57,950
Mississippi	1.845	3.594	1.173	27,759
Missouri	2.688	5.697	1.747	39,397
Montana	0.195	0.360	0.124	2,927
Nebraska	2.600	4.903	1.629	35,449
Nevada	1.159	2.157	0.725	16,144
New Hampshire	0.286	0.550	0.172	3,342
New Jersey	4.139	8.619	2.679	50,218
New Mexico	1.448	2.541	0.874	20,520
New York	19.825	36.196	11.303	207,915
North Carolina	5.550	12.120	3.963	91,468
North Dakota	0.650	1.154	0.368	7,019
Ohio	5.653	12.791	4.105	89,155
Oklahoma	3.511	7.248	2.449	52,951
Oregon	2.240	4.479	1.438	31,247
Pennsylvania	5.036	11.331	3.568	70,774
Rhode Island	1.333	2.344	0.694	14,135
South Carolina	4.049	8.748	2.843	67,029
South Dakota	0.631	1.158	0.390	8,655
Tennessee	17.645	40.038	12.677	268,146
Texas	25.745	62.183	20.615	400,986
Utah	0.996	2.203	0.734	16,492
Vermont	0.250	0.446	0.148	3,458
Virginia	7.782	15.357	4.808	101,052
Washington	3.019	6.201	2.060	39,780
West Virginia	0.131	0.233	0.073	1,606
Wisconsin	2.737	5.624	1.889	40,614
Wyoming	0.073	0.119	0.040	857
State Totals	207.769	439.364	142.537	2,974,423
Interstate Spillovers		161.436	50.177	1,043,900
U.S. Total	207.769	600.800	192.714	4,018,323

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

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

Table 9
Impacts of Operations on State Economies (in Four Categories), 2018
(In Thousands of 2018 Dollars)

State	Direct Spending	Total Output	Personal Earnings	Jobs Supported
Alabama	42,959	76,627	24,577	1,002
Alaska	2,794	4,363	1,444	54
Arizona	44,764	84,196	27,512	968
Arkansas	15,461	26,108	8,303	340
California	119,308	235,191	75,760	2,587
Colorado	34,247	67,600	21,993	759
Connecticut	8,344	14,735	4,542	147
Delaware	1,930	3,122	845	31
District of Columbia	7,915	9,533	865	35
Florida	117,816	223,614	73,411	2,825
Georgia	81,714	168,601	53,327	1,998
Hawaii	5,191	8,928	2,927	102
Idaho	15,358	25,150	8,250	347
Illinois	54,494	114,818	35,448	1,103
Indiana	23,970	46,080	14,267	498
Iowa	23,057	38,782	12,160	479
Kansas	20,428	36,447	10,402	380
Kentucky	38,713	71,081	21,292	798
Louisiana	14,824	26,318	8,483	339
Maine	5,542	9,504	3,134	123
Maryland	41,980	73,515	22,052	747
Massachusetts	34,986	62,825	19,396	633
Michigan	30,997	59,148	19,137	682
Minnesota	18,926	37,749	11,821	400
Mississippi	6,501	10,996	3,466	145
Missouri	23,182	43,877	12,991	489
Montana	3,254	5,271	1,753	74
Nebraska	23,249	39,248	12,480	505
Nevada	15,586	26,328	8,536	328
New Hampshire	5,076	8,662	2,573	86
New Jersey	25,323	49,815	14,794	470
New Mexico	13,344	21,566	7,079	298
New York	132,221	230,356	67,539	2,218
North Carolina	70,871	138,276	43,685	1,695
North Dakota	3,160	4,984	1,529	53
Ohio	51,049	103,401	32,192	1,068
Oklahoma	30,827	56,555	18,373	699
Oregon	18,419	32,743	10,250	360
Pennsylvania	35,548	70,218	21,492	695
Rhode Island	2,284	3,836	1,110	38
South Carolina	45,628	86,059	26,601	1,062
South Dakota	7,634	12,151	3,832	158
Tennessee	41,620	83,626	25,679	879
Texas	231,808	493,124	156,563	5,290
Utah	12,849	25,403	8,161	307
Vermont	4,757	7,679	2,432	99
Virginia	80,247	143,137	42,820	1,443
Washington	31,900	58,212	18,700	641
West Virginia	1,263	2,004	607	23
Wisconsin	33,917	61,858	19,926	756
Wyoming	1,386	2,039	665	28
State Totals	1,758,619	3,345,460	1,047,178	37,286
Interstate Spillovers		1,120,729	345,473	7,509
U.S. Totals	1,758,619	4,466,190	1,392,651	44,795

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

Note: This table 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 this new building space, these buildings represent new productive capacity within the national economy. While the value of this added capacity depends on how each building is used, two measures are the number of jobs this new capacity can accommodate and the amount of payroll these new jobs have the potential to 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 2018. The total payroll value of these new workers also can be calculated by multiplying this employment estimate by the U.S. average 2018 wage earnings per worker for jobs associated with each building category.

These calculations are presented in Table 10. They show that the 531.7 million square feet of new office, industrial, warehouse and retail building space constructed in 2018 have the capacity to house 1.5 million new workers with a total estimated annual payroll of \$83.2 billion.

Table 10
Jobs Accommodated and Payroll Generated in Office, Industrial, Warehouse and Retail Space Constructed in 2018

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	127.6	190	671.6	\$71,953	\$48.324
Industrial	68.4	750	91.2	54,306	4.953
Warehouse	262.1	600	587.0	42,044	24.680
Retail	73.6	475	154.9	33,789	5.234
Total/Average	531.7	353	1,504.7	\$55,287	\$83.190

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

Note on 2018 Methodology

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

For 2018, full-year construction values were estimated in order to publish the economic results in January 2019 so 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 six preceding years (2012-2017); 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 2018 values for nine months to estimate the year's 12-month values by building type and by state. (For details regarding the 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, soft costs and operations. Management services and utilities, along with several other independent categories, are now combined into a single multiplier that is used to calculate the economic impacts for operations expenditures. In the past, these separate multipliers were weighted to reflect their respective share of operating costs. The newest listing of multipliers has made this extra calculation unnecessary.

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 in 2017. These multipliers reflect continuing post-recession trends of:

(1) Decreasing value of the output multipliers as the state and national economies have become more interdependent and global, resulting in more local benefits spilling over to adjacent states and increased use of imported materials; and

(2) Declining jobs and personal earnings multipliers as construction activities have become more efficient and incorporate new technologies, including off-site production.

These decreases in the multipliers suggest that the economic benefits of construction at the national level are leaking into the global economy while state-level benefits are leaking into other states' economies and are not as locally impactful as they were previously.

Other multipliers used in this study are described below.

- **Construction** multipliers 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 (pre-construction).
- **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).

Prior to the 2018 report, **utilities multipliers** were blended into these operating costs multipliers. Utilities are characterized by low job multipliers and high output multipliers because they reflect the production of electricity and heating fuels and not the impacts at the retail level. That can distort the impact calculations — higher output values and lower overall jobs supported. As a result of this methodological revision in the 2018 report that was carried forward in the 2019 report, the jobs supported by the operating outlays associated with new and existing commercial buildings are greater per \$1 million than those reported in the 2017 edition (or earlier), and the output values are lower per \$1 of expenditure.

Survey of NAIOP Members

NAIOP surveyed its membership between October 25 and November 9, 2018, to determine the value of soft costs, site development improvements, and expenditures for tenant improvements relative to the hard costs associated with office, industrial, warehouse and retail building. The results are used in calculating the total building costs based on the value of hard construction data provided by Dodge Data & Analytics to capture the full economic value of building development in the U.S. and state economies. The distribution of these costs across the four building types differ and have changed over the past two years in response to general economic conditions, changes in the marketplace and the locations where new building construction is occurring.

Questionnaires were emailed to 2,114 NAIOP members throughout the U.S.; 55 of these emails could not be delivered. Survey participants were mainly commercial real estate developers and owners involved in the construction of office, warehouse, manufacturing and retail buildings. There were a total of 22 completed responses to the survey for a response rate of 1.07 percent.

The results of this survey are presented in the table on the next page as percentages of total building costs. These percent distributions by building type are used in this report to calculate soft construction costs, site improvement costs and costs of tenant improvements based on the value of hard construction costs provided by Dodge Data & Analytics. To achieve more balanced results for use in these calculations, the survey results for 2018 and 2016 were combined and averaged.

Table 11
**Survey of NAIOP Members Building Cost Allocation Percentages (%),
 by Building Type 2006, 2008, 2013, 2016, 2018**

Building Type	Soft Construction Costs ¹	Site Development Costs	Building Construction Costs	Tenant Improvement Costs
Office				
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
Manufacturing				
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
Warehouse/Flex				
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
Retail				
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
Combined²				
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

¹ Professional services and administrative and management processes required to support the construction project.

² 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 and 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 reflect 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 Costs Impacts by State

Appendix A-1
Impacts of Soft Costs on State Economies (Office), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.686	1.387	0.496	10,211
Alaska	0.019	0.033	0.012	207
Arizona	0.266	0.595	0.214	4,292
Arkansas	0.090	0.165	0.060	1,256
California	0.880	2.040	0.731	12,844
Colorado	0.243	0.578	0.207	4,015
Connecticut	0.030	0.061	0.021	356
Delaware	0.007	0.013	0.003	62
District of Columbia	0.158	0.228	0.024	365
Florida	0.380	0.855	0.310	6,887
Georgia	0.429	1.040	0.365	7,859
Hawaii	0.030	0.058	0.021	412
Idaho	0.098	0.181	0.066	1,376
Illinois	0.616	1.496	0.512	9,131
Indiana	0.123	0.255	0.089	1,870
Iowa	0.172	0.315	0.111	2,319
Kansas	0.100	0.202	0.065	1,276
Kentucky	0.133	0.266	0.089	1,909
Louisiana	0.066	0.133	0.049	931
Maine	0.022	0.043	0.016	341
Maryland	0.292	0.614	0.204	3,550
Massachusetts	0.529	1.139	0.392	6,695
Michigan	0.124	0.271	0.098	1,878
Minnesota	0.097	0.219	0.076	1,462
Mississippi	0.023	0.042	0.015	325
Missouri	0.157	0.334	0.105	2,113
Montana	0.017	0.032	0.012	259
Nebraska	0.416	0.800	0.286	5,698
Nevada	0.060	0.118	0.042	857
New Hampshire	0.012	0.024	0.008	151
New Jersey	0.063	0.144	0.047	815
New Mexico	0.181	0.329	0.121	2,639
New York	2.491	4.991	1.573	26,123
North Carolina	0.419	0.933	0.330	7,104
North Dakota	0.024	0.042	0.015	249
Ohio	0.378	0.847	0.294	6,150
Oklahoma	0.332	0.683	0.250	5,027
Oregon	0.204	0.420	0.148	3,114
Pennsylvania	0.288	0.655	0.221	4,146
Rhode Island	0.005	0.009	0.003	61
South Carolina	0.167	0.362	0.126	2,658
South Dakota	0.036	0.063	0.023	469
Tennessee	0.437	1.003	0.345	6,915
Texas	1.298	3.289	1.152	20,894
Utah	0.084	0.193	0.069	1,530
Vermont	0.024	0.043	0.016	330
Virginia	1.012	2.148	0.700	12,718
Washington	0.150	0.319	0.115	2,088
West Virginia	0.005	0.008	0.003	57
Wisconsin	0.194	0.388	0.139	2,921
Wyoming	0.007	0.012	0.004	87
State Totals	14.075	30.416	10.393	197,002
Interstate Spillovers		11.604	3.986	84,912
U.S. Totals	14.075	42.020	14.379	281,915

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 A-2
Impacts of Soft Costs on State Economies (**Industrial**), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.068	0.138	0.049	1,019
Alaska	0.002	0.004	0.001	24
Arizona	0.131	0.292	0.105	2,105
Arkansas	0.088	0.162	0.058	1,230
California	0.044	0.102	0.037	644
Colorado	0.418	0.994	0.356	6,907
Connecticut	0.007	0.015	0.005	88
Delaware	0.014	0.026	0.007	128
District of Columbia	-	-	-	-
Florida	0.047	0.105	0.038	848
Georgia	0.152	0.369	0.129	2,788
Hawaii	0.002	0.005	0.002	34
Idaho	0.032	0.059	0.022	447
Illinois	0.014	0.035	0.012	213
Indiana	0.045	0.093	0.032	681
Iowa	0.040	0.074	0.026	544
Kansas	0.088	0.177	0.057	1,115
Kentucky	0.472	0.940	0.314	6,757
Louisiana	0.066	0.132	0.048	925
Maine	0.001	0.003	0.001	20
Maryland	0.002	0.004	0.001	22
Massachusetts	0.061	0.132	0.045	775
Michigan	0.169	0.369	0.134	2,558
Minnesota	0.206	0.465	0.161	3,104
Mississippi	0.150	0.275	0.098	2,137
Missouri	0.052	0.110	0.035	698
Montana	-	-	-	1
Nebraska	0.005	0.010	0.004	74
Nevada	0.001	0.002	0.001	15
New Hampshire	0.001	0.001	-	7
New Jersey	0.039	0.090	0.029	508
New Mexico	0.018	0.032	0.012	259
New York	0.098	0.197	0.062	1,031
North Carolina	0.104	0.231	0.082	1,759
North Dakota	0.044	0.078	0.027	458
Ohio	0.141	0.316	0.110	2,295
Oklahoma	0.109	0.225	0.082	1,659
Oregon	0.019	0.038	0.013	283
Pennsylvania	0.173	0.393	0.132	2,485
Rhode Island	0.131	0.244	0.078	1,594
South Carolina	0.182	0.395	0.138	2,904
South Dakota	0.027	0.047	0.017	354
Tennessee	1.553	3.560	1.224	24,546
Texas	1.110	2.813	0.985	17,869
Utah	0.018	0.042	0.015	335
Vermont	0.001	0.001	-	10
Virginia	0.053	0.112	0.036	662
Washington	0.012	0.025	0.009	164
West Virginia	0.004	0.006	0.002	45
Wisconsin	0.083	0.166	0.060	1,251
Wyoming	-	-	-	-
State Totals	6.297	14.106	4.895	96,379
Interstate Spillovers		4.694	1.539	29,753
U.S. Totals	6.297	18.800	6.433	126,132

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 A-3
Impacts of Soft Costs on State Economies (**Warehouse**), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.065	0.132	0.047	972
Alaska	0.001	0.003	0.001	16
Arizona	0.123	0.274	0.099	1,978
Arkansas	0.025	0.045	0.016	345
California	0.576	1.335	0.479	8,408
Colorado	0.103	0.245	0.088	1,705
Connecticut	0.070	0.141	0.048	829
Delaware	0.007	0.013	0.004	63
District of Columbia	0.012	0.018	0.002	28
Florida	0.490	1.102	0.399	8,875
Georgia	0.295	0.714	0.251	5,397
Hawaii	0.006	0.011	0.004	77
Idaho	0.032	0.058	0.021	445
Illinois	0.234	0.568	0.194	3,466
Indiana	0.085	0.176	0.061	1,287
Iowa	0.051	0.094	0.033	694
Kansas	0.118	0.239	0.077	1,509
Kentucky	0.042	0.083	0.028	597
Louisiana	0.019	0.038	0.014	268
Maine	0.006	0.011	0.004	91
Maryland	0.044	0.093	0.031	538
Massachusetts	0.039	0.085	0.029	500
Michigan	0.107	0.234	0.085	1,622
Minnesota	0.144	0.326	0.113	2,176
Mississippi	0.023	0.043	0.015	332
Missouri	0.104	0.221	0.070	1,402
Montana	0.001	0.001	-	11
Nebraska	0.005	0.011	0.004	75
Nevada	0.079	0.155	0.055	1,127
New Hampshire	0.004	0.008	0.003	50
New Jersey	0.359	0.822	0.268	4,635
New Mexico	0.010	0.018	0.007	144
New York	0.268	0.537	0.169	2,813
North Carolina	0.189	0.421	0.149	3,201
North Dakota	0.004	0.006	0.002	37
Ohio	0.157	0.352	0.122	2,555
Oklahoma	0.055	0.112	0.041	826
Oregon	0.091	0.186	0.065	1,380
Pennsylvania	0.166	0.377	0.127	2,385
Rhode Island	0.005	0.010	0.003	62
South Carolina	0.116	0.251	0.088	1,845
South Dakota	0.003	0.006	0.002	44
Tennessee	0.069	0.159	0.055	1,097
Texas	0.644	1.631	0.571	10,361
Utah	0.023	0.054	0.019	425
Vermont	0.002	0.004	0.001	30
Virginia	0.064	0.135	0.044	802
Washington	0.172	0.366	0.131	2,395
West Virginia	0.002	0.003	0.001	20
Wisconsin	0.041	0.082	0.029	618
Wyoming	0.001	0.002	0.001	13
State Totals	5.353	12.011	4.173	80,569
Interstate Spillovers		3.969	1.295	26,638
U.S. Totals	5.353	15.979	5.468	107,207

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 A-4
Impacts of Soft Costs on State Economies (Retail), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.072	0.146	0.052	1,074
Alaska	0.010	0.018	0.007	111
Arizona	0.062	0.138	0.050	997
Arkansas	0.037	0.068	0.025	519
California	0.436	1.010	0.362	6,362
Colorado	0.130	0.309	0.111	2,144
Connecticut	0.058	0.117	0.040	688
Delaware	0.014	0.026	0.007	127
District of Columbia	0.037	0.054	0.006	86
Florida	0.650	1.462	0.530	11,774
Georgia	0.191	0.462	0.162	3,489
Hawaii	0.069	0.136	0.049	957
Idaho	0.027	0.050	0.018	378
Illinois	0.220	0.534	0.183	3,260
Indiana	0.100	0.207	0.072	1,518
Iowa	0.060	0.110	0.039	814
Kansas	0.055	0.111	0.036	700
Kentucky	0.082	0.163	0.055	1,175
Louisiana	0.081	0.162	0.059	1,137
Maine	0.009	0.017	0.006	134
Maryland	0.129	0.271	0.090	1,564
Massachusetts	0.158	0.341	0.117	2,003
Michigan	0.120	0.263	0.095	1,822
Minnesota	0.126	0.285	0.099	1,899
Mississippi	0.038	0.069	0.025	536
Missouri	0.109	0.233	0.073	1,474
Montana	0.016	0.030	0.011	243
Nebraska	0.020	0.038	0.014	270
Nevada	0.045	0.089	0.032	645
New Hampshire	0.034	0.067	0.022	421
New Jersey	0.170	0.388	0.127	2,189
New Mexico	0.032	0.058	0.021	465
New York	0.489	0.979	0.309	5,125
North Carolina	0.162	0.362	0.128	2,755
North Dakota	0.017	0.031	0.011	183
Ohio	0.204	0.458	0.159	3,324
Oklahoma	0.042	0.086	0.032	636
Oregon	0.048	0.098	0.035	728
Pennsylvania	0.122	0.276	0.093	1,747
Rhode Island	0.018	0.033	0.011	217
South Carolina	0.118	0.256	0.090	1,884
South Dakota	0.029	0.052	0.019	389
Tennessee	0.127	0.292	0.100	2,014
Texas	0.696	1.762	0.617	11,191
Utah	0.034	0.078	0.028	618
Vermont	0.017	0.030	0.011	233
Virginia	0.185	0.392	0.128	2,320
Washington	0.156	0.331	0.119	2,170
West Virginia	0.011	0.020	0.007	145
Wisconsin	0.106	0.212	0.076	1,593
Wyoming	0.004	0.007	0.002	51
State Totals	5.982	13.186	4.567	88,298
Interstate Spillovers		4.674	1.545	31,526
U.S. Totals	5.982	17.860	6.112	119,824

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 A-5
Impacts of Soft Costs on State Economies (in Four Categories), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.892	1.803	0.645	13,275
Alaska	0.032	0.058	0.021	358
Arizona	0.582	1.298	0.468	9,372
Arkansas	0.240	0.441	0.159	3,349
California	1.937	4.488	1.609	28,257
Colorado	0.894	2.126	0.762	14,771
Connecticut	0.166	0.335	0.114	1,961
Delaware	0.043	0.077	0.021	379
District of Columbia	0.207	0.300	0.032	479
Florida	1.568	3.523	1.277	28,384
Georgia	1.067	2.584	0.907	19,532
Hawaii	0.106	0.210	0.076	1,480
Idaho	0.188	0.348	0.128	2,647
Illinois	1.083	2.632	0.901	16,070
Indiana	0.353	0.731	0.254	5,356
Iowa	0.324	0.593	0.210	4,371
Kansas	0.361	0.729	0.236	4,601
Kentucky	0.729	1.452	0.485	10,437
Louisiana	0.232	0.466	0.170	3,261
Maine	0.039	0.074	0.027	587
Maryland	0.467	0.982	0.325	5,675
Massachusetts	0.788	1.696	0.584	9,973
Michigan	0.520	1.135	0.412	7,881
Minnesota	0.573	1.295	0.450	8,641
Mississippi	0.234	0.429	0.152	3,330
Missouri	0.422	0.898	0.283	5,687
Montana	0.035	0.063	0.024	514
Nebraska	0.446	0.859	0.307	6,118
Nevada	0.186	0.363	0.130	2,643
New Hampshire	0.050	0.101	0.034	630
New Jersey	0.631	1.445	0.471	8,146
New Mexico	0.240	0.437	0.161	3,507
New York	3.346	6.704	2.114	35,092
North Carolina	0.873	1.947	0.688	14,819
North Dakota	0.088	0.157	0.054	927
Ohio	0.880	1.973	0.685	14,324
Oklahoma	0.538	1.107	0.405	8,147
Oregon	0.361	0.743	0.261	5,505
Pennsylvania	0.749	1.700	0.573	10,763
Rhode Island	0.158	0.297	0.095	1,935
South Carolina	0.583	1.265	0.442	9,291
South Dakota	0.095	0.168	0.061	1,256
Tennessee	2.187	5.014	1.724	34,571
Texas	3.748	9.494	3.325	60,314
Utah	0.159	0.367	0.131	2,908
Vermont	0.043	0.079	0.028	603
Virginia	1.313	2.787	0.909	16,503
Washington	0.490	1.040	0.374	6,817
West Virginia	0.021	0.036	0.013	267
Wisconsin	0.425	0.848	0.305	6,383
Wyoming	0.013	0.020	0.007	151
State Totals	31.707	69.719	24.028	462,248
Interstate Spillovers		24.940	8.364	172,829
U.S. Totals	31.707	94.659	32.392	635,078

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: Site Development Impacts by State

Appendix B-1

Impacts of Site Development on State Economies (Office), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.503	1.071	0.350	8,376
Alaska	0.014	0.023	0.008	157
Arizona	0.195	0.398	0.133	3,116
Arkansas	0.066	0.132	0.043	997
California	0.645	1.351	0.448	8,571
Colorado	0.178	0.381	0.127	2,758
Connecticut	0.022	0.041	0.013	244
Delaware	0.005	0.009	0.002	50
District of Columbia	0.116	0.129	0.008	141
Florida	0.279	0.573	0.193	4,628
Georgia	0.315	0.715	0.234	5,540
Hawaii	0.022	0.039	0.014	272
Idaho	0.072	0.133	0.044	1,069
Illinois	0.451	1.032	0.325	6,289
Indiana	0.090	0.198	0.062	1,365
Iowa	0.126	0.241	0.078	1,740
Kansas	0.073	0.147	0.044	991
Kentucky	0.098	0.202	0.062	1,455
Louisiana	0.049	0.095	0.032	698
Maine	0.016	0.031	0.010	249
Maryland	0.214	0.394	0.122	2,454
Massachusetts	0.388	0.719	0.228	4,324
Michigan	0.091	0.193	0.064	1,410
Minnesota	0.071	0.156	0.050	995
Mississippi	0.017	0.033	0.011	254
Missouri	0.115	0.243	0.074	1,707
Montana	0.013	0.024	0.008	192
Nebraska	0.305	0.572	0.187	4,149
Nevada	0.044	0.082	0.027	615
New Hampshire	0.009	0.017	0.005	102
New Jersey	0.046	0.095	0.029	555
New Mexico	0.133	0.231	0.078	1,867
New York	1.826	3.268	1.018	19,148
North Carolina	0.307	0.668	0.215	5,031
North Dakota	0.017	0.031	0.010	189
Ohio	0.277	0.627	0.198	4,341
Oklahoma	0.243	0.502	0.167	3,665
Oregon	0.150	0.298	0.094	2,053
Pennsylvania	0.211	0.475	0.148	2,959
Rhode Island	0.004	0.006	0.002	38
South Carolina	0.122	0.264	0.085	2,037
South Dakota	0.026	0.048	0.016	360
Tennessee	0.321	0.726	0.227	4,845
Texas	0.952	2.280	0.748	14,742
Utah	0.061	0.135	0.044	998
Vermont	0.017	0.031	0.010	240
Virginia	0.742	1.442	0.447	9,699
Washington	0.110	0.224	0.073	1,434
West Virginia	0.003	0.006	0.002	40
Wisconsin	0.143	0.295	0.098	2,111
Wyoming	0.005	0.009	0.003	63
State Totals	10.318	21.034	6.721	141,319
Interstate Spillovers		8.628	2.675	56,954
U.S. Totals	10.318	29.662	9.396	198,273

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**), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.075	0.159	0.052	1,241
Alaska	0.002	0.004	0.001	27
Arizona	0.142	0.290	0.097	2,270
Arkansas	0.096	0.192	0.062	1,450
California	0.048	0.101	0.033	638
Colorado	0.455	0.972	0.325	7,047
Connecticut	0.008	0.015	0.005	89
Delaware	0.016	0.027	0.007	153
District of Columbia	0.000	0.000	0.000	-
Florida	0.051	0.105	0.035	846
Georgia	0.166	0.377	0.123	2,919
Hawaii	0.003	0.005	0.002	33
Idaho	0.035	0.064	0.021	516
Illinois	0.016	0.036	0.011	218
Indiana	0.049	0.107	0.034	739
Iowa	0.044	0.084	0.027	606
Kansas	0.095	0.191	0.057	1,287
Kentucky	0.514	1.064	0.327	7,649
Louisiana	0.072	0.141	0.048	1,030
Maine	0.001	0.003	0.001	22
Maryland	0.002	0.004	0.001	23
Massachusetts	0.067	0.124	0.039	743
Michigan	0.184	0.390	0.129	2,853
Minnesota	0.224	0.491	0.157	3,136
Mississippi	0.163	0.321	0.103	2,476
Missouri	0.056	0.119	0.036	839
Montana	0.000	0.000	0.000	1
Nebraska	0.006	0.011	0.004	80
Nevada	0.001	0.002	0.001	16
New Hampshire	0.001	0.001	0.000	7
New Jersey	0.043	0.088	0.027	514
New Mexico	0.019	0.034	0.011	272
New York	0.107	0.192	0.060	1,122
North Carolina	0.113	0.246	0.079	1,850
North Dakota	0.048	0.085	0.027	517
Ohio	0.153	0.348	0.110	2,406
Oklahoma	0.119	0.246	0.082	1,796
Oregon	0.020	0.040	0.013	277
Pennsylvania	0.188	0.423	0.131	2,635
Rhode Island	0.142	0.248	0.073	1,476
South Carolina	0.198	0.428	0.137	3,305
South Dakota	0.029	0.054	0.018	404
Tennessee	1.691	3.830	1.198	25,545
Texas	1.209	2.896	0.950	18,727
Utah	0.020	0.044	0.014	324
Vermont	0.001	0.001	0.000	11
Virginia	0.057	0.112	0.035	750
Washington	0.013	0.026	0.009	167
West Virginia	0.004	0.007	0.002	47
Wisconsin	0.091	0.187	0.062	1,343
Wyoming	-	-	-	-
State Totals	6.857	14.934	4.779	102,447
Interstate Spillovers		4.779	1.465	29,319
U.S. Totals	6.857	19.713	6.244	131,766

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), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.075	0.160	0.052	1,248
Alaska	0.002	0.003	0.001	19
Arizona	0.141	0.287	0.096	2,249
Arkansas	0.028	0.057	0.018	429
California	0.661	1.384	0.459	8,781
Colorado	0.118	0.253	0.084	1,833
Connecticut	0.080	0.149	0.048	889
Delaware	0.008	0.014	0.004	80
District of Columbia	0.014	0.016	0.001	17
Florida	0.562	1.156	0.388	9,334
Georgia	0.338	0.769	0.252	5,954
Hawaii	0.006	0.011	0.004	80
Idaho	0.036	0.067	0.022	541
Illinois	0.268	0.613	0.193	3,737
Indiana	0.097	0.213	0.067	1,470
Iowa	0.059	0.113	0.037	815
Kansas	0.136	0.273	0.081	1,835
Kentucky	0.048	0.099	0.030	712
Louisiana	0.022	0.043	0.015	314
Maine	0.007	0.013	0.004	104
Maryland	0.051	0.093	0.029	582
Massachusetts	0.045	0.084	0.027	505
Michigan	0.123	0.261	0.086	1,906
Minnesota	0.166	0.362	0.116	2,317
Mississippi	0.027	0.053	0.017	405
Missouri	0.119	0.252	0.077	1,773
Montana	0.001	0.002	0.001	12
Nebraska	0.006	0.012	0.004	85
Nevada	0.091	0.168	0.056	1,266
New Hampshire	0.005	0.009	0.003	53
New Jersey	0.412	0.843	0.259	4,943
New Mexico	0.011	0.020	0.007	160
New York	0.308	0.551	0.172	3,227
North Carolina	0.216	0.471	0.152	3,548
North Dakota	0.004	0.007	0.002	44
Ohio	0.180	0.408	0.129	2,822
Oklahoma	0.063	0.129	0.043	942
Oregon	0.104	0.207	0.065	1,424
Pennsylvania	0.190	0.428	0.133	2,664
Rhode Island	0.006	0.010	0.003	60
South Carolina	0.133	0.287	0.092	2,213
South Dakota	0.004	0.007	0.002	53
Tennessee	0.080	0.180	0.056	1,203
Texas	0.739	1.770	0.581	11,442
Utah	0.027	0.059	0.019	434
Vermont	0.002	0.004	0.001	34
Virginia	0.073	0.142	0.044	957
Washington	0.198	0.403	0.132	2,574
West Virginia	0.002	0.003	0.001	22
Wisconsin	0.047	0.098	0.032	699
Wyoming	0.001	0.002	0.001	15
State Totals	6.142	13.017	4.199	88,828
Interstate Spillovers		4.639	1.394	29,191
U.S. Totals	6.142	17.656	5.593	118,019

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**), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.055	0.117	0.038	917
Alaska	0.008	0.013	0.005	88
Arizona	0.047	0.096	0.032	754
Arkansas	0.028	0.057	0.018	429
California	0.333	0.697	0.231	4,419
Colorado	0.099	0.212	0.071	1,533
Connecticut	0.044	0.082	0.026	491
Delaware	0.011	0.019	0.005	106
District of Columbia	0.029	0.032	0.002	35
Florida	0.496	1.020	0.343	8,234
Georgia	0.145	0.331	0.108	2,560
Hawaii	0.052	0.095	0.033	657
Idaho	0.020	0.038	0.013	306
Illinois	0.168	0.384	0.121	2,338
Indiana	0.076	0.167	0.053	1,153
Iowa	0.046	0.088	0.029	636
Kansas	0.042	0.084	0.025	566
Kentucky	0.063	0.130	0.040	932
Louisiana	0.062	0.121	0.041	887
Maine	0.007	0.013	0.004	102
Maryland	0.098	0.181	0.056	1,125
Massachusetts	0.121	0.224	0.071	1,347
Michigan	0.092	0.195	0.065	1,424
Minnesota	0.096	0.210	0.067	1,345
Mississippi	0.029	0.056	0.018	435
Missouri	0.083	0.177	0.054	1,240
Montana	0.012	0.023	0.008	188
Nebraska	0.015	0.028	0.009	205
Nevada	0.035	0.064	0.021	482
New Hampshire	0.026	0.049	0.015	296
New Jersey	0.129	0.265	0.081	1,553
New Mexico	0.024	0.042	0.014	342
New York	0.373	0.667	0.208	3,910
North Carolina	0.124	0.270	0.087	2,031
North Dakota	0.013	0.024	0.007	145
Ohio	0.156	0.353	0.112	2,442
Oklahoma	0.032	0.066	0.022	482
Oregon	0.036	0.073	0.023	500
Pennsylvania	0.093	0.208	0.065	1,298
Rhode Island	0.014	0.024	0.007	141
South Carolina	0.090	0.195	0.062	1,503
South Dakota	0.023	0.042	0.014	311
Tennessee	0.097	0.220	0.069	1,469
Texas	0.531	1.271	0.417	8,219
Utah	0.026	0.057	0.019	419
Vermont	0.013	0.023	0.007	177
Virginia	0.141	0.274	0.085	1,842
Washington	0.119	0.243	0.079	1,551
West Virginia	0.009	0.016	0.005	106
Wisconsin	0.081	0.167	0.055	1,199
Wyoming	0.003	0.005	0.002	38
State Totals	4.565	9.504	3.062	64,902
Interstate Spillovers		3.619	1.095	22,818
U.S. Totals	4.565	13.123	4.157	87,720

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), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.707	1.507	0.493	11,782
Alaska	0.025	0.042	0.015	290
Arizona	0.526	1.071	0.359	8,389
Arkansas	0.219	0.438	0.141	3,306
California	1.688	3.533	1.172	22,408
Colorado	0.850	1.818	0.607	13,172
Connecticut	0.155	0.288	0.092	1,713
Delaware	0.040	0.068	0.019	389
District of Columbia	0.158	0.176	0.011	192
Florida	1.388	2.854	0.959	23,042
Georgia	0.964	2.192	0.717	16,972
Hawaii	0.083	0.150	0.052	1,041
Idaho	0.163	0.301	0.101	2,431
Illinois	0.903	2.065	0.651	12,582
Indiana	0.313	0.685	0.216	4,728
Iowa	0.275	0.526	0.170	3,797
Kansas	0.347	0.696	0.206	4,679
Kentucky	0.722	1.495	0.459	10,747
Louisiana	0.204	0.401	0.136	2,929
Maine	0.032	0.059	0.020	477
Maryland	0.365	0.672	0.208	4,184
Massachusetts	0.621	1.151	0.365	6,919
Michigan	0.489	1.038	0.344	7,593
Minnesota	0.557	1.219	0.390	7,792
Mississippi	0.236	0.462	0.149	3,570
Missouri	0.374	0.791	0.241	5,559
Montana	0.026	0.048	0.016	392
Nebraska	0.332	0.623	0.204	4,519
Nevada	0.171	0.316	0.105	2,378
New Hampshire	0.040	0.076	0.023	458
New Jersey	0.631	1.290	0.397	7,565
New Mexico	0.187	0.327	0.111	2,641
New York	2.613	4.677	1.457	27,408
North Carolina	0.760	1.654	0.532	12,460
North Dakota	0.082	0.146	0.046	895
Ohio	0.766	1.736	0.549	12,011
Oklahoma	0.457	0.944	0.314	6,886
Oregon	0.311	0.618	0.195	4,254
Pennsylvania	0.683	1.534	0.477	9,556
Rhode Island	0.165	0.288	0.084	1,716
South Carolina	0.544	1.174	0.377	9,057
South Dakota	0.082	0.151	0.050	1,129
Tennessee	2.188	4.958	1.550	33,062
Texas	3.431	8.217	2.696	53,130
Utah	0.134	0.294	0.096	2,175
Vermont	0.033	0.060	0.019	462
Virginia	1.014	1.970	0.611	13,248
Washington	0.439	0.896	0.293	5,725
West Virginia	0.018	0.032	0.010	215
Wisconsin	0.361	0.747	0.248	5,352
Wyoming	0.010	0.016	0.005	115
State Totals	27.881	58.489	18.760	397,496
Interstate Spillovers		21.664	6.629	138,282
U.S. Totals	27.881	80.15	25.39	535,778

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 Costs Impacts by State

Appendix C-1

Impacts of Construction (**Hard Costs**) on State Economies (**Office**), 2018

State	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	4.300	1.407	33,621
Alaska	0.092	0.033	628
Arizona	1.598	0.535	12,510
Arkansas	0.531	0.171	4,004
California	5.424	1.799	34,405
Colorado	1.528	0.510	11,072
Connecticut	0.164	0.053	978
Delaware	0.035	0.010	199
District of Columbia	0.517	0.033	565
Florida	2.301	0.773	18,576
Georgia	2.872	0.939	22,237
Hawaii	0.157	0.054	1,091
Idaho	0.532	0.178	4,290
Illinois	4.143	1.305	25,246
Indiana	0.794	0.250	5,481
Iowa	0.967	0.313	6,984
Kansas	0.592	0.175	3,980
Kentucky	0.813	0.250	5,841
Louisiana	0.383	0.130	2,801
Maine	0.124	0.042	999
Maryland	1.581	0.490	9,849
Massachusetts	2.887	0.916	17,357
Michigan	0.774	0.256	5,660
Minnesota	0.625	0.200	3,993
Mississippi	0.132	0.043	1,019
Missouri	0.976	0.298	6,854
Montana	0.095	0.032	769
Nebraska	2.296	0.750	16,654
Nevada	0.328	0.109	2,468
New Hampshire	0.068	0.021	410
New Jersey	0.380	0.117	2,228
New Mexico	0.927	0.314	7,495
New York	13.117	4.087	76,864
North Carolina	2.681	0.863	20,196
North Dakota	0.124	0.039	760
Ohio	2.519	0.796	17,424
Oklahoma	2.016	0.671	14,712
Oregon	1.196	0.377	8,241
Pennsylvania	1.906	0.593	11,878
Rhode Island	0.026	0.008	154
South Carolina	1.060	0.340	8,175
South Dakota	0.194	0.064	1,446
Tennessee	2.916	0.912	19,448
Texas	9.152	3.003	59,177
Utah	0.541	0.178	4,006
Vermont	0.124	0.040	965
Virginia	5.788	1.796	38,934
Washington	0.901	0.294	5,755
West Virginia	0.024	0.007	162
Wisconsin	1.182	0.392	8,474
Wyoming	0.035	0.012	251
State Totals	84.437	26.978	567,286
Interstate Spillovers	34.633	10.738	228,624
U.S. Totals	119.070	37.716	795,910

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**), 2018

State	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.741	0.242	5,796
Alaska	0.018	0.007	126
Arizona	1.354	0.453	10,602
Arkansas	0.898	0.290	6,773
California	0.470	0.156	2,978
Colorado	4.541	1.516	32,907
Connecticut	0.070	0.023	418
Delaware	0.125	0.034	716
District of Columbia	0.000	0.000	0
Florida	0.489	0.164	3,950
Georgia	1.760	0.576	13,629
Hawaii	0.022	0.008	154
Idaho	0.299	0.100	2,410
Illinois	0.167	0.053	1,019
Indiana	0.500	0.157	3,451
Iowa	0.392	0.127	2,830
Kansas	0.894	0.265	6,009
Kentucky	4.970	1.527	35,714
Louisiana	0.658	0.224	4,809
Maine	0.013	0.004	103
Maryland	0.017	0.005	107
Massachusetts	0.577	0.183	3,472
Michigan	1.821	0.604	13,321
Minnesota	2.291	0.732	14,643
Mississippi	1.498	0.483	11,561
Missouri	0.557	0.170	3,915
Montana	0.001	0.000	5
Nebraska	0.052	0.017	374
Nevada	0.010	0.003	73
New Hampshire	0.006	0.002	33
New Jersey	0.410	0.126	2,402
New Mexico	0.157	0.053	1,271
New York	0.894	0.279	5,241
North Carolina	1.147	0.369	8,639
North Dakota	0.395	0.125	2,414
Ohio	1.624	0.513	11,235
Oklahoma	1.150	0.383	8,388
Oregon	0.188	0.059	1,293
Pennsylvania	1.975	0.614	12,304
Rhode Island	1.157	0.339	6,894
South Carolina	2.000	0.642	15,433
South Dakota	0.253	0.084	1,888
Tennessee	17.886	5.594	119,281
Texas	13.524	4.438	87,444
Utah	0.205	0.067	1,514
Vermont	0.006	0.002	50
Virginia	0.521	0.162	3,503
Washington	0.122	0.040	780
West Virginia	0.033	0.010	221
Wisconsin	0.875	0.290	6,273
Wyoming	0.000	0.000	–
State Totals	69.731	22.313	478,368
Interstate Spillovers	22.315	6.843	136,904
U.S. Totals	92.046	29.156	615,272

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), 2018

State	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.545	0.178	4,264
Alaska	0.009	0.003	64
Arizona	0.981	0.329	7,685
Arkansas	0.194	0.063	1,466
California	4.731	1.570	30,011
Colorado	0.864	0.289	6,265
Connecticut	0.510	0.164	3,037
Delaware	0.048	0.013	273
District of Columbia	0.053	0.003	58
Florida	3.951	1.327	31,900
Georgia	2.628	0.860	20,349
Hawaii	0.039	0.014	272
Idaho	0.229	0.077	1,848
Illinois	2.096	0.660	12,771
Indiana	0.728	0.229	5,025
Iowa	0.386	0.125	2,786
Kansas	0.932	0.276	6,270
Kentucky	0.338	0.104	2,432
Louisiana	0.147	0.050	1,075
Maine	0.044	0.015	356
Maryland	0.320	0.099	1,990
Massachusetts	0.287	0.091	1,726
Michigan	0.890	0.295	6,513
Minnesota	1.239	0.396	7,917
Mississippi	0.179	0.058	1,385
Missouri	0.863	0.263	6,060
Montana	0.005	0.002	42
Nebraska	0.040	0.013	291
Nevada	0.575	0.191	4,326
New Hampshire	0.030	0.009	181
New Jersey	2.881	0.886	16,893
New Mexico	0.068	0.023	546
New York	1.882	0.586	11,029
North Carolina	1.610	0.518	12,127
North Dakota	0.025	0.008	150
Ohio	1.394	0.441	9,645
Oklahoma	0.441	0.147	3,220
Oregon	0.707	0.223	4,868
Pennsylvania	1.461	0.454	9,106
Rhode Island	0.035	0.010	207
South Carolina	0.980	0.315	7,563
South Dakota	0.024	0.008	182
Tennessee	0.617	0.193	4,113
Texas	6.048	1.985	39,104
Utah	0.200	0.066	1,483
Vermont	0.015	0.005	117
Virginia	0.486	0.151	3,272
Washington	1.377	0.450	8,797
West Virginia	0.011	0.003	74
Wisconsin	0.333	0.111	2,389
Wyoming	0.007	0.002	51
State Totals	44.488	14.349	303,577
Interstate Spillovers	15.853	4.764	99,763
U.S. Totals	60.340	19.113	403,340

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**), 2018

State	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.398	0.130	3,109
Alaska	0.044	0.016	298
Arizona	0.326	0.109	2,555
Arkansas	0.193	0.062	1,454
California	2.362	0.784	14,984
Colorado	0.717	0.240	5,199
Connecticut	0.279	0.090	1,664
Delaware	0.063	0.017	361
District of Columbia	0.108	0.007	118
Florida	3.459	1.162	27,923
Georgia	1.121	0.367	8,680
Hawaii	0.321	0.111	2,226
Idaho	0.128	0.043	1,036
Illinois	1.301	0.410	7,927
Indiana	0.567	0.178	3,911
Iowa	0.298	0.097	2,155
Kansas	0.285	0.085	1,920
Kentucky	0.440	0.135	3,162
Louisiana	0.412	0.140	3,008
Maine	0.043	0.014	346
Maryland	0.612	0.190	3,815
Massachusetts	0.760	0.241	4,566
Michigan	0.660	0.219	4,828
Minnesota	0.713	0.228	4,559
Mississippi	0.191	0.062	1,476
Missouri	0.599	0.183	4,205
Montana	0.078	0.026	636
Nebraska	0.096	0.031	695
Nevada	0.217	0.072	1,633
New Hampshire	0.166	0.051	1,002
New Jersey	0.898	0.276	5,265
New Mexico	0.144	0.049	1,160
New York	2.263	0.705	13,260
North Carolina	0.914	0.294	6,886
North Dakota	0.080	0.025	490
Ohio	1.197	0.378	8,281
Oklahoma	0.224	0.075	1,636
Oregon	0.246	0.078	1,695
Pennsylvania	0.706	0.220	4,402
Rhode Island	0.080	0.024	478
South Carolina	0.660	0.212	5,095
South Dakota	0.141	0.047	1,054
Tennessee	0.747	0.234	4,980
Texas	4.311	1.415	27,871
Utah	0.192	0.063	1,422
Vermont	0.077	0.025	600
Virginia	0.928	0.288	6,245
Washington	0.823	0.269	5,258
West Virginia	0.053	0.016	359
Wisconsin	0.567	0.188	4,065
Wyoming	0.018	0.006	129
State Totals	32.228	10.383	220,084
Interstate Spillovers	12.273	3.713	77,376
U.S. Totals	44.501	14.096	297,460

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-5

Impacts of Construction (Hard Costs) on State Economies (in Four Categories), 2018

State	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	5.984	1.957	46,791
Alaska	0.163	0.058	1,116
Arizona	4.259	1.426	33,352
Arkansas	1.815	0.586	13,697
California	12.987	4.309	82,377
Colorado	7.651	2.555	55,443
Connecticut	1.024	0.329	6,097
Delaware	0.270	0.075	1,548
District of Columbia	0.678	0.043	741
Florida	10.200	3.426	82,350
Georgia	8.380	2.741	64,896
Hawaii	0.540	0.186	3,743
Idaho	1.188	0.397	9,585
Illinois	7.707	2.428	46,964
Indiana	2.590	0.815	17,869
Iowa	2.043	0.662	14,755
Kansas	2.704	0.801	18,178
Kentucky	6.561	2.016	47,148
Louisiana	1.600	0.544	11,692
Maine	0.224	0.075	1,805
Maryland	2.530	0.784	15,761
Massachusetts	4.511	1.431	27,121
Michigan	4.145	1.374	30,323
Minnesota	4.868	1.556	31,112
Mississippi	2.000	0.645	15,441
Missouri	2.994	0.914	21,035
Montana	0.178	0.060	1,452
Nebraska	2.484	0.812	18,014
Nevada	1.130	0.374	8,501
New Hampshire	0.270	0.083	1,626
New Jersey	4.568	1.406	26,788
New Mexico	1.295	0.439	10,472
New York	18.156	5.657	106,393
North Carolina	6.351	2.044	47,849
North Dakota	0.624	0.197	3,814
Ohio	6.735	2.129	46,586
Oklahoma	3.831	1.276	27,956
Oregon	2.337	0.736	16,097
Pennsylvania	6.048	1.881	37,689
Rhode Island	1.298	0.380	7,733
South Carolina	4.700	1.508	36,267
South Dakota	0.611	0.203	4,570
Tennessee	22.165	6.932	147,822
Texas	33.035	10.840	213,596
Utah	1.138	0.374	8,424
Vermont	0.223	0.073	1,732
Virginia	7.724	2.396	51,954
Washington	3.223	1.053	20,590
West Virginia	0.120	0.037	816
Wisconsin	2.958	0.982	21,201
Wyoming	0.060	0.020	430
State Totals	230.884	74.023	1,569,314
Interstate Spillovers	85.074	26.057	542,667
U.S. Totals	315.957	100.080	2,111,982

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), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.765	1.629	0.533	12,735
Alaska	0.021	0.035	0.012	238
Arizona	0.297	0.605	0.203	4,739
Arkansas	0.100	0.201	0.065	1,517
California	0.981	2.055	0.682	13,032
Colorado	0.271	0.579	0.193	4,194
Connecticut	0.034	0.062	0.020	370
Delaware	0.008	0.013	0.004	75
District of Columbia	0.176	0.196	0.012	214
Florida	0.424	0.872	0.293	7,036
Georgia	0.478	1.088	0.356	8,423
Hawaii	0.033	0.060	0.021	413
Idaho	0.109	0.201	0.067	1,625
Illinois	0.686	1.569	0.494	9,563
Indiana	0.137	0.301	0.095	2,076
Iowa	0.192	0.366	0.119	2,645
Kansas	0.112	0.224	0.066	1,508
Kentucky	0.149	0.308	0.095	2,212
Louisiana	0.074	0.145	0.049	1,061
Maine	0.025	0.047	0.016	379
Maryland	0.326	0.599	0.186	3,731
Massachusetts	0.590	1.094	0.347	6,574
Michigan	0.138	0.293	0.097	2,144
Minnesota	0.108	0.237	0.076	1,512
Mississippi	0.025	0.050	0.016	386
Missouri	0.175	0.370	0.113	2,596
Montana	0.019	0.036	0.012	291
Nebraska	0.463	0.870	0.284	6,308
Nevada	0.067	0.124	0.041	935
New Hampshire	0.013	0.026	0.008	155
New Jersey	0.070	0.144	0.044	844
New Mexico	0.201	0.351	0.119	2,839
New York	2.776	4.968	1.548	29,115
North Carolina	0.467	1.015	0.327	7,650
North Dakota	0.026	0.047	0.015	288
Ohio	0.421	0.954	0.302	6,600
Oklahoma	0.370	0.764	0.254	5,573
Oregon	0.228	0.453	0.143	3,122
Pennsylvania	0.321	0.722	0.225	4,499
Rhode Island	0.006	0.010	0.003	58
South Carolina	0.186	0.401	0.129	3,097
South Dakota	0.040	0.073	0.024	548
Tennessee	0.488	1.105	0.345	7,366
Texas	1.447	3.467	1.138	22,415
Utah	0.093	0.205	0.067	1,517
Vermont	0.026	0.047	0.015	365
Virginia	1.128	2.193	0.680	14,748
Washington	0.167	0.341	0.111	2,180
West Virginia	0.005	0.009	0.003	61
Wisconsin	0.217	0.448	0.149	3,210
Wyoming	0.008	0.013	0.004	95
State Totals	15.689	31.984	10.219	214,881
Interstate Spillovers		13.119	4.067	86,600
U.S. Totals	15.689	45.102	14.286	301,481

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**), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.123	0.263	0.086	2,056
Alaska	0.004	0.007	0.002	45
Arizona	0.236	0.480	0.161	3,760
Arkansas	0.159	0.318	0.103	2,402
California	0.080	0.167	0.055	1,056
Colorado	0.754	1.611	0.538	11,672
Connecticut	0.013	0.025	0.008	148
Delaware	0.026	0.044	0.012	254
District of Columbia	0.000	0.000	0.000	0
Florida	0.084	0.174	0.058	1,401
Georgia	0.275	0.624	0.204	4,834
Hawaii	0.004	0.008	0.003	55
Idaho	0.057	0.106	0.035	855
Illinois	0.026	0.059	0.019	361
Indiana	0.081	0.177	0.056	1,224
Iowa	0.073	0.139	0.045	1,004
Kansas	0.158	0.317	0.094	2,131
Kentucky	0.851	1.763	0.542	12,668
Louisiana	0.119	0.233	0.079	1,706
Maine	0.002	0.005	0.002	37
Maryland	0.003	0.006	0.002	38
Massachusetts	0.110	0.205	0.065	1,231
Michigan	0.305	0.646	0.214	4,725
Minnesota	0.371	0.813	0.260	5,194
Mississippi	0.271	0.531	0.171	4,101
Missouri	0.093	0.198	0.060	1,389
Montana	0.000	0.000	0.000	2
Nebraska	0.010	0.018	0.006	133
Nevada	0.002	0.003	0.001	26
New Hampshire	0.001	0.002	0.001	12
New Jersey	0.071	0.145	0.045	852
New Mexico	0.032	0.056	0.019	451
New York	0.177	0.317	0.099	1,859
North Carolina	0.187	0.407	0.131	3,064
North Dakota	0.079	0.140	0.044	856
Ohio	0.254	0.576	0.182	3,985
Oklahoma	0.197	0.408	0.136	2,975
Oregon	0.033	0.067	0.021	459
Pennsylvania	0.312	0.700	0.218	4,364
Rhode Island	0.235	0.410	0.120	2,445
South Carolina	0.329	0.710	0.228	5,474
South Dakota	0.049	0.090	0.030	670
Tennessee	2.800	6.344	1.984	42,309
Texas	2.003	4.797	1.574	31,016
Utah	0.033	0.073	0.024	537
Vermont	0.001	0.002	0.001	18
Virginia	0.095	0.185	0.057	1,243
Washington	0.021	0.043	0.014	277
West Virginia	0.006	0.012	0.004	79
Wisconsin	0.150	0.310	0.103	2,225
Wyoming	0.000	0.000	0.000	-
State Totals	11.357	24.733	7.914	169,675
Interstate Spillovers		7.915	2.427	48,559
U.S. Totals	11.357	32.648	10.341	218,235

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**), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.058	0.123	0.040	963
Alaska	0.001	0.002	0.001	15
Arizona	0.109	0.222	0.074	1,736
Arkansas	0.022	0.044	0.014	331
California	0.511	1.069	0.355	6,780
Colorado	0.091	0.195	0.065	1,415
Connecticut	0.062	0.115	0.037	686
Delaware	0.006	0.011	0.003	62
District of Columbia	0.011	0.012	0.001	13
Florida	0.434	0.893	0.300	7,207
Georgia	0.261	0.594	0.194	4,597
Hawaii	0.005	0.009	0.003	61
Idaho	0.028	0.052	0.017	418
Illinois	0.207	0.474	0.149	2,885
Indiana	0.075	0.165	0.052	1,135
Iowa	0.046	0.087	0.028	629
Kansas	0.105	0.211	0.062	1,416
Kentucky	0.037	0.076	0.023	549
Louisiana	0.017	0.033	0.011	243
Maine	0.005	0.010	0.003	80
Maryland	0.039	0.072	0.022	450
Massachusetts	0.035	0.065	0.021	390
Michigan	0.095	0.201	0.067	1,472
Minnesota	0.128	0.280	0.089	1,789
Mississippi	0.021	0.041	0.013	313
Missouri	0.092	0.195	0.059	1,369
Montana	0.001	0.001	0.000	9
Nebraska	0.005	0.009	0.003	66
Nevada	0.070	0.130	0.043	977
New Hampshire	0.004	0.007	0.002	41
New Jersey	0.318	0.651	0.200	3,817
New Mexico	0.009	0.015	0.005	123
New York	0.238	0.425	0.132	2,492
North Carolina	0.167	0.364	0.117	2,740
North Dakota	0.003	0.006	0.002	34
Ohio	0.139	0.315	0.100	2,179
Oklahoma	0.048	0.100	0.033	728
Oregon	0.080	0.160	0.050	1,100
Pennsylvania	0.147	0.330	0.103	2,057
Rhode Island	0.004	0.008	0.002	47
South Carolina	0.103	0.221	0.071	1,709
South Dakota	0.003	0.005	0.002	41
Tennessee	0.061	0.139	0.044	929
Texas	0.570	1.366	0.448	8,835
Utah	0.021	0.045	0.015	335
Vermont	0.002	0.003	0.001	26
Virginia	0.057	0.110	0.034	739
Washington	0.153	0.311	0.102	1,987
West Virginia	0.001	0.002	0.001	17
Wisconsin	0.036	0.075	0.025	540
Wyoming	0.001	0.002	0.001	11
State Totals	4.742	10.051	3.242	68,586
Interstate Spillovers		3.582	1.076	22,539
U.S. Totals	4.742	13.633	4.318	91,125

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**), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.078	0.167	0.054	1,303
Alaska	0.011	0.018	0.006	125
Arizona	0.067	0.137	0.046	1,071
Arkansas	0.040	0.081	0.026	609
California	0.473	0.990	0.328	6,279
Colorado	0.141	0.301	0.100	2,179
Connecticut	0.063	0.117	0.038	697
Delaware	0.015	0.026	0.007	151
District of Columbia	0.041	0.045	0.003	49
Florida	0.705	1.449	0.487	11,701
Georgia	0.207	0.470	0.154	3,637
Hawaii	0.075	0.135	0.046	933
Idaho	0.029	0.054	0.018	434
Illinois	0.238	0.545	0.172	3,322
Indiana	0.108	0.238	0.075	1,639
Iowa	0.065	0.125	0.041	903
Kansas	0.060	0.120	0.035	804
Kentucky	0.089	0.184	0.057	1,325
Louisiana	0.088	0.172	0.059	1,260
Maine	0.010	0.018	0.006	145
Maryland	0.140	0.257	0.079	1,598
Massachusetts	0.172	0.318	0.101	1,913
Michigan	0.130	0.277	0.092	2,023
Minnesota	0.137	0.299	0.096	1,911
Mississippi	0.041	0.080	0.026	619
Missouri	0.118	0.251	0.077	1,762
Montana	0.018	0.033	0.011	267
Nebraska	0.021	0.040	0.013	291
Nevada	0.049	0.091	0.030	684
New Hampshire	0.036	0.070	0.021	420
New Jersey	0.184	0.376	0.116	2,206
New Mexico	0.035	0.060	0.020	486
New York	0.530	0.948	0.295	5,556
North Carolina	0.176	0.383	0.123	2,886
North Dakota	0.019	0.034	0.011	205
Ohio	0.221	0.502	0.159	3,470
Oklahoma	0.045	0.094	0.031	685
Oregon	0.052	0.103	0.032	710
Pennsylvania	0.132	0.296	0.092	1,844
Rhode Island	0.019	0.034	0.010	200
South Carolina	0.128	0.277	0.089	2,135
South Dakota	0.032	0.059	0.020	442
Tennessee	0.138	0.313	0.098	2,087
Texas	0.754	1.806	0.593	11,679
Utah	0.037	0.080	0.026	596
Vermont	0.018	0.032	0.011	251
Virginia	0.200	0.389	0.121	2,617
Washington	0.169	0.345	0.113	2,203
West Virginia	0.012	0.022	0.007	150
Wisconsin	0.115	0.238	0.079	1,703
Wyoming	0.005	0.008	0.003	54
State Totals	6.486	13.504	4.351	92,222
Interstate Spillovers		5.143	1.556	32,423
U.S. Totals	6.486	18.647	5.907	124,645

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), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	1.024	2.181	0.714	17,058
Alaska	0.037	0.062	0.022	422
Arizona	0.708	1.444	0.484	11,306
Arkansas	0.322	0.644	0.208	4,859
California	2.044	4.280	1.420	27,147
Colorado	1.256	2.685	0.897	19,460
Connecticut	0.172	0.319	0.103	1,902
Delaware	0.056	0.095	0.026	542
District of Columbia	0.227	0.253	0.016	276
Florida	1.648	3.387	1.138	27,345
Georgia	1.221	2.775	0.908	21,492
Hawaii	0.117	0.211	0.073	1,462
Idaho	0.223	0.413	0.138	3,332
Illinois	1.157	2.647	0.834	16,132
Indiana	0.402	0.880	0.277	6,075
Iowa	0.375	0.718	0.233	5,182
Kansas	0.434	0.872	0.258	5,860
Kentucky	1.125	2.331	0.716	16,754
Louisiana	0.297	0.584	0.199	4,270
Maine	0.042	0.080	0.027	641
Maryland	0.508	0.934	0.289	5,817
Massachusetts	0.907	1.682	0.533	10,109
Michigan	0.668	1.417	0.470	10,364
Minnesota	0.744	1.628	0.520	10,405
Mississippi	0.357	0.702	0.226	5,418
Missouri	0.478	1.013	0.309	7,116
Montana	0.038	0.070	0.024	569
Nebraska	0.499	0.937	0.306	6,798
Nevada	0.189	0.349	0.116	2,623
New Hampshire	0.055	0.104	0.032	628
New Jersey	0.643	1.316	0.405	7,719
New Mexico	0.277	0.482	0.163	3,899
New York	3.721	6.659	2.075	39,022
North Carolina	0.997	2.169	0.698	16,340
North Dakota	0.127	0.226	0.071	1,383
Ohio	1.036	2.347	0.742	16,234
Oklahoma	0.661	1.365	0.454	9,961
Oregon	0.393	0.782	0.247	5,390
Pennsylvania	0.912	2.049	0.637	12,765
Rhode Island	0.265	0.462	0.135	2,751
South Carolina	0.745	1.609	0.516	12,415
South Dakota	0.123	0.227	0.076	1,700
Tennessee	3.487	7.901	2.471	52,691
Texas	4.775	11.437	3.753	73,945
Utah	0.184	0.403	0.132	2,985
Vermont	0.048	0.085	0.028	661
Virginia	1.480	2.876	0.892	19,346
Washington	0.510	1.041	0.340	6,647
West Virginia	0.025	0.045	0.014	307
Wisconsin	0.518	1.071	0.355	7,678
Wyoming	0.014	0.022	0.007	160
State Totals	38.274	80.272	25.726	545,364
Interstate Spillovers		29.758	9.126	190,121
U.S. Totals	38.274	110.030	34.852	735,486

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 Impacts by State

Appendix E-1

Total Impacts (Soft Costs, Site Development, Hard Costs and Tenant Improvements) on State Economies (**Office**), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	3.972	8.387	2.786	64,943
Alaska	0.108	0.183	0.066	1,230
Arizona	1.542	3.195	1.085	24,657
Arkansas	0.522	1.029	0.338	7,773
California	5.098	10.870	3.661	68,852
Colorado	1.407	3.065	1.038	22,039
Connecticut	0.174	0.328	0.107	1,947
Delaware	0.040	0.069	0.019	386
District of Columbia	0.914	1.070	0.078	1,284
Florida	2.203	4.601	1.568	37,128
Georgia	2.485	5.714	1.894	44,059
Hawaii	0.172	0.315	0.110	2,188
Idaho	0.565	1.047	0.356	8,360
Illinois	3.564	8.240	2.637	50,229
Indiana	0.713	1.548	0.496	10,793
Iowa	0.996	1.889	0.622	13,688
Kansas	0.580	1.166	0.351	7,755
Kentucky	0.772	1.589	0.495	11,417
Louisiana	0.383	0.757	0.261	5,490
Maine	0.130	0.245	0.084	1,968
Maryland	1.692	3.188	1.001	19,583
Massachusetts	3.063	5.839	1.883	34,950
Michigan	0.718	1.530	0.516	11,093
Minnesota	0.562	1.236	0.401	7,962
Mississippi	0.132	0.257	0.084	1,984
Missouri	0.907	1.922	0.590	13,270
Montana	0.101	0.186	0.064	1,511
Nebraska	2.406	4.538	1.508	32,810
Nevada	0.350	0.652	0.219	4,875
New Hampshire	0.070	0.135	0.042	818
New Jersey	0.365	0.763	0.237	4,442
New Mexico	1.047	1.838	0.632	14,841
New York	14.422	26.343	8.226	151,250
North Carolina	2.425	5.297	1.735	39,982
North Dakota	0.138	0.245	0.078	1,486
Ohio	2.187	4.948	1.590	34,515
Oklahoma	1.921	3.966	1.343	28,977
Oregon	1.184	2.368	0.761	16,530
Pennsylvania	1.670	3.758	1.186	23,482
Rhode Island	0.029	0.051	0.015	312
South Carolina	0.966	2.087	0.680	15,966
South Dakota	0.206	0.378	0.127	2,824
Tennessee	2.533	5.750	1.829	38,573
Texas	7.519	18.188	6.041	117,227
Utah	0.486	1.074	0.358	8,051
Vermont	0.138	0.245	0.081	1,900
Virginia	5.861	11.571	3.624	76,099
Washington	0.869	1.785	0.594	11,457
West Virginia	0.026	0.047	0.015	321
Wisconsin	1.126	2.313	0.778	16,716
Wyoming	0.042	0.069	0.023	495
State Totals	81.500	167.871	54.310	1,120,488
Interstate Spillovers		67.983	21.466	457,090
U.S. Totals	81.500	235.854	75.777	1,577,578

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 (Soft Costs, Site Development, Hard Costs and Tenant Improvements) on State Economies (**Industrial**), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.614	1.301	0.430	10,113
Alaska	0.019	0.033	0.012	221
Arizona	1.173	2.416	0.816	18,738
Arkansas	0.792	1.570	0.513	11,855
California	0.396	0.839	0.281	5,316
Colorado	3.751	8.118	2.735	58,533
Connecticut	0.067	0.125	0.040	743
Delaware	0.129	0.222	0.061	1,250
District of Columbia	0.001	0.001	0.000	1
Florida	0.420	0.873	0.296	7,045
Georgia	1.367	3.130	1.033	24,170
Hawaii	0.022	0.040	0.014	275
Idaho	0.285	0.528	0.178	4,228
Illinois	0.129	0.297	0.095	1,812
Indiana	0.403	0.878	0.279	6,096
Iowa	0.362	0.689	0.225	4,983
Kansas	0.786	1.579	0.472	10,542
Kentucky	4.234	8.736	2.709	62,787
Louisiana	0.591	1.165	0.399	8,469
Maine	0.012	0.023	0.008	183
Maryland	0.017	0.031	0.010	190
Massachusetts	0.550	1.038	0.333	6,222
Michigan	1.516	3.226	1.081	23,456
Minnesota	1.849	4.060	1.310	26,076
Mississippi	1.347	2.625	0.855	20,274
Missouri	0.465	0.985	0.302	6,841
Montana	0.001	0.001	0.000	8
Nebraska	0.048	0.091	0.030	660
Nevada	0.009	0.017	0.006	130
New Hampshire	0.005	0.010	0.003	59
New Jersey	0.354	0.733	0.227	4,276
New Mexico	0.159	0.279	0.095	2,253
New York	0.882	1.600	0.499	9,253
North Carolina	0.931	2.030	0.661	15,313
North Dakota	0.393	0.698	0.222	4,246
Ohio	1.265	2.864	0.915	19,922
Oklahoma	0.983	2.029	0.683	14,818
Oregon	0.167	0.333	0.106	2,312
Pennsylvania	1.552	3.490	1.096	21,789
Rhode Island	1.172	2.060	0.609	12,410
South Carolina	1.636	3.534	1.145	27,117
South Dakota	0.241	0.444	0.149	3,317
Tennessee	13.937	31.621	10.000	211,681
Texas	9.969	24.030	7.948	155,056
Utah	0.165	0.363	0.121	2,710
Vermont	0.006	0.011	0.004	88
Virginia	0.473	0.929	0.290	6,158
Washington	0.106	0.217	0.072	1,388
West Virginia	0.032	0.057	0.018	393
Wisconsin	0.748	1.539	0.515	11,093
Wyoming	0.000	0.000	0.000	-
State Totals	56.529	123.504	39.901	846,869
Interstate Spillovers		39.703	12.274	244,536
U.S. Totals	56.529	163.207	52.175	1,091,406

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 (Soft Costs, Site Development, Hard Costs and Tenant Improvements) on State Economies (Warehouse), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.454	0.960	0.318	7,448
Alaska	0.010	0.017	0.006	113
Arizona	0.854	1.764	0.598	13,648
Arkansas	0.172	0.340	0.112	2,571
California	4.008	8.520	2.862	53,980
Colorado	0.717	1.558	0.526	11,218
Connecticut	0.488	0.916	0.297	5,441
Delaware	0.050	0.085	0.023	478
District of Columbia	0.085	0.099	0.007	117
Florida	3.409	7.102	2.415	57,316
Georgia	2.050	4.704	1.556	36,298
Hawaii	0.039	0.071	0.025	490
Idaho	0.219	0.406	0.138	3,252
Illinois	1.625	3.750	1.197	22,860
Indiana	0.589	1.282	0.409	8,918
Iowa	0.358	0.680	0.223	4,925
Kansas	0.824	1.655	0.497	11,030
Kentucky	0.290	0.597	0.186	4,289
Louisiana	0.133	0.262	0.090	1,900
Maine	0.042	0.079	0.027	632
Maryland	0.308	0.578	0.181	3,561
Massachusetts	0.275	0.521	0.168	3,121
Michigan	0.745	1.586	0.533	11,513
Minnesota	1.004	2.207	0.714	14,198
Mississippi	0.162	0.315	0.103	2,436
Missouri	0.723	1.531	0.469	10,604
Montana	0.005	0.009	0.003	74
Nebraska	0.038	0.072	0.024	517
Nevada	0.553	1.028	0.345	7,696
New Hampshire	0.028	0.054	0.017	325
New Jersey	2.498	5.197	1.614	30,288
New Mexico	0.069	0.120	0.041	973
New York	1.865	3.395	1.060	19,561
North Carolina	1.312	2.865	0.935	21,616
North Dakota	0.025	0.044	0.014	265
Ohio	1.091	2.469	0.791	17,200
Oklahoma	0.379	0.782	0.264	5,716
Oregon	0.630	1.259	0.404	8,772
Pennsylvania	1.154	2.596	0.817	16,212
Rhode Island	0.035	0.062	0.018	376
South Carolina	0.805	1.740	0.565	13,330
South Dakota	0.023	0.043	0.014	320
Tennessee	0.483	1.096	0.348	7,343
Texas	4.478	10.815	3.585	69,742
Utah	0.162	0.358	0.119	2,676
Vermont	0.015	0.027	0.009	207
Virginia	0.444	0.874	0.273	5,771
Washington	1.197	2.457	0.815	15,753
West Virginia	0.011	0.019	0.006	132
Wisconsin	0.286	0.588	0.197	4,246
Wyoming	0.008	0.013	0.004	90
State Totals	37.226	79.567	25.963	541,560
Interstate Spillovers		28.042	8.529	178,131
U.S. Totals	37.226	107.608	34.492	719,691

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 (Soft Costs, Site Development, Hard Costs and Tenant Improvements) on State Economies (Retail), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.392	0.827	0.275	6,402
Alaska	0.055	0.092	0.033	622
Arizona	0.336	0.697	0.237	5,377
Arkansas	0.202	0.399	0.131	3,011
California	2.370	5.059	1.705	32,042
Colorado	0.705	1.538	0.521	11,055
Connecticut	0.317	0.596	0.194	3,541
Delaware	0.078	0.134	0.037	745
District of Columbia	0.203	0.239	0.017	288
Florida	3.534	7.390	2.521	59,632
Georgia	1.036	2.383	0.790	18,366
Hawaii	0.374	0.686	0.239	4,773
Idaho	0.146	0.270	0.092	2,154
Illinois	1.195	2.764	0.885	16,847
Indiana	0.543	1.179	0.378	8,221
Iowa	0.328	0.622	0.205	4,508
Kansas	0.299	0.600	0.181	3,990
Kentucky	0.446	0.917	0.286	6,594
Louisiana	0.439	0.868	0.299	6,292
Maine	0.048	0.091	0.031	728
Maryland	0.699	1.320	0.415	8,102
Massachusetts	0.860	1.643	0.530	9,830
Michigan	0.654	1.394	0.470	10,098
Minnesota	0.685	1.507	0.490	9,714
Mississippi	0.205	0.397	0.130	3,066
Missouri	0.594	1.259	0.386	8,681
Montana	0.089	0.164	0.057	1,333
Nebraska	0.107	0.202	0.067	1,461
Nevada	0.247	0.460	0.155	3,444
New Hampshire	0.183	0.352	0.110	2,139
New Jersey	0.922	1.927	0.600	11,212
New Mexico	0.173	0.304	0.105	2,453
New York	2.656	4.857	1.517	27,852
North Carolina	0.882	1.928	0.632	14,557
North Dakota	0.095	0.168	0.054	1,023
Ohio	1.110	2.510	0.808	17,518
Oklahoma	0.228	0.471	0.160	3,440
Oregon	0.260	0.520	0.167	3,633
Pennsylvania	0.661	1.487	0.470	9,292
Rhode Island	0.097	0.171	0.051	1,037
South Carolina	0.642	1.388	0.453	10,617
South Dakota	0.160	0.294	0.099	2,195
Tennessee	0.692	1.572	0.501	10,549
Texas	3.780	9.150	3.041	58,961
Utah	0.184	0.407	0.136	3,054
Vermont	0.091	0.163	0.054	1,262
Virginia	1.003	1.983	0.621	13,023
Washington	0.848	1.742	0.580	11,182
West Virginia	0.062	0.110	0.034	760
Wisconsin	0.576	1.184	0.399	8,559
Wyoming	0.023	0.038	0.013	272
State Totals	32.513	68.422	22.363	465,506
Interstate Spillovers		25.708	7.908	164,143
U.S. Totals	32.513	94.131	30.271	629,649

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 (Soft Costs, Site Development, Hard Costs and Tenant Improvements) on State Economies (in Four Categories), 2018

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	5.433	11.476	3.809	88,906
Alaska	0.193	0.325	0.116	2,186
Arizona	3.905	8.073	2.736	62,420
Arkansas	1.689	3.338	1.094	25,211
California	11.873	25.287	8.510	160,190
Colorado	6.581	14.279	4.821	102,845
Connecticut	1.045	1.965	0.638	11,673
Delaware	0.297	0.510	0.141	2,859
District of Columbia	1.202	1.408	0.102	1,689
Florida	9.566	19.965	6.799	161,122
Georgia	6.938	15.931	5.273	122,892
Hawaii	0.606	1.111	0.387	7,725
Idaho	1.215	2.251	0.763	17,994
Illinois	6.514	15.052	4.814	91,748
Indiana	2.249	4.886	1.562	34,028
Iowa	2.044	3.880	1.275	28,104
Kansas	2.489	5.000	1.501	33,317
Kentucky	5.742	11.839	3.676	85,088
Louisiana	1.546	3.051	1.048	22,151
Maine	0.232	0.437	0.149	3,511
Maryland	2.716	5.117	1.607	31,437
Massachusetts	4.748	9.040	2.913	54,123
Michigan	3.632	7.736	2.599	56,160
Minnesota	4.100	9.010	2.915	57,950
Mississippi	1.845	3.594	1.173	27,759
Missouri	2.688	5.697	1.747	39,397
Montana	0.195	0.360	0.124	2,927
Nebraska	2.600	4.903	1.629	35,449
Nevada	1.159	2.157	0.725	16,144
New Hampshire	0.286	0.550	0.172	3,342
New Jersey	4.139	8.619	2.679	50,218
New Mexico	1.448	2.541	0.874	20,520
New York	19.825	36.196	11.303	207,915
North Carolina	5.550	12.120	3.963	91,468
North Dakota	0.650	1.154	0.368	7,019
Ohio	5.653	12.791	4.105	89,155
Oklahoma	3.511	7.248	2.449	52,951
Oregon	2.240	4.479	1.438	31,247
Pennsylvania	5.036	11.331	3.568	70,774
Rhode Island	1.333	2.344	0.694	14,135
South Carolina	4.049	8.748	2.843	67,029
South Dakota	0.631	1.158	0.390	8,655
Tennessee	17.645	40.038	12.677	268,146
Texas	25.745	62.183	20.615	400,986
Utah	0.996	2.203	0.734	16,492
Vermont	0.250	0.446	0.148	3,458
Virginia	7.782	15.357	4.808	101,052
Washington	3.019	6.201	2.060	39,780
West Virginia	0.131	0.233	0.073	1,606
Wisconsin	2.737	5.624	1.889	40,614
Wyoming	0.073	0.119	0.040	857
State Totals	207.769	439.364	142.537	2,974,423
Interstate Spillovers		161.436	50.177	1,043,900
U.S. Totals	207.769	600.800	192.714	4,018,323

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), 2018

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	31,929	56,952	18,267	745
Alaska	2,642	4,125	1,366	51
Arizona	33,587	63,173	20,642	726
Arkansas	9,930	16,767	5,332	218
California	74,737	147,328	47,458	1,621
Colorado	22,354	44,124	14,356	496
Connecticut	2,120	3,744	1,154	37
Delaware	988	1,599	433	16
District of Columbia	6,209	7,478	679	27
Florida	57,165	108,499	35,619	1,371
Georgia	46,822	96,607	30,556	1,145
Hawaii	2,410	4,146	1,359	47
Idaho	12,788	20,941	6,870	289
Illinois	35,011	73,767	22,774	709
Indiana	9,832	18,900	5,852	204
Iowa	15,287	25,713	8,062	317
Kansas	9,036	16,122	4,601	168
Kentucky	19,115	35,097	10,513	394
Louisiana	9,250	16,422	5,293	211
Maine	5,025	8,619	2,842	112
Maryland	31,801	55,691	16,705	566
Massachusetts	28,551	51,269	15,829	517
Michigan	13,520	25,799	8,347	298
Minnesota	9,836	19,619	6,144	208
Mississippi	3,757	6,354	2,003	84
Missouri	13,384	25,332	7,501	283
Montana	2,244	3,635	1,209	51
Nebraska	21,479	36,261	11,530	466
Nevada	8,664	14,635	4,745	183
New Hampshire	2,560	4,369	1,298	44
New Jersey	3,768	7,412	2,201	70
New Mexico	11,649	18,828	6,180	260
New York	113,517	197,769	57,984	1,904
North Carolina	50,097	97,743	30,879	1,198
North Dakota	1,622	2,558	785	27
Ohio	31,243	63,282	19,702	654
Oklahoma	22,344	40,993	13,317	507
Oregon	11,252	20,002	6,262	220
Pennsylvania	20,434	40,364	12,355	399
Rhode Island	108	182	53	2
South Carolina	23,152	43,666	13,497	539
South Dakota	4,420	7,036	2,219	91
Tennessee	28,039	56,339	17,300	592
Texas	147,161	313,057	99,393	3,358
Utah	10,476	20,712	6,654	250
Vermont	2,830	4,569	1,447	59
Virginia	63,748	113,707	34,016	1,147
Washington	16,588	30,270	9,724	333
West Virginia	568	902	273	10
Wisconsin	23,287	42,470	13,681	519
Wyoming	1,187	1,746	569	24
State Totals	1,129,522	2,136,694	667,829	23,767
Interstate Spillovers		731,841	226,640	5,004
U.S. Totals	1,129,522	2,868,535	894,469	28,771

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**), 2018

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	2,158	3,850	1,235	50
Alaska	152	238	79	3
Arizona	826	1,553	507	18
Arkansas	2,433	4,108	1,306	53
California	2,398	4,728	1,523	52
Colorado	1,095	2,162	703	24
Connecticut	288	508	157	5
Delaware	194	314	85	3
District of Columbia	-	-	-	0
Florida	2,346	4,452	1,462	56
Georgia	4,778	9,859	3,118	117
Hawaii	39	68	22	1
Idaho	492	805	264	11
Illinois	749	1,579	487	15
Indiana	4,504	8,659	2,681	94
Iowa	2,423	4,076	1,278	50
Kansas	1,855	3,310	945	34
Kentucky	11,154	20,479	6,135	230
Louisiana	-	-	-	0
Maine	-	-	-	0
Maryland	-	-	-	0
Massachusetts	852	1,530	472	15
Michigan	6,530	12,461	4,032	144
Minnesota	569	1,135	355	12
Mississippi	1,123	1,899	599	25
Missouri	1,042	1,973	584	22
Montana	5	8	3	0
Nebraska	147	248	79	3
Nevada	2	3	1	0
New Hampshire	59	101	30	1
New Jersey	1,659	3,264	969	31
New Mexico	330	534	175	7
New York	2,520	4,391	1,287	42
North Carolina	2,785	5,434	1,717	67
North Dakota	92	145	45	2
Ohio	2,124	4,301	1,339	44
Oklahoma	3,946	7,240	2,352	89
Oregon	305	542	170	6
Pennsylvania	2,233	4,412	1,350	44
Rhode Island	1,415	2,378	688	24
South Carolina	8,269	15,596	4,821	192
South Dakota	1,492	2,375	749	31
Tennessee	3,821	7,677	2,358	81
Texas	4,613	9,814	3,116	105
Utah	331	654	210	8
Vermont	75	121	38	2
Virginia	2,373	4,233	1,266	43
Washington	428	781	251	9
West Virginia	86	137	41	2
Wisconsin	2,786	5,082	1,637	62
Wyoming	-	-	-	0
State Totals	89,899	169,215	52,721	1,930
Interstate Spillovers		59,093	18,470	360
U.S. Totals	89,899	228,308	71,191	2,290

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**), 2018

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	3,830	6,831	2,191	89
Alaska	–	–	–	0
Arizona	7,666	14,420	4,712	166
Arkansas	1,124	1,898	604	25
California	23,620	46,563	14,999	512
Colorado	5,129	10,125	3,294	114
Connecticut	2,950	5,210	1,606	52
Delaware	265	428	116	4
District of Columbia	535	645	59	2
Florida	24,220	45,969	15,091	581
Georgia	19,054	39,313	12,434	466
Hawaii	189	325	107	4
Idaho	1,193	1,953	641	27
Illinois	11,387	23,991	7,407	230
Indiana	5,712	10,981	3,400	119
Iowa	2,080	3,498	1,097	43
Kansas	5,930	10,580	3,020	110
Kentucky	3,124	5,736	1,718	64
Louisiana	944	1,677	540	22
Maine	278	477	157	6
Maryland	1,912	3,349	1,005	34
Massachusetts	1,151	2,067	638	21
Michigan	3,832	7,312	2,366	84
Minnesota	4,380	8,737	2,736	93
Mississippi	1,042	1,763	556	23
Missouri	4,325	8,186	2,424	91
Montana	5	8	3	0
Nebraska	257	434	138	6
Nevada	4,265	7,204	2,336	90
New Hampshire	231	394	117	4
New Jersey	12,579	24,745	7,348	234
New Mexico	618	998	328	14
New York	5,017	8,740	2,563	84
North Carolina	7,525	14,682	4,638	180
North Dakota	87	137	42	1
Ohio	6,223	12,605	3,924	130
Oklahoma	3,140	5,761	1,871	71
Oregon	4,788	8,512	2,665	94
Pennsylvania	8,633	17,053	5,219	169
Rhode Island	158	266	77	3
South Carolina	5,997	11,311	3,496	140
South Dakota	40	64	20	1
Tennessee	3,153	6,335	1,945	67
Texas	38,617	82,150	26,082	881
Utah	844	1,668	536	20
Vermont	170	275	87	4
Virginia	4,234	7,551	2,259	76
Washington	7,472	13,636	4,380	150
West Virginia	112	178	54	2
Wisconsin	1,434	2,616	843	32
Wyoming	36	53	17	1
State Totals	251,509	489,411	153,905	5,435
Interstate Spillovers		149,321	45,264	972
U.S. Totals	251,509	638,732	199,170	6,406

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**), 2018

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	5,042	8,994	2,885	118
Alaska	–	–	–	–
Arizona	2,685	5,050	1,650	58
Arkansas	1,975	3,334	1,060	43
California	18,552	36,572	11,781	402
Colorado	5,668	11,189	3,640	126
Connecticut	2,986	5,274	1,625	53
Delaware	483	782	212	8
District of Columbia	1,170	1,410	128	5
Florida	34,086	64,695	21,239	817
Georgia	11,061	22,822	7,218	270
Hawaii	2,552	4,389	1,439	50
Idaho	886	1,450	476	20
Illinois	7,347	15,481	4,779	149
Indiana	3,922	7,540	2,334	81
Iowa	3,267	5,495	1,723	68
Kansas	3,607	6,435	1,836	67
Kentucky	5,320	9,769	2,926	110
Louisiana	4,630	8,219	2,649	106
Maine	238	408	135	5
Maryland	8,266	14,476	4,342	147
Massachusetts	4,432	7,959	2,457	80
Michigan	7,115	13,577	4,393	157
Minnesota	4,140	8,259	2,586	88
Mississippi	579	979	309	13
Missouri	4,431	8,386	2,483	94
Montana	1,000	1,620	539	23
Nebraska	1,366	2,306	733	30
Nevada	2,655	4,485	1,454	56
New Hampshire	2,226	3,798	1,128	38
New Jersey	7,317	14,395	4,275	136
New Mexico	747	1,207	396	17
New York	11,167	19,455	5,704	187
North Carolina	10,464	20,416	6,450	250
North Dakota	1,359	2,144	658	23
Ohio	11,460	23,212	7,227	240
Oklahoma	1,396	2,562	832	32
Oregon	2,074	3,686	1,154	41
Pennsylvania	4,247	8,390	2,568	83
Rhode Island	601	1,010	292	10
South Carolina	8,210	15,485	4,786	191
South Dakota	1,681	2,676	844	35
Tennessee	6,606	13,274	4,076	140
Texas	41,416	88,104	27,972	945
Utah	1,198	2,369	761	29
Vermont	1,681	2,714	859	35
Virginia	9,893	17,645	5,279	178
Washington	7,412	13,525	4,345	149
West Virginia	497	788	239	9
Wisconsin	6,410	11,691	3,766	143
Wyoming	164	241	79	3
State Totals	287,689	550,140	172,723	6,155
Interstate Spillovers		180,475	55,098	1,173
U.S. Totals	287,689	730,615	227,821	7,328

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), 2018

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	42,959	76,627	24,577	1,002
Alaska	2,794	4,363	1,444	54
Arizona	44,764	84,196	27,512	968
Arkansas	15,461	26,108	8,303	340
California	119,308	235,191	75,760	2,587
Colorado	34,247	67,600	21,993	759
Connecticut	8,344	14,735	4,542	147
Delaware	1,930	3,122	845	31
District of Columbia	7,915	9,533	865	35
Florida	117,816	223,614	73,411	2,825
Georgia	81,714	168,601	53,327	1,998
Hawaii	5,191	8,928	2,927	102
Idaho	15,358	25,150	8,250	347
Illinois	54,494	114,818	35,448	1,103
Indiana	23,970	46,080	14,267	498
Iowa	23,057	38,782	12,160	479
Kansas	20,428	36,447	10,402	380
Kentucky	38,713	71,081	21,292	798
Louisiana	14,824	26,318	8,483	339
Maine	5,542	9,504	3,134	123
Maryland	41,980	73,515	22,052	747
Massachusetts	34,986	62,825	19,396	633
Michigan	30,997	59,148	19,137	682
Minnesota	18,926	37,749	11,821	400
Mississippi	6,501	10,996	3,466	145
Missouri	23,182	43,877	12,991	489
Montana	3,254	5,271	1,753	74
Nebraska	23,249	39,248	12,480	505
Nevada	15,586	26,328	8,536	328
New Hampshire	5,076	8,662	2,573	86
New Jersey	25,323	49,815	14,794	470
New Mexico	13,344	21,566	7,079	298
New York	132,221	230,356	67,539	2,218
North Carolina	70,871	138,276	43,685	1,695
North Dakota	3,160	4,984	1,529	53
Ohio	51,049	103,401	32,192	1,068
Oklahoma	30,827	56,555	18,373	699
Oregon	18,419	32,743	10,250	360
Pennsylvania	35,548	70,218	21,492	695
Rhode Island	2,284	3,836	1,110	38
South Carolina	45,628	86,059	26,601	1,062
South Dakota	7,634	12,151	3,832	158
Tennessee	41,620	83,626	25,679	879
Texas	231,808	493,124	156,563	5,290
Utah	12,849	25,403	8,161	307
Vermont	4,757	7,679	2,432	99
Virginia	80,247	143,137	42,820	1,443
Washington	31,900	58,212	18,700	641
West Virginia	1,263	2,004	607	23
Wisconsin	33,917	61,858	19,926	756
Wyoming	1,386	2,039	665	28
State Totals	1,758,619	3,345,460	1,047,178	37,286
Interstate Spillovers		1,120,729	345,473	7,509
U.S. Totals	1,758,619	4,466,190	1,392,651	44,795

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: **Construction**

State	MULTIPLIERS		
	Output	Earnings	Jobs
Alabama	2.1301	0.6968	16.6560
Alaska	1.6658	0.5936	11.3985
Arizona	2.0385	0.6827	15.9624
Arkansas	2.0007	0.6459	15.0957
California	2.0934	0.6945	13.2785
Colorado	2.1371	0.7137	15.4873
Connecticut	1.8545	0.5957	11.0438
Delaware	1.7036	0.4699	9.7600
District of Columbia	1.1130	0.0706	1.2160
Florida	2.0556	0.6904	16.5954
Georgia	2.2734	0.7437	17.6052
Hawaii	1.8050	0.6223	12.5112
Idaho	1.8526	0.6186	14.9424
Illinois	2.2872	0.7206	13.9369
Indiana	2.1916	0.6897	15.1219
Iowa	1.9115	0.6196	13.8028
Kansas	2.0070	0.5944	13.4943
Kentucky	2.0721	0.6366	14.8912
Louisiana	1.9673	0.6684	14.3753
Maine	1.8813	0.6309	15.1497
Maryland	1.8387	0.5697	11.4550
Massachusetts	1.8546	0.5882	11.1494
Michigan	2.1210	0.7030	15.5145
Minnesota	2.1880	0.6992	13.9833
Mississippi	1.9635	0.6333	15.1575
Missouri	2.1169	0.6459	14.8721
Montana	1.8454	0.6250	15.0146
Nebraska	1.8779	0.6136	13.6193
Nevada	1.8449	0.6116	13.8831
New Hampshire	1.9109	0.5873	11.5185
New Jersey	2.0456	0.6294	11.9954
New Mexico	1.7428	0.5903	14.0902
New York	1.7896	0.5576	10.4871
North Carolina	2.1754	0.7002	16.3900
North Dakota	1.7777	0.5604	10.8581
Ohio	2.2663	0.7165	15.6771
Oklahoma	2.0650	0.6875	15.0677
Oregon	1.9887	0.6266	13.7000
Pennsylvania	2.2462	0.6984	13.9965
Rhode Island	1.7435	0.5104	10.3875
South Carolina	2.1589	0.6928	16.6570
South Dakota	1.8473	0.6140	13.8085
Tennessee	2.2657	0.7086	15.1100
Texas	2.3953	0.7860	15.4873
Utah	2.1936	0.7200	16.2323
Vermont	1.7769	0.5784	13.7989
Virginia	1.9434	0.6029	13.0716
Washington	2.0401	0.6665	13.0316
West Virginia	1.7882	0.5449	12.1756
Wisconsin	2.0661	0.6856	14.8092
Wyoming	1.6314	0.5407	11.6625
U.S. Total	2.8748	0.9106	19.2163

Source: BEA (2007–2015)

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

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

State	MULTIPLIERS		
	Output	Earnings	Jobs
Alabama	2.0221	0.7230	14.8855
Alaska	1.7729	0.6551	11.0432
Arizona	2.2324	0.8041	16.1146
Arkansas	1.8335	0.6603	13.9335
California	2.3168	0.8307	14.5878
Colorado	2.3789	0.8525	16.5268
Connecticut	2.0170	0.6889	11.8187
Delaware	1.8074	0.4940	8.8727
District of Columbia	1.4473	0.1542	2.3110
Florida	2.2476	0.8148	18.1059
Georgia	2.4220	0.8504	18.3093
Hawaii	1.9715	0.7189	13.9129
Idaho	1.8531	0.6812	14.1061
Illinois	2.4295	0.8313	14.8323
Indiana	2.0720	0.7211	15.1812
Iowa	1.8304	0.6480	13.4870
Kansas	2.0182	0.6525	12.7351
Kentucky	1.9921	0.6652	14.3236
Louisiana	2.0093	0.7334	14.0589
Maine	1.9170	0.7056	15.2134
Maryland	2.1026	0.6966	12.1503
Massachusetts	2.1526	0.7409	12.6558
Michigan	2.1826	0.7912	15.1498
Minnesota	2.2586	0.7841	15.0711
Mississippi	1.8358	0.6509	14.2433
Missouri	2.1305	0.6714	13.4892
Montana	1.8257	0.6825	14.8661
Nebraska	1.9249	0.6888	13.7127
Nevada	1.9477	0.6981	14.1815
New Hampshire	1.9983	0.6663	12.5254
New Jersey	2.2887	0.7468	12.9048
New Mexico	1.8198	0.6710	14.6014
New York	2.0038	0.6317	10.4883
North Carolina	2.2289	0.7879	16.9656
North Dakota	1.7749	0.6104	10.4742
Ohio	2.2427	0.7783	16.2829
Oklahoma	2.0592	0.7527	15.1499
Oregon	2.0549	0.7223	15.2315
Pennsylvania	2.2706	0.7659	14.3749
Rhode Island	1.8726	0.5976	12.2099
South Carolina	2.1695	0.7573	15.9352
South Dakota	1.7636	0.6397	13.1769
Tennessee	2.2930	0.7882	15.8090
Texas	2.5328	0.8871	16.0909
Utah	2.3050	0.8251	18.2508
Vermont	1.8130	0.6548	13.8720
Virginia	2.1222	0.6920	12.5652
Washington	2.1236	0.7630	13.9152
West Virginia	1.7332	0.6007	12.6868
Wisconsin	1.9953	0.7168	15.0185
Wyoming	1.6044	0.5846	11.8672
U.S. Total	2.9854	1.0216	20.0293

Source: BEA (2007–2015)

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

Appendix G-3

Output, Earnings and Employment Multipliers: **Building Operations**

State	MULTIPLIERS		
	Output	Earnings	Jobs
Alabama	1.7837	0.5721	23.3282
Alaska	1.5614	0.5169	19.4018
Arizona	1.8809	0.6146	21.628
Arkansas	1.6886	0.537	21.9612
California	1.9713	0.635	21.6867
Colorado	1.9739	0.6422	22.1713
Connecticut	1.7659	0.5443	17.6615
Delaware	1.6179	0.4379	16.2778
District of Columbia	1.2044	0.1093	4.3689
Florida	1.898	0.6231	23.975
Georgia	2.0633	0.6526	24.4491
Hawaii	1.7199	0.5639	19.6895
Idaho	1.6376	0.5372	22.5843
Illinois	2.107	0.6505	20.2371
Indiana	1.9224	0.5952	20.7605
Iowa	1.682	0.5274	20.7656
Kansas	1.7842	0.5092	18.5812
Kentucky	1.8361	0.55	20.6192
Louisiana	1.7753	0.5722	22.8595
Maine	1.7151	0.5655	22.2795
Maryland	1.7512	0.5253	17.7997
Massachusetts	1.7957	0.5544	18.104
Michigan	1.9082	0.6174	22.0103
Minnesota	1.9946	0.6246	21.1503
Mississippi	1.6913	0.5332	22.2367
Missouri	1.8927	0.5604	21.1083
Montana	1.6195	0.5387	22.7207
Nebraska	1.6882	0.5368	21.7028
Nevada	1.6892	0.5477	21.0697
New Hampshire	1.7065	0.507	17.0327
New Jersey	1.9672	0.5842	18.5779
New Mexico	1.6162	0.5305	22.3615
New York	1.7422	0.5108	16.7722
North Carolina	1.9511	0.6164	23.9122
North Dakota	1.5769	0.4838	16.9019
Ohio	2.0255	0.6306	20.9226
Oklahoma	1.8346	0.596	22.6797
Oregon	1.7777	0.5565	19.5671
Pennsylvania	1.9753	0.6046	19.5495
Rhode Island	1.6798	0.4862	16.7839
South Carolina	1.8861	0.583	23.2757
South Dakota	1.5918	0.502	20.683
Tennessee	2.0093	0.617	21.1171
Texas	2.1273	0.6754	22.8188
Utah	1.9771	0.6352	23.8663
Vermont	1.6144	0.5112	20.7441
Virginia	1.7837	0.5336	17.9861
Washington	1.8248	0.5862	20.1021
West Virginia	1.5872	0.4806	17.8579
Wisconsin	1.8238	0.5875	22.2799
Wyoming	1.4712	0.4794	20.5304
U.S. Total	2.5396	0.7919	25.4715

Source: BEA (2007–2015)

Note: Appendices include data for the District of Columbia, resulting in 51 states; categories for management services, utilities, and services to buildings are now combined under building operations.

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