

2017 EDITION

Economic Impacts of Commercial Real Estate

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Prepared for and funded by
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Construction data provided by
Dodge Data & Analytics

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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 18,000 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 these individuals and organizations with the highest level of research information on 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 fund established to fund 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 for purposes of estimating 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 (formerly McGraw-Hill Construction). (Dodge Data & Analytics, which purchased McGraw-Hill Construction in 2014, made no changes to its data or data capture methodologies.) It applies several processes and methodologies to take "snapshots" of the commercial real estate development industry from various angles and across several scales.

At the greatest scale, the study calculates the contribution of building and nonbuilding construction to the U.S. economy for the year in review. The product types included in this broad measure 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)
2016	$1,160.0	$3.376	18.3%	$ 1,068.2	23.8
2015[4]	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
2007	1,160.0	3.97	28.8	1,225.0	33.2

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 2015 data for construction spending.

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.

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 values for office, industrial, warehouse and retail projects. It examines expenditures made during four distinct phases of the development process, including 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 410.1 million square feet of buildings that commenced construction in 2016, according to Dodge Data & Analytics.

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. Apartment and hotel properties 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 of the expenditures associated with each phase of the development process. In addition to the wide range of on-site construction services, these expenditures also support a wide range of professional and business services, including:

- Architecture and engineering services.
- Legal services.
- Marketing and management services.
- Grading, paving and landscaping services.
- Site engineering services.
- 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				Post-Construction
		Soft Construction (Soft Costs)	Site Development	Hard Construction (Hard Costs)	Tenant Improvements	Totals	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)	**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
	2012	15.88	17.34	49.18	17.73	100.13	0.96
In 2016, direct expenditures of $160.041 billion contributed $464.99 billion to U.S. GDP.							
Total Economic Contribution[1] to GDP (In Billions of Dollars, Includes Multiplier Effect)	**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
	2012	43.39	53.51	151.75	54.71	303.36	2.64
In 2016, direct expenditures of $160.041 billion generated $150.49 billion in personal earnings in the U.S.							
Personal Earnings[2] (In Billions of Dollars, Includes Multiplier Effect)	**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
	2012	14.46	16.94	48.03	17.32	96.75	0.83
In 2016, direct expenditures of $160.041 billion supported 3.3 million jobs in the U.S. economy.							
Jobs Supported[3] (Includes Multiplier Effect)	**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
	2012	292,219	406,107	1,151,784	415,236	2,265,346	20,929

Sources: NAIOP; Dodge Data & Analytics; GMU Schar Fuller

[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.

This study also includes the economic contributions of existing buildings. Based on the existing stock of commercial buildings, totaling 45.8 billion square feet in 2016, direct expenditures for building operations totaled $150.1 billion and contributed $396.0 billion to GDP. These direct expenditures also generated $113.9 billion in personal earnings (wages and salaries) and supported a total of 2.944 million jobs. (See Table 3.)

Combining the economic contributions of new development with the economic contributions from operations of existing buildings in 2016 (data from Tables 2 and 3), direct expenditures of $310.1 billion resulted in the following economic contributions to the U. S. economy:

- Contributed $861.0 billion to U.S. GDP.
- Generated $264.4 billion in personal earnings.
- Supported a total of 6.25 million jobs.

Table 3
Economic Contribution to the U.S. Economy from Operations of Existing Buildings, 2010-2016
(In Billions of Current Year Dollars)

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)
2016	45.820	$150.1	$396.0	$113.9	2.944
2015	45.070	145.6	384.1	110.1	2.856
2014	44.010	138.1	381.3	120.1	3.023
2013	43.934	134.3	370.9	116.8	2.941
2012	43.208	134.5	371.5	117.0	2.945
2011	42.098	140.7	366.6	107.6	2.758
2010	42.008	134.8	342.4	100.2	2.413

Sources: BOMA; Newmark Grubb Knight Frank (NGKF); GMU Schar Fuller

[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 continued its recovery during 2016 although it did not achieve as strong a growth rate as initially projected. Expectations for stronger growth at the beginning of the year were damped early by global uncertainty relating to the European and Asian economies' continuing weak performance, the Brexit vote in Great Britain, the strengthening of the U.S. dollar, continuing weakness in the energy sector, and the slow drawdown on excess domestic inventories. These factors and others combined to cap GDP growth in the first quarter at 0.8 percent followed by a weak 1.4 percent gain in the second quarter. GDP accelerated in the third quarter (3.2 percent) but slowed in fourth quarter with an estimated gain of 1.8 percent. Combined, for the full year, GDP growth is estimated at 1.6 percent for 2016, a full percentage point below beginning-of-the year projections.

Due to this weak performance, the Federal Reserve Board, which raised its benchmark rate a quarter point in December 2015 and expected to continue these increases three or four more times in 2016, raised the federal funds rate just one time, by a quarter point at its December 2016 meeting. However, there are signs of increasing inflationary pressures and the Fed has achieved its full employment goal, suggesting that the federal funds rate could be increased multiple times in 2017.

The wildcard for 2017 is the uncertainty surrounding the economic policies of the new Trump Administration. Expectations for a significant fiscal stimulus have brightened business optimism and pushed the U.S. stock market higher following the election in November. As a result of market gains and rising interest rates, the dollar has also strengthened, further undermining the growth of U.S. exports and increasing demand for imports. Rising commodity prices, especially for petroleum, are likely to fuel these market dynamics even further. Faster global economic growth will likely result from these global price increases. Faster U.S. GDP growth may also occur in the short term although shortages of qualified labor, higher consumer prices and rising inflationary pressures may result in accelerating interest rate increases designed to dampen these growth pressures before they damage the economy's longer-term outlook.

Construction Activity Contributes to Ongoing Economic Growth in 2016. A key factor in the economy's growth in 2016 was the continuing expansion of the construction sector, with construction spending increasing each year since 2011, gaining 48.7 percent between 2011 and October 2016. For the year ending in October 2016, total construction spending was up 3.4 percent exceeding the GDP growth rate for this period.

Residential construction spending registered a gain of 4.6 percent for the 12-month period ending in October 2016, after gaining 17.4 in 2015. In 2016, residential starts are expected to reach 1.174 million, up 6.0 percent from 2015, for the third consecutive year in which starts exceeded 1 million units. Currently residential starts are projected to continue to increase each year through the end of the decade. However, a number of factors will contribute to a slowing rate of increase in housing starts over this period, including rising mortgage interest rates, a shift in the job mix to lower paying sectors and slower wage growth, restricted access to credit, student loan burdens, lower marriage rates, slower immigration and changing generational values and preferences. The rate of increase in housing starts is projected to moderate over this period, from 6.0 percent in 2016 and 4.9 percent in 2017 to 4.5 percent by 2020.

The value of **nonresidential building construction** continued its positive trend but slowed during 2016 increasing only 5.4 percent during the October 2015 to October 2016 period for an

increase in construction spending of $23.5 billion. Since its recovery began in mid-2011, nonresidential building construction spending increased 32.9 percent through 2015, reflecting an increase of $105.0 billion in construction spending. During this growth period, the largest of the ten building-type categories experienced growth; only public safety, religious, and educational building categories had larger construction totals in 2011 than in 2015. For 2016, public safety and religious building construction continued to decline but several major building categories also slowed: warehousing and flex buildings, and manufacturing respectively experienced a 8.9 percent and a 8.6 percent decline in construction spending reflecting excess inventories from five strong years of growth and slowing global demand for manufacturing products due to unfavorable exchange rates and the economic slowdown in Asia and Europe. (See Table 4.)

Table 4
U.S. Nonresidential Construction Spending: 2013-2016
(In Billions of Current Year Dollars)

Type of Structure	2013	2014[1]	2015[1]	2016[2]	% Change 2015-2016[3]
Transportation	$39.4	$42.0	$45.6	$42.2	- 7.4
Health Care	40.7	38.6	40.7	41.4	1.0
Retail	53.2	62.8	66.9	74.1	10.8
Manufacturing[4]	50.5	58.6	78.2	73.9	- 5.5
Amusement/Recreation	15.2	16.8	19.9	21.9	9.0
Education	79.1	79.7	83.5	92.4	10.6
Public Safety	9.5	9.4	8.7	8.3	- 4.6
Office	38.0	46.6	55.2	70.7	28.1
Religious	3.6	3.4	3.7	3.3	- 10.8
Lodgings	13.5	16.7	21.7	27.4	26.3
Total[5]	**$342.7**	**$374.6**	**$424.1**	**$455.3**	**5.4**

Source: U.S. Census, Value of Construction Put In Place, 2016

[1] Revised in 2016 by the U.S. Census.

[2] Change in construction values between October 2015 and 2016.

[3] Percentage change between October 2015 and 2016 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 2016, based on U.S. Census data, is $1.16 trillion. This accounted directly for 6.3 percent of the nation's estimated GDP of $18.45 trillion in 2016. With an output multiplier of 2.91, each $1 of this construction spending generated a total of $2.91 of value to the economy, reflecting the cumulative effects of the initial construction expenditures as

they are re-spent throughout the economy. Applying this multiplier to the total value of direct construction spending in 2016 increases the value of its overall contribution to GDP to $3.376 trillion, accounting for 18.3 percent of the nation's economic activity.

Contribution of Building and Nonbuilding Construction Expenditures to GDP. The total impact of construction spending — direct, indirect and induced — on the U.S. economy accounted for 18.3 percent of all economic activity in 2016. For the year, GDP increased by $403.4 billion from its 2015 value (in current dollars). In comparison to this overall gain in GDP during 2016, the total value of construction spending ($1.16 trillion) was 2.3 times greater than the year's annual GDP growth in dollar value.

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 2016, the $1.16 trillion in construction spending:

- Contributed $3.4 trillion to U.S. GDP.
- Generated $1.1 trillion in new personal earnings.
- Supported a total of 23.8 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 $83.0 billion and increased by $1.8 billion or 2.2 percent from 2015.

Office construction expenditures totaled $36.6 billion in 2016 increasing by 28.7 percent from 2015, building on their gains of 3.0 percent in 2015 and 29.8 percent in 2014.

Retail construction expenditures totaled $17.2 billion in 2016, a decrease of 7.0 percent from their 2015 level, following gains of 8.2 percent in 2015 and a 1.1 percent gain in 2014.

Warehouse construction registered a sixth consecutive year of increased expenditures in 2016, gaining 12.7 percent from 2015 for an expenditure total of $13.6 billion, following a 10.8 percent gain in 2015.

Industrial construction spending decreased sharply for a second year in 2016 to $15.5 billion declining 29.9 percent from 2015; industrial construction expenditures in 2015 were down 46.2 percent from their peak level in 2014. This pullback in industrial/manufacturing construction in 2015 and 2016 can be attributed to the downturn in the energy sector and a weakening in global demand for U.S. manufactured goods due largely to unfavorable exchange rates with the United States' major trading partners.

Table 5
Comparing Construction Expenditures (Hard Costs), 2015 and 2016
(In Billions of Current Year Dollars)

Building Type	2015	2016	$ Change
Office	$28.44	$36.61	$8.17
Industrial	22.16	15.54	–6.62
Warehouse	12.04	13.57	1.53
Retail/Entertainment	18.53	17.24	–1.29
Total	**$81.17**	**$82.96**	**$1.79**

Sources: Dodge Data & Analytics, GMU Schar Fuller

Expenditures and Square Footage (All Structures Combined). The total square feet of new construction in 2016 for these four building types posted a decline of 4.5 percent from 2015 while the value of this new construction increased by 2.2 percent. The amount of space built decreased for three of the building types (only office space increased in 2016) while the value of this added building space increased for two building types—office and warehouse. Industrial/manufacturing and retail building construction experienced decreases in both the square footage of space added and its value of construction compared to 2015. (See Table 6.)

Table 6
Office, Industrial/Manufacturing, Warehouse and Retail Construction, 2016

Building Type	Square Feet (In Millions)	Construction Value[1] (In Billions of 2016 Dollars)
Office	102.8	$36.61
Industrial/Manufacturing	53.5	15.54
Warehouse	167.0	13.57
Retail	86.8	17.24
Total	**410.1**	**$82.96**

Sources: Dodge Data & Analytics; GMU Schar Fuller

[1] Hard costs.

Hard Construction Expenditures (All Structures Combined), Multipliers and GDP. The economic impact of this construction activity can be calculated by applying the U.S. Department of Commerce Bureau of Economic Analysis's (BEA's) national construction multipliers for its contribution to GDP (2.91), personal earnings (0.9209), and employment (20.5308 jobs per $1,000,000 of construction expenditure).

State-level direct spending and associated economic impacts for pre-construction, construction and post-construction 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 expenditures that are retained within the respective state economies. Construction-related spending flows that leak out of each state economy to other states are excluded. Smaller states and state economies that are less well developed tend to retain smaller portions of the benefits from construction 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 $160.0 billion in 2016 resulted in a contribution of $465.0 billion to U.S. GDP, generated $150.5 billion in personal earnings and supported 3.3 million jobs. (See Table 7.)

Table 7
Office, Industrial, Warehouse, and Retail Construction and Operations Contribution to the U.S. Economy, 2016
(In Billions of 2016 Dollars)

	Direct Expenditures	Total Economic Contribution to GDP[1]	Personal Earnings[2]	Jobs Supported[3]
Development Phase	**$160.04**	**$464.99**	**$150.49**	**3,309,982**
Soft Construction (Soft Costs)	25.06	72.19	26.18	538,680
Site Development[4]	21.42	62.34	19.73	439,801
Hard Construction (Hard Costs)	82.96	241.40	76.39	1,703,149
Tenant Improvements[5]	30.60	89.06	28.18	628,352
Annual Operations	**$1.419**	**$3.743**	**$1.073**	**27,833**

Sources: Dodge Data & Analytics; GMU Schar Fuller

[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 with this recovery extending to seven and one-half years with the coming of 2017, making it the third longest of the 12 business cycles dating from the end of World War II. This recovery has been characterized by uneven growth rates for GDP and personal earnings, a job growth trend that has continued through the fourth quarter of 2016 achieving an unemployment rate in November 2016 of 4.6 percent (down from 5.0 percent in November 2015) equaling the pre-recession unemployment level in 2007.

In 2016, an estimated 2.6 million net new workers entered the economy, for a 1.8 percent employment growth rate. While this growth rate slowed in 2016 from last year's 2.1 percent gain, the job base continues to perform well, given this late stage of the business cycle and the tightening of the labor market. Rising consumer confidence and continued low energy costs have supported increased consumer spending in 2016. Still, ongoing weakness in manufacturing, attributable primarily to decreased exports and lower demand for petrochemical products, dampened the GDP forecast in 2016 with annual GDP growth estimated at 1.6 percent, well below the beginning-of-the-year projection of 2.6 percent.

Factors that will constrain economic growth in 2017 include higher interest rates, a tightening labor force and resultant wage inflation, and slowly rising prices in general and for energy, specifically. Combining with the continued strength of the U.S. dollar (that is putting downward pressure on exports) and weakness in the global economy, these conditions are projected to keep economic growth in 2017 to 2.3 percent. In contrast to the above-cited conditions acting to constrain economic growth in 2017, the lengthy and continuing recovery of the residential and nonresidential construction sectors are projected to underpin the growth of the economy in 2017 as they did in 2016.

Residential building construction spending has increased each year since 2010 and is up 87.4 percent over this period through October 2016. Multifamily housing construction has increased its share of residential construction spending during the recovery and is expected to retain a larger share of residential construction spending even after single-family housing construction increases towards its equilibrium level of 1.5 million units annually by 2020. Current forecasts by IHS Economics (December 2016) indicate that residential construction spending is projected to increase 2.7 percent in 2017 after increasing an estimated 4.7 percent in 2016. While this trend is projected to remain positive through the end of the decade, it has slowed from an 11.7 percent increase in 2015. Going forward, it will reflect the weaker projected growth in the U.S. economy, increasing mortgage interest rates next year and beyond, changing demographics and long-term reduction of pent-up housing demand accumulated during the Great Recession.

Single- and multifamily housing starts in 2016 are estimated to have totaled 1.174 million units, a gain of 6.0 percent from 2015. Starts are projected to increase each of the next five years, with 1.231 million starts expected in 2017. By 2021, starts are projected to reach 1.5 million units. Still, just a year ago, 1.5 million starts had been expected in 2018. This underscores the slower-than-anticipated pace of growth in residential construction, dating back to the early years of the recovery. Thirty-year fixed home mortgage rates, which recently rose above 4.0 percent, are projected to exceed 5.0 percent by 2018 and to peak at 6.1 percent by 2020. These higher rates will contribute to slower gains in residential construction activity during the remainder of this business cycle.

Nonresidential construction expenditures turned positive in 2011, increased each year since, and have now gained a total of 30.6 percent through October 2016. Forecasts for 2017 confirm an

uneven pattern of investment 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 fixed investment in manufacturing up 30.8 percent in 2015. In contrast to this high rate of increase, fixed investment in manufacturing structures is estimated to have decreased 4.3 percent in 2016 and to have decreased by 4.5 percent in 2017. Longer-term projections for manufacturing investment show it continuing to decline slightly in 2018 and 2019 and then turning positive in 2020.

Construction spending for office buildings was up sharply in 2016 (24.8 percent through October 2016) and is projected to continue to grow in 2017. The value of retail construction put in place in 2016 was also up from 2015, increasing 6.8 percent between October 2015 and October 2016. However, the outlook for continued growth of retail construction is for slower gains over the remainder of the decade. Construction spending for warehouse and flex space increased steadily between 2011 and 2016, but is estimated to have declined by 8.9 percent in 2016, based on the value of construction put in place. (See Table 4.)

The growth projections for nonresidential construction reflect the expected moderate performance of the U.S. economy over the next five years, with growth rates peaking in 2018 at 2.6 percent and returning to an annual growth rate in the range of 2.1 to 2.3 percent for the 2019-2021 period. The annual GDP growth rate for 2017 is forecast at 2.3 percent as of December 2016, higher than the 1.6 percent estimated for 2016 but lower than the 2.6 percent rates achieved in 2015.

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 a sixth year. Between November 2015 and November 2016, the construction sector added 155,000 net new jobs. From the low point in January 2011 through November 2016, a total of 1.3 million net new construction jobs were generated. Still, employment in the construction sector remained 985,000 jobs below its peak in March 2006.

The U.S. Economy. The importance of the construction sector to the recovery of the U.S. economy is well established. The recovery's sluggishness during its first seven and one-half years, dating from July 2009, 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 from its 2011 low, the U.S. economy has gained traction. This is in spite of its disappointing performance in 2013, when GDP increased only 1.7 percent, followed by a short-lived acceleration in 2014 and in 2015, with GDP up respectively 2.4 and 2.6 percent for those years, and with GDP growth in 2016 registering only 1.6 percent, a full point below the beginning-of-the-year projection of 2.6 percent. However, the outlook to the end of the decade remains positive but the rates of GDP growth are projected to remain below historic norms.

The ongoing recovery in construction activity has been the one consistently positive force in the national economy's performance since 2009 and it is expected to continue to strengthen. Over the next four years, the construction sector is projected to grow (by value) at annual rates ranging between 2.3 percent and 6.1 percent. This continuing expansion will support GDP gains during this same period ranging from 2.1 to 2.6 percent, according to IHS Economics (December 2016 forecast). By compensating for slower-growing sectors, the construction sector's gains will provide the foundation that should extend the economy's expansion into the next decade, making it the longest business cycle in history. (If the economy avoids recession through mid-2020, it will tie the previous longest business cycle record of 10 years, achieved in the 1980s).

Table 8

Total Impacts (Soft Costs, Site Development, Hard Costs, and Tenant Improvements) on State Economies (in Four Categories), 2016

(In Billions of 2016 Dollars)

State	Direct Spending	Total Output	Personal Earnings	Jobs Supported
Alabama	1.244	2.634	0.884	21,293
Alaska	0.085	0.146	0.052	1,054
Arizona	2.113	4.359	1.507	35,411
Arkansas	0.813	1.603	0.533	13,074
California	14.340	30.792	10.459	211,341
Colorado	2.689	5.877	2.012	45,877
Connecticut	0.684	1.268	0.417	8,083
Delaware	0.171	0.303	0.084	1,803
District of Columbia	2.829	3.303	0.296	5,157
Florida	7.598	15.752	5.441	134,152
Georgia	5.720	13.188	4.419	103,519
Hawaii	0.356	0.659	0.233	5,018
Idaho	0.447	0.816	0.282	7,014
Illinois	4.916	11.340	3.665	75,881
Indiana	1.507	3.274	1.060	24,481
Iowa	1.222	2.339	0.776	17,990
Kansas	1.772	3.494	1.065	24,934
Kentucky	1.954	4.078	1.278	31,387
Louisiana	9.966	19.724	6.787	146,085
Maine	0.175	0.331	0.115	2,831
Maryland	2.454	4.679	1.522	30,938
Massachusetts	4.603	8.883	2.889	55,435
Michigan	5.721	12.143	4.136	97,830
Minnesota	1.441	3.149	1.033	22,377
Mississippi	0.287	0.559	0.187	4,613
Missouri	2.560	5.446	1.689	39,327
Montana	0.214	0.393	0.138	3,461
Nebraska	1.268	2.385	0.799	17,969
Nevada	2.105	3.911	1.339	28,914
New Hampshire	0.126	0.243	0.077	1,616
New Jersey	3.542	7.327	2.309	46,856
New Mexico	0.311	0.548	0.191	4,713
New York	24.805	46.058	14.557	284,135
North Carolina	3.963	8.651	2.879	70,856
North Dakota	0.316	0.554	0.181	3,709
Ohio	3.235	7.358	2.391	53,488
Oklahoma	1.204	2.464	0.846	19,281
Oregon	2.762	5.557	1.810	42,541
Pennsylvania	4.080	9.123	2.916	60,298
Rhode Island	0.317	0.563	0.170	3,620
South Carolina	1.938	4.191	1.379	34,740
South Dakota	0.817	1.497	0.510	12,644
Tennessee	2.990	6.713	2.162	47,657
Texas	18.504	44.399	14.877	310,944
Utah	0.831	1.845	0.623	14,834
Vermont	0.070	0.127	0.042	1,037
Virginia	3.680	7.210	2.292	51,442
Washington	3.021	6.261	2.101	43,130
West Virginia	0.167	0.298	0.095	2,163
Wisconsin	1.975	4.045	1.379	31,873
Wyoming	0.134	0.216	0.074	1,628
State totals	**160.041**	**332.073**	**108.956**	**2,360,453**
Interstate spillovers		**132.915**	**41.532**	**949,530**
U.S. Total	**160.041**	**464.988**	**150.488**	**3,309,982**

Sources: GMU Schar Fuller; Dodge Data & Analytics; BEA; NAIOP

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

Table 9

Impacts of Operations on State Economies (in Four Categories), 2016

(In Billions of 2016 Dollars)

State	Direct Spending	Total Output	Personal Earnings	Jobs Supported
Alabama	10,686	19,877	6,193	187
Alaska	897	1,495	475	12
Arizona	26,019	49,665	15,857	438
Arkansas	8,869	15,622	4,800	146
California	142,159	288,248	90,048	2,138
Colorado	33,764	69,937	21,991	585
Connecticut	4,315	7,495	2,258	53
Delaware	3,240	5,417	1,371	37
District of Columbia	30,140	36,773	3,626	91
Florida	76,213	145,964	46,714	1,352
Georgia	62,120	129,118	40,144	1,079
Hawaii	2,308	4,035	1,288	35
Idaho	5,181	8,608	2,732	85
Illinois	53,444	113,148	34,142	836
Indiana	19,748	38,047	11,467	319
Iowa	13,724	23,426	7,142	209
Kansas	23,449	42,650	11,931	330
Kentucky	21,234	39,952	11,602	341
Louisiana	8,142	15,183	4,756	133
Maine	2,001	3,465	1,106	33
Maryland	37,223	67,017	20,022	493
Massachusetts	29,866	54,230	16,284	382
Michigan	30,672	58,405	18,482	500
Minnesota	17,456	34,757	10,596	276
Mississippi	3,151	5,573	1,703	52
Missouri	23,912	45,591	13,025	369
Montana	2,361	4,053	1,286	40
Nebraska	8,367	14,324	4,420	128
Nevada	19,455	33,334	10,469	287
New Hampshire	934	1,621	469	12
New Jersey	18,110	35,122	10,209	248
New Mexico	4,711	8,036	2,513	77
New York	87,860	154,970	44,096	1,052
North Carolina	56,591	110,004	34,132	1,000
North Dakota	4,671	7,814	2,295	62
Ohio	40,153	81,703	24,782	638
Oklahoma	19,977	38,550	12,035	337
Oregon	32,435	58,776	17,765	503
Pennsylvania	28,627	57,838	17,203	417
Rhode Island	585	978	271	7
South Carolina	20,178	38,443	11,693	355
South Dakota	4,393	7,187	2,242	69
Tennessee	37,736	75,383	22,707	595
Texas	208,173	462,046	142,677	3,646
Utah	11,883	24,503	7,645	222
Vermont	426	700	213	6
Virginia	55,540	100,359	29,048	747
Washington	34,179	64,220	19,980	506
West Virginia	1,499	2,499	728	20
Wisconsin	29,608	53,989	16,990	479
Wyoming	750	1,163	359	10
State Totals	**1,419,132**	**2,761,315**	**835,979**	**21,975**
Interstate Spillovers		**982,057**	**236,955**	**5,859**
U.S. Totals	**1,419,132**	**3,743,372**	**1,072,934**	**27,833**

Sources: GMU Schar Fuller; Dodge Data & Analytics; BEA; NAIOP

Note: This table includes 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 of this value are the number of jobs this new capacity can accommodate and the amount of payroll these new jobs have the potential to generate. Using a standard jobs-per-square-foot estimate for each category of building, the total number of employees that could be housed within the buildings built in 2016 can be estimated. The total payroll value of these new workers also can be calculated by multiplying this employment estimate by the U.S. average wage earnings per worker for jobs associated with each building category.

These calculations are presented in Table 10. They show that the 410.1 million square feet of new office, industrial, warehouse and retail building space constructed in 2016 have the capacity to house 1.073 million new workers with a total estimated annual payroll of $57.6 billion.

Table 10
Jobs Accommodated and Payroll Generated in Office, Industrial, Warehouse and Retail Space Under Construction in 2016

Building Type	Square Feet (In Millions)	Square Feet per Job	Jobs Accommodated (In Thousands)	Average Earnings per Job	Total Payroll (In Billions)
Office	102.8	190	541.0	$68,129	$36.858
Industrial	53.5	750	71.3	51,569	3.677
Warehouse	167.0	600	278.3	39,858	11.092
Retail	86.8	475	182.7	32,401	7.920
Total/Average	**410.1**	**382**	**1,073.3**	**$53,616**	**$57,547**

Sources: GMU Schar Fuller; U.S. Bureau of Labor Statistics; NGKF

Note on 2016 Methodology

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

For 2016, full-year construction values were *estimated* in order to publish the economic results in January 2017, 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 five preceding years (2011-2015); 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 were calculated and averaged for each independently.

These nine-month averages were applied to the actual 2016 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.) The data utilized for these calculations were provided by Dodge Data & Analytics (previously McGraw Hill Construction).

Survey of NAIOP Members

NAIOP conducted a survey of its membership between Feb. 5 and Feb. 14, 2016, to determine the values of soft costs, site development improvements and expenditures for tenant improvements relative to the hard costs associated with building office, industrial, warehouse and retail buildings. The results of this survey are used in calculating the total building costs based on the value of hard construction data provided by Dodge Data & Analytics in order to capture the full economic value of building development on the U.S. and state economies. The distribution of these costs across the four building types differ and have changed over the past seven years in response to general economic conditions, changes in the marketplace and the locations where new building construction is occurring.

Questionnaires were emailed to 1,949 NAIOP members throughout the U.S.; 77 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 123 responses to the survey, for a response rate of 6.31 percent. Forty-eight survey respondents indicated that their primary area of work was office building development; Nine indicated manufacturing facility development; 51 indicated warehouse or flex building development; and 16 indicated retail development.

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.

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

Building Type	Soft Construction Costs[1]	Site Development Costs	Building Construction Costs	Tenant Improvement Costs
Office				
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				
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				
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				
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
Combined[2]				
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.

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 benefitting 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 States

Appendix A-1

Impacts of **Office** Soft Costs on State Economies, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.041	0.081	0.032	722
Alaska	0.009	0.016	0.006	124
Arizona	0.128	0.278	0.108	2,357
Arkansas	0.033	0.059	0.023	547
California	1.101	2.495	0.954	17,346
Colorado	0.196	0.454	0.174	3,629
Connecticut	0.008	0.016	0.006	103
Delaware	0.013	0.023	0.007	130
District of Columbia	0.424	0.592	0.086	1,348
Florida	0.346	0.760	0.295	6,691
Georgia	0.574	1.356	0.507	10,310
Hawaii	0.022	0.043	0.017	370
Idaho	0.034	0.062	0.025	577
Illinois	0.281	0.662	0.243	4,695
Indiana	0.071	0.143	0.054	1,225
Iowa	0.064	0.116	0.045	1,042
Kansas	0.128	0.243	0.086	1,921
Kentucky	0.041	0.081	0.029	688
Louisiana	0.033	0.065	0.026	531
Maine	0.017	0.032	0.013	297
Maryland	0.232	0.481	0.176	3,346
Massachusetts	0.478	1.008	0.373	6,514
Michigan	0.386	0.807	0.316	6,726
Minnesota	0.062	0.136	0.051	1,024
Mississippi	0.007	0.012	0.005	110
Missouri	0.155	0.320	0.109	2,329
Montana	0.015	0.027	0.011	266
Nebraska	0.026	0.049	0.019	411
Nevada	0.189	0.364	0.142	2,964
New Hampshire	0.004	0.007	0.003	53
New Jersey	0.079	0.173	0.061	1,156
New Mexico	0.023	0.041	0.016	390
New York	3.270	6.545	2.221	38,983
North Carolina	0.415	0.893	0.341	7,686
North Dakota	0.026	0.044	0.017	354
Ohio	0.223	0.487	0.183	3,822
Oklahoma	0.085	0.169	0.067	1,525
Oregon	0.307	0.617	0.234	5,388
Pennsylvania	0.152	0.327	0.119	2,239
Rhode Island	0.041	0.076	0.026	552
South Carolina	0.033	0.069	0.026	619
South Dakota	0.025	0.044	0.017	410
Tennessee	0.169	0.371	0.138	2,904
Texas	1.381	3.319	1.244	24,254
Utah	0.058	0.130	0.050	1,209
Vermont	0.001	0.001	0.000	11
Virginia	0.345	0.692	0.238	4,592
Washington	0.305	0.634	0.245	4,725
West Virginia	0.004	0.007	0.003	57
Wisconsin	0.169	0.329	0.129	2,836
Wyoming	0.002	0.004	0.001	31
State Totals	**12.231**	**25.757**	**9.315**	**182,138**
Interstate Spillovers		**9.478**	**3.465**	**80,795**
U.S. Totals	**12.231**	**35.235**	**12.780**	**262,932**

Source: GMU Schar Fuller; Dodge Data & Analytics; BEA; NAIOP

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

Appendix A-2

Impacts of **Industrial** Soft Costs on State Economies, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.090	0.176	0.069	1,568
Alaska	–	–	–	–
Arizona	0.006	0.013	0.005	110
Arkansas	0.021	0.038	0.015	358
California	0.076	0.172	0.066	1,199
Colorado	0.016	0.036	0.014	288
Connecticut	0.031	0.060	0.022	401
Delaware	0.000	0.000	0.000	0
District of Columbia	–	–	–	–
Florida	0.039	0.085	0.033	752
Georgia	0.006	0.014	0.005	108
Hawaii	0.000	0.000	0.000	1
Idaho	0.011	0.019	0.008	179
Illinois	0.023	0.054	0.020	382
Indiana	0.016	0.032	0.012	270
Iowa	0.029	0.052	0.020	466
Kansas	0.009	0.017	0.006	137
Kentucky	0.115	0.224	0.081	1,905
Louisiana	1.141	2.210	0.876	18,128
Maine	–	–	–	–
Maryland	0.010	0.021	0.008	143
Massachusetts	0.039	0.082	0.030	532
Michigan	0.323	0.675	0.265	5,631
Minnesota	0.038	0.085	0.032	637
Mississippi	0.013	0.023	0.009	210
Missouri	0.033	0.067	0.023	490
Montana	–	–	–	–
Nebraska	0.105	0.196	0.077	1,651
Nevada	0.002	0.004	0.002	33
New Hampshire	0.000	0.001	0.000	7
New Jersey	0.142	0.313	0.110	2,096
New Mexico	0.000	0.000	0.000	0
New York	0.065	0.130	0.044	776
North Carolina	0.005	0.010	0.004	87
North Dakota	0.000	0.000	0.000	3
Ohio	0.059	0.129	0.048	1,008
Oklahoma	0.006	0.012	0.005	109
Oregon	0.009	0.018	0.007	154
Pennsylvania	0.095	0.205	0.075	1,403
Rhode Island	0.002	0.004	0.002	32
South Carolina	0.147	0.305	0.116	2,723
South Dakota	0.059	0.103	0.041	971
Tennessee	0.102	0.224	0.083	1,751
Texas	0.371	0.891	0.334	6,508
Utah	0.000	0.001	0.000	6
Vermont	0.005	0.008	0.003	76
Virginia	0.005	0.010	0.004	70
Washington	0.036	0.075	0.029	558
West Virginia	0.007	0.013	0.005	102
Wisconsin	0.018	0.035	0.014	302
Wyoming	0.008	0.013	0.005	116
State Totals	**3.333**	**6.856**	**2.625**	**54,436**
Interstate Spillovers		**2.745**	**0.858**	**17,210**
U.S. Totals	**3.333**	**9.601**	**3.482**	**71,646**

Source: GMU Schar Fuller; Dodge Data & Analytics; BEA; NAIOP

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

Appendix A-3

Impacts of **Warehouse** Soft Costs on State Economies, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.002	0.003	0.001	28
Alaska	0.002	0.003	0.001	24
Arizona	0.095	0.206	0.080	1,751
Arkansas	0.036	0.065	0.026	604
California	0.440	0.998	0.381	6,939
Colorado	0.095	0.221	0.084	1,764
Connecticut	0.030	0.059	0.022	392
Delaware	0.001	0.003	0.001	14
District of Columbia	0.003	0.004	0.001	9
Florida	0.317	0.695	0.270	6,122
Georgia	0.098	0.232	0.087	1,765
Hawaii	0.004	0.008	0.003	71
Idaho	0.005	0.009	0.004	86
Illinois	0.232	0.546	0.201	3,873
Indiana	0.083	0.169	0.064	1,441
Iowa	0.019	0.034	0.013	301
Kansas	0.084	0.160	0.056	1,267
Kentucky	0.053	0.103	0.038	881
Louisiana	0.018	0.035	0.014	290
Maine	0.001	0.002	0.001	18
Maryland	0.040	0.084	0.031	584
Massachusetts	0.025	0.052	0.019	336
Michigan	0.034	0.070	0.028	586
Minnesota	0.037	0.083	0.031	622
Mississippi	0.000	0.001	0.000	5
Missouri	0.095	0.196	0.067	1,427
Montana	0.001	0.002	0.001	17
Nebraska	0.009	0.018	0.007	150
Nevada	0.068	0.132	0.051	1,072
New Hampshire	0.001	0.003	0.001	20
New Jersey	0.175	0.385	0.135	2,576
New Mexico	0.002	0.003	0.001	31
New York	0.174	0.349	0.118	2,080
North Carolina	0.055	0.119	0.046	1,026
North Dakota	0.015	0.025	0.010	201
Ohio	0.064	0.140	0.053	1,100
Oklahoma	0.034	0.067	0.027	609
Oregon	0.059	0.119	0.045	1,036
Pennsylvania	0.131	0.282	0.103	1,930
Rhode Island	0.000	0.000	0.000	2
South Carolina	0.019	0.040	0.015	354
South Dakota	0.015	0.026	0.010	243
Tennessee	0.028	0.062	0.023	484
Texas	0.426	1.023	0.383	7,475
Utah	0.029	0.065	0.025	602
Vermont	0.000	0.001	0.000	5
Virginia	0.032	0.064	0.022	423
Washington	0.052	0.109	0.042	810
West Virginia	0.005	0.009	0.003	71
Wisconsin	0.050	0.098	0.039	846
Wyoming	0.004	0.006	0.002	50
State Totals	**3.302**	**7.186**	**2.685**	**54,416**
Interstate Spillovers		**2.325**	**0.765**	**16,557**
U.S. Totals	**3.302**	**9.511**	**3.450**	**70,973**

Source: GMU Schar Fuller; Dodge Data & Analytics; BEA; NAIOP

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

Appendix A-4

Impacts of **Retail and Entertainment** Soft Costs on State Economies, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.043	0.085	0.033	754
Alaska	0.003	0.006	0.002	46
Arizona	0.108	0.235	0.091	1,995
Arkansas	0.033	0.060	0.024	556
California	0.690	1.563	0.597	10,867
Colorado	0.123	0.286	0.109	2,284
Connecticut	0.029	0.056	0.021	373
Delaware	0.015	0.026	0.008	146
District of Columbia	0.040	0.056	0.008	128
Florida	0.517	1.134	0.441	9,992
Georgia	0.263	0.621	0.232	4,725
Hawaii	0.034	0.067	0.026	577
Idaho	0.020	0.037	0.015	342
Illinois	0.243	0.573	0.210	4,061
Indiana	0.063	0.127	0.048	1,088
Iowa	0.083	0.150	0.058	1,343
Kansas	0.057	0.107	0.038	849
Kentucky	0.069	0.135	0.049	1,152
Louisiana	0.056	0.109	0.043	892
Maine	0.012	0.022	0.009	206
Maryland	0.120	0.249	0.091	1,730
Massachusetts	0.213	0.448	0.166	2,895
Michigan	0.089	0.186	0.073	1,550
Minnesota	0.086	0.191	0.071	1,439
Mississippi	0.025	0.045	0.018	417
Missouri	0.119	0.245	0.084	1,783
Montana	0.020	0.036	0.015	357
Nebraska	0.033	0.062	0.024	521
Nevada	0.081	0.156	0.061	1,269
New Hampshire	0.016	0.031	0.011	228
New Jersey	0.116	0.255	0.090	1,711
New Mexico	0.028	0.051	0.020	484
New York	0.556	1.113	0.378	6,633
North Carolina	0.179	0.385	0.147	3,312
North Dakota	0.008	0.014	0.005	114
Ohio	0.167	0.364	0.137	2,858
Oklahoma	0.070	0.138	0.055	1,250
Oregon	0.071	0.142	0.054	1,239
Pennsylvania	0.257	0.554	0.202	3,795
Rhode Island	0.008	0.016	0.005	112
South Carolina	0.071	0.148	0.056	1,318
South Dakota	0.013	0.023	0.009	216
Tennessee	0.164	0.358	0.133	2,805
Texas	0.718	1.726	0.647	12,610
Utah	0.047	0.105	0.041	980
Vermont	0.004	0.008	0.003	73
Virginia	0.232	0.466	0.160	3,095
Washington	0.089	0.184	0.071	1,372
West Virginia	0.008	0.013	0.005	108
Wisconsin	0.078	0.152	0.060	1,311
Wyoming	0.004	0.007	0.003	62
State Totals	**6.193**	**13.327**	**4.957**	**100,019**
Interstate Spillovers		**4.513**	**1.514**	**33,110**
U.S. Totals	**6.193**	**17.840**	**6.471**	**133,128**

Source: GMU Schar Fuller; 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 **in Four Categories** on State Economies, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.177	0.344	0.135	3,072
Alaska	0.014	0.025	0.010	194
Arizona	0.337	0.732	0.284	6,213
Arkansas	0.123	0.222	0.088	2,065
California	2.307	5.228	1.998	36,350
Colorado	0.430	0.997	0.381	7,965
Connecticut	0.099	0.191	0.071	1,269
Delaware	0.029	0.052	0.015	290
District of Columbia	0.468	0.652	0.095	1,485
Florida	1.219	2.675	1.039	23,557
Georgia	0.941	2.223	0.832	16,907
Hawaii	0.060	0.119	0.047	1,018
Idaho	0.070	0.126	0.051	1,184
Illinois	0.779	1.835	0.674	13,010
Indiana	0.233	0.470	0.178	4,024
Iowa	0.194	0.352	0.137	3,152
Kansas	0.278	0.527	0.186	4,174
Kentucky	0.278	0.543	0.198	4,626
Louisiana	1.249	2.418	0.959	19,841
Maine	0.029	0.056	0.022	521
Maryland	0.402	0.835	0.305	5,803
Massachusetts	0.754	1.590	0.588	10,277
Michigan	0.831	1.738	0.682	14,494
Minnesota	0.224	0.494	0.184	3,722
Mississippi	0.045	0.080	0.031	742
Missouri	0.402	0.829	0.282	6,029
Montana	0.036	0.065	0.027	640
Nebraska	0.173	0.325	0.127	2,733
Nevada	0.340	0.656	0.255	5,338
New Hampshire	0.021	0.041	0.015	307
New Jersey	0.512	1.125	0.395	7,539
New Mexico	0.053	0.095	0.038	905
New York	4.066	8.138	2.761	48,472
North Carolina	0.653	1.407	0.537	12,111
North Dakota	0.050	0.084	0.032	671
Ohio	0.513	1.120	0.420	8,788
Oklahoma	0.195	0.386	0.153	3,492
Oregon	0.446	0.896	0.340	7,818
Pennsylvania	0.635	1.366	0.500	9,368
Rhode Island	0.052	0.096	0.033	699
South Carolina	0.270	0.562	0.213	5,014
South Dakota	0.112	0.196	0.078	1,840
Tennessee	0.464	1.015	0.377	7,944
Texas	2.895	6.958	2.607	50,847
Utah	0.135	0.301	0.116	2,797
Vermont	0.010	0.018	0.007	165
Virginia	0.614	1.232	0.423	8,180
Washington	0.482	1.002	0.387	7,464
West Virginia	0.025	0.042	0.016	338
Wisconsin	0.316	0.615	0.241	5,294
Wyoming	0.019	0.030	0.012	259
State Totals	**25.059**	**53.126**	**19.581**	**391,009**
Interstate Spillovers		**19.062**	**6.602**	**147,671**
U.S. Totals	**25.059**	**72.188**	**26.183**	**538,680**

Source: GMU Schar Fuller; Dodge Data & Analytics; BEA; NAIOP

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

Appendix B: Site Development Impacts by States

Appendix B-1

Impacts of Site Development on State Economies **(Office)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.035	0.074	0.024	591
Alaska	0.007	0.013	0.004	89
Arizona	0.107	0.218	0.073	1,753
Arkansas	0.027	0.054	0.017	432
California	0.918	1.950	0.645	13,349
Colorado	0.163	0.353	0.118	2,739
Connecticut	0.007	0.012	0.004	78
Delaware	0.011	0.019	0.005	115
District of Columbia	0.354	0.397	0.030	550
Florida	0.289	0.592	0.199	5,009
Georgia	0.478	1.097	0.359	8,668
Hawaii	0.018	0.033	0.012	247
Idaho	0.029	0.052	0.018	443
Illinois	0.234	0.538	0.169	3,562
Indiana	0.059	0.130	0.041	949
Iowa	0.053	0.103	0.033	772
Kansas	0.107	0.212	0.063	1,483
Kentucky	0.034	0.073	0.022	551
Louisiana	0.028	0.055	0.019	404
Maine	0.014	0.026	0.009	222
Maryland	0.193	0.362	0.115	2,366
Massachusetts	0.399	0.756	0.238	4,679
Michigan	0.322	0.684	0.227	5,479
Minnesota	0.051	0.112	0.036	787
Mississippi	0.005	0.011	0.004	88
Missouri	0.130	0.277	0.084	1,999
Montana	0.013	0.023	0.008	200
Nebraska	0.022	0.041	0.013	303
Nevada	0.157	0.290	0.097	2,101
New Hampshire	0.003	0.006	0.002	39
New Jersey	0.066	0.134	0.041	850
New Mexico	0.019	0.033	0.011	280
New York	2.727	4.987	1.551	30,991
North Carolina	0.346	0.757	0.245	6,138
North Dakota	0.022	0.039	0.012	251
Ohio	0.186	0.426	0.135	3,054
Oklahoma	0.071	0.146	0.049	1,112
Oregon	0.256	0.516	0.163	3,845
Pennsylvania	0.127	0.285	0.089	1,870
Rhode Island	0.034	0.060	0.018	376
South Carolina	0.028	0.061	0.019	496
South Dakota	0.021	0.039	0.013	321
Tennessee	0.141	0.319	0.100	2,221
Texas	1.152	2.762	0.905	19,190
Utah	0.049	0.108	0.035	842
Vermont	0.001	0.001	0.000	8
Virginia	0.288	0.561	0.175	4,060
Washington	0.254	0.527	0.172	3,573
West Virginia	0.003	0.006	0.002	45
Wisconsin	0.141	0.291	0.097	2,258
Wyoming	0.002	0.003	0.001	22
State Totals	**10.200**	**20.627**	**6.523**	**141,851**
Interstate Spillovers		**9.055**	**2.871**	**67,566**
U.S. Totals	**10.200**	**29.682**	**9.393**	**209,417**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.069	0.148	0.048	1,178
Alaska	0.000	0.000	0.000	–
Arizona	0.005	0.009	0.003	75
Arkansas	0.016	0.033	0.010	260
California	0.058	0.124	0.041	847
Colorado	0.012	0.026	0.009	199
Connecticut	0.024	0.044	0.014	278
Delaware	0.000	0.000	0.000	0
District of Columbia	0.000	0.000	0.000	–
Florida	0.030	0.061	0.021	517
Georgia	0.005	0.011	0.003	83
Hawaii	0.000	0.000	0.000	0
Idaho	0.008	0.015	0.005	126
Illinois	0.017	0.040	0.013	266
Indiana	0.012	0.026	0.008	192
Iowa	0.022	0.042	0.014	316
Kansas	0.007	0.014	0.004	97
Kentucky	0.088	0.185	0.057	1,401
Louisiana	0.874	1.735	0.584	12,654
Maine	0.000	0.000	0.000	–
Maryland	0.008	0.014	0.004	93
Massachusetts	0.030	0.057	0.018	351
Michigan	0.247	0.526	0.175	4,212
Minnesota	0.029	0.064	0.020	449
Mississippi	0.010	0.019	0.006	155
Missouri	0.025	0.054	0.016	386
Montana	0.000	0.000	0.000	–
Nebraska	0.080	0.151	0.049	1,116
Nevada	0.002	0.003	0.001	21
New Hampshire	0.000	0.001	0.000	4
New Jersey	0.109	0.223	0.069	1,416
New Mexico	0.000	0.000	0.000	0
New York	0.050	0.091	0.028	567
North Carolina	0.004	0.008	0.003	64
North Dakota	0.000	0.000	0.000	2
Ohio	0.045	0.103	0.033	740
Oklahoma	0.005	0.010	0.003	73
Oregon	0.007	0.014	0.004	101
Pennsylvania	0.073	0.164	0.051	1,076
Rhode Island	0.002	0.003	0.001	20
South Carolina	0.112	0.245	0.079	2,003
South Dakota	0.045	0.084	0.028	697
Tennessee	0.078	0.176	0.055	1,230
Texas	0.284	0.681	0.223	4,728
Utah	0.000	0.000	0.000	4
Vermont	0.004	0.007	0.002	52
Virginia	0.004	0.008	0.002	57
Washington	0.028	0.057	0.019	387
West Virginia	0.006	0.010	0.003	73
Wisconsin	0.014	0.028	0.009	221
Wyoming	0.006	0.010	0.003	77
State Totals	**3.638**	**7.720**	**2.536**	**55,703**
Interstate Spillovers		**2.867**	**0.814**	**18,991**
U.S. Totals	**3.638**	**10.587**	**3.350**	**74,693**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.002	0.004	0.001	30
Alaska	0.002	0.003	0.001	23
Arizona	0.104	0.213	0.072	1,716
Arkansas	0.039	0.079	0.025	629
California	0.484	1.028	0.340	7,036
Colorado	0.105	0.226	0.075	1,754
Connecticut	0.034	0.062	0.020	390
Delaware	0.002	0.003	0.001	16
District of Columbia	0.003	0.004	0.000	5
Florida	0.348	0.714	0.240	6,038
Georgia	0.108	0.248	0.081	1,955
Hawaii	0.005	0.008	0.003	62
Idaho	0.006	0.010	0.003	87
Illinois	0.255	0.585	0.184	3,871
Indiana	0.092	0.202	0.063	1,472
Iowa	0.020	0.039	0.013	293
Kansas	0.093	0.184	0.055	1,289
Kentucky	0.058	0.123	0.038	929
Louisiana	0.020	0.040	0.013	291
Maine	0.001	0.002	0.001	18
Maryland	0.044	0.083	0.026	544
Massachusetts	0.027	0.051	0.016	318
Michigan	0.037	0.079	0.026	629
Minnesota	0.041	0.090	0.029	629
Mississippi	0.000	0.001	0.000	6
Missouri	0.105	0.224	0.068	1,614
Montana	0.001	0.002	0.001	17
Nebraska	0.010	0.020	0.006	145
Nevada	0.075	0.138	0.046	1,001
New Hampshire	0.002	0.003	0.001	19
New Jersey	0.192	0.394	0.122	2,497
New Mexico	0.002	0.003	0.001	29
New York	0.192	0.351	0.109	2,178
North Carolina	0.061	0.133	0.043	1,079
North Dakota	0.016	0.029	0.009	188
Ohio	0.071	0.162	0.051	1,158
Oklahoma	0.037	0.077	0.026	585
Oregon	0.065	0.131	0.041	974
Pennsylvania	0.144	0.323	0.101	2,124
Rhode Island	0.000	0.000	0.000	2
South Carolina	0.021	0.046	0.015	374
South Dakota	0.016	0.030	0.010	250
Tennessee	0.031	0.070	0.022	488
Texas	0.468	1.122	0.368	7,792
Utah	0.032	0.071	0.023	553
Vermont	0.000	0.001	0.000	5
Virginia	0.035	0.068	0.021	493
Washington	0.057	0.119	0.039	807
West Virginia	0.006	0.010	0.003	72
Wisconsin	0.055	0.115	0.038	888
Wyoming	0.004	0.007	0.002	48
State Totals	**3.628**	**7.726**	**2.494**	**55,413**
Interstate Spillovers		**2.830**	**0.847**	**19,063**
U.S. Totals	**3.628**	**10.556**	**3.341**	**74,476**

Sources: GMU Schar Fuller; Dodge Data & Analytics; BEA; NAIOP

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

Appendix B-4

Impacts of Site Development on State Economies **(Retail and Entertainment)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.035	0.076	0.025	602
Alaska	0.003	0.005	0.002	33
Arizona	0.088	0.180	0.061	1,449
Arkansas	0.027	0.054	0.017	429
California	0.561	1.193	0.395	8,165
Colorado	0.100	0.217	0.072	1,683
Connecticut	0.024	0.043	0.014	275
Delaware	0.012	0.021	0.006	126
District of Columbia	0.033	0.037	0.003	51
Florida	0.421	0.863	0.291	7,302
Georgia	0.214	0.491	0.161	3,878
Hawaii	0.028	0.051	0.018	376
Idaho	0.017	0.030	0.010	257
Illinois	0.198	0.455	0.143	3,007
Indiana	0.051	0.113	0.035	823
Iowa	0.067	0.130	0.042	971
Kansas	0.046	0.091	0.027	640
Kentucky	0.056	0.119	0.036	900
Louisiana	0.046	0.091	0.031	662
Maine	0.009	0.018	0.006	150
Maryland	0.098	0.183	0.058	1,195
Massachusetts	0.173	0.328	0.103	2,030
Michigan	0.072	0.154	0.051	1,233
Minnesota	0.070	0.154	0.049	1,079
Mississippi	0.020	0.040	0.013	326
Missouri	0.097	0.207	0.063	1,494
Montana	0.017	0.031	0.010	263
Nebraska	0.027	0.051	0.017	374
Nevada	0.066	0.121	0.040	878
New Hampshire	0.013	0.025	0.008	162
New Jersey	0.095	0.194	0.060	1,229
New Mexico	0.023	0.040	0.014	339
New York	0.453	0.828	0.258	5,148
North Carolina	0.145	0.318	0.103	2,582
North Dakota	0.007	0.012	0.004	79
Ohio	0.136	0.311	0.098	2,229
Oklahoma	0.057	0.117	0.039	890
Oregon	0.058	0.116	0.037	863
Pennsylvania	0.209	0.471	0.147	3,094
Rhode Island	0.007	0.012	0.003	75
South Carolina	0.058	0.126	0.040	1,030
South Dakota	0.011	0.020	0.007	165
Tennessee	0.133	0.300	0.094	2,094
Texas	0.585	1.402	0.460	9,741
Utah	0.038	0.085	0.028	666
Vermont	0.004	0.007	0.002	53
Virginia	0.189	0.369	0.115	2,671
Washington	0.072	0.149	0.049	1,013
West Virginia	0.006	0.012	0.004	82
Wisconsin	0.064	0.132	0.044	1,019
Wyoming	0.004	0.006	0.002	43
State Totals	**5.042**	**10.597**	**3.412**	**75,916**
Interstate Spillovers		**4.075**	**1.231**	**27,597**
U.S. Totals	**5.042**	**14.672**	**4.643**	**103,513**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.141	0.302	0.099	2,400
Alaska	0.012	0.020	0.007	145
Arizona	0.304	0.620	0.209	4,994
Arkansas	0.110	0.220	0.071	1,750
California	2.021	4.294	1.421	29,397
Colorado	0.380	0.821	0.274	6,375
Connecticut	0.088	0.161	0.052	1,021
Delaware	0.024	0.043	0.012	257
District of Columbia	0.390	0.438	0.033	606
Florida	1.088	2.231	0.751	18,865
Georgia	0.805	1.846	0.604	14,585
Hawaii	0.051	0.093	0.032	685
Idaho	0.059	0.108	0.036	913
Illinois	0.704	1.618	0.509	10,706
Indiana	0.214	0.471	0.148	3,436
Iowa	0.163	0.315	0.101	2,352
Kansas	0.253	0.501	0.149	3,509
Kentucky	0.237	0.499	0.153	3,780
Louisiana	0.967	1.921	0.647	14,010
Maine	0.025	0.047	0.016	390
Maryland	0.343	0.642	0.203	4,198
Massachusetts	0.629	1.191	0.376	7,378
Michigan	0.678	1.442	0.479	11,553
Minnesota	0.192	0.419	0.134	2,944
Mississippi	0.036	0.071	0.023	574
Missouri	0.356	0.762	0.232	5,494
Montana	0.030	0.056	0.019	481
Nebraska	0.139	0.262	0.086	1,939
Nevada	0.300	0.552	0.184	4,001
New Hampshire	0.018	0.035	0.011	224
New Jersey	0.462	0.945	0.292	5,992
New Mexico	0.044	0.077	0.026	648
New York	3.422	6.257	1.946	38,883
North Carolina	0.556	1.216	0.393	9,863
North Dakota	0.045	0.080	0.025	519
Ohio	0.437	1.002	0.317	7,181
Oklahoma	0.170	0.350	0.117	2,660
Oregon	0.386	0.777	0.245	5,784
Pennsylvania	0.552	1.243	0.387	8,164
Rhode Island	0.043	0.076	0.022	473
South Carolina	0.219	0.477	0.153	3,903
South Dakota	0.093	0.173	0.057	1,432
Tennessee	0.384	0.865	0.271	6,033
Texas	2.488	5.967	1.955	41,451
Utah	0.119	0.265	0.087	2,064
Vermont	0.008	0.015	0.005	119
Virginia	0.516	1.006	0.314	7,280
Washington	0.411	0.852	0.278	5,780
West Virginia	0.021	0.038	0.012	272
Wisconsin	0.274	0.566	0.188	4,386
Wyoming	0.016	0.026	0.009	190
State Totals	**21.422**	**44.274**	**14.169**	**312,044**
Interstate Spillovers		**18.063**	**5.558**	**127,758**
U.S. Totals	**21.422**	**62.337**	**19.727**	**439,801**

Sources: GMU Schar Fuller; Dodge Data & Analytics; BEA; NAIOP

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

Appendix C: Hard Costs Impacts by States

Appendix C-1

Impacts of Construction **(Hard Costs)** on State Economies **(Office)**, 2016

State	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.2663	0.0872	2,120
Alaska	0.0451	0.0159	321
Arizona	0.7817	0.2636	6,293
Arkansas	0.1948	0.0627	1,552
California	6.9996	2.3166	47,915
Colorado	1.2653	0.4228	9,830
Connecticut	0.0441	0.0142	279
Delaware	0.0685	0.0187	413
District of Columbia	1.4263	0.1082	1,975
Florida	2.1259	0.7156	17,978
Georgia	3.9390	1.2885	31,114
Hawaii	0.1195	0.0413	885
Idaho	0.1883	0.0631	1,592
Illinois	1.9325	0.6083	12,784
Indiana	0.4668	0.1469	3,407
Iowa	0.3708	0.1191	2,769
Kansas	0.7606	0.2253	5,323
Kentucky	0.2611	0.0798	1,977
Louisiana	0.1987	0.0669	1,450
Maine	0.0950	0.0318	796
Maryland	1.2991	0.4112	8,493
Massachusetts	2.7123	0.8561	16,796
Michigan	2.4554	0.8153	19,667
Minnesota	0.4019	0.1285	2,824
Mississippi	0.0390	0.0127	315
Missouri	0.9950	0.3032	7,177
Montana	0.0835	0.0284	719
Nebraska	0.1470	0.0480	1,087
Nevada	1.0414	0.3466	7,541
New Hampshire	0.0216	0.0066	140
New Jersey	0.4815	0.1486	3,053
New Mexico	0.1194	0.0404	1,004
New York	17.8994	5.5680	111,238
North Carolina	2.7169	0.8781	22,032
North Dakota	0.1392	0.0440	900
Ohio	1.5296	0.4834	10,961
Oklahoma	0.5250	0.1750	3,990
Oregon	1.8530	0.5841	13,802
Pennsylvania	1.0222	0.3185	6,712
Rhode Island	0.2157	0.0631	1,350
South Carolina	0.2172	0.0698	1,779
South Dakota	0.1387	0.0461	1,152
Tennessee	1.1438	0.3584	7,973
Texas	9.9154	3.2495	68,881
Utah	0.3873	0.1274	3,020
Vermont	0.0037	0.0012	30
Virginia	2.0135	0.6293	14,572
Washington	1.8912	0.6164	12,826
West Virginia	0.0225	0.0069	160
Wisconsin	1.0461	0.3471	8,106
Wyoming	0.0109	0.0036	80
State Totals	**74.0384**	**23.4118**	**509,152**
Interstate Spillovers	**32.5022**	**10.3041**	**242,519**
U.S. Totals	**106.5406**	**33.7159**	**751,671**

Sources: GMU Schar Fuller; 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)**, 2016

State	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.9012	0.2949	7,172
Alaska	–	–	–
Arizona	0.0570	0.0192	459
Arkansas	0.1984	0.0639	1,581
California	0.7537	0.2495	5,160
Colorado	0.1564	0.0522	1,215
Connecticut	0.2676	0.0859	1,694
Delaware	0.0004	0.0001	2
District of Columbia	–	–	–
Florida	0.3721	0.1252	3,146
Georgia	0.0640	0.0209	506
Hawaii	0.0004	0.0001	3
Idaho	0.0908	0.0304	768
Illinois	0.2448	0.0770	1,619
Indiana	0.1603	0.0504	1,169
Iowa	0.2580	0.0829	1,927
Kansas	0.0844	0.0250	591
Kentucky	1.1267	0.3443	8,530
Louisiana	10.5650	3.5580	77,069
Maine	–	–	–
Maryland	0.0865	0.0274	566
Massachusetts	0.3449	0.1089	2,136
Michigan	3.2031	1.0635	25,655
Minnesota	0.3895	0.1245	2,737
Mississippi	0.1165	0.0379	941
Missouri	0.3260	0.0993	2,351
Montana	–	–	–
Nebraska	0.9193	0.3000	6,800
Nevada	0.0179	0.0060	130
New Hampshire	0.0041	0.0013	27
New Jersey	1.3602	0.4197	8,623
New Mexico	0.0002	0.0001	2
New York	0.5554	0.1728	3,451
North Carolina	0.0480	0.0155	389
North Dakota	0.0016	0.0005	10
Ohio	0.6289	0.1987	4,507
Oklahoma	0.0584	0.0195	444
Oregon	0.0827	0.0261	616
Pennsylvania	0.9980	0.3110	6,553
Rhode Island	0.0198	0.0058	124
South Carolina	1.4895	0.4788	12,201
South Dakota	0.5110	0.1697	4,244
Tennessee	1.0747	0.3367	7,491
Texas	4.1455	1.3586	28,798
Utah	0.0030	0.0010	23
Vermont	0.0396	0.0128	318
Virginia	0.0475	0.0149	344
Washington	0.3478	0.1134	2,359
West Virginia	0.0622	0.0191	444
Wisconsin	0.1734	0.0575	1,344
Wyoming	0.0639	0.0212	469
State Totals	**32.4203**	**10.6023**	**236,706**
Interstate Spillovers	**12.8113**	**3.7117**	**82,415**
U.S. Totals	**45.2316**	**14.3140**	**319,121**

Sources: GMU Schar Fuller; 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), 2016

State	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.0141	0.0046	112
Alaska	0.0122	0.0043	87
Arizona	0.7972	0.2688	6,417
Arkansas	0.2951	0.0951	2,352
California	3.8436	1.2721	26,311
Colorado	0.8444	0.2821	6,560
Connecticut	0.2306	0.0741	1,459
Delaware	0.0102	0.0028	61
District of Columbia	0.0132	0.0010	18
Florida	2.6698	0.8987	22,578
Georgia	0.9255	0.3028	7,311
Hawaii	0.0313	0.0108	232
Idaho	0.0384	0.0129	325
Illinois	2.1885	0.6888	14,477
Indiana	0.7542	0.2373	5,504
Iowa	0.1469	0.0472	1,098
Kansas	0.6889	0.2040	4,821
Kentucky	0.4589	0.1402	3,474
Louisiana	0.1491	0.0502	1,087
Maine	0.0080	0.0027	67
Maryland	0.3112	0.0985	2,035
Massachusetts	0.1920	0.0606	1,189
Michigan	0.2937	0.0975	2,352
Minnesota	0.3349	0.1070	2,353
Mississippi	0.0026	0.0008	21
Missouri	0.8370	0.2551	6,037
Montana	0.0075	0.0025	64
Nebraska	0.0734	0.0240	543
Nevada	0.5169	0.1721	3,743
New Hampshire	0.0109	0.0033	70
New Jersey	1.4730	0.4545	9,338
New Mexico	0.0129	0.0044	109
New York	1.3107	0.4077	8,146
North Carolina	0.4978	0.1609	4,036
North Dakota	0.1088	0.0344	704
Ohio	0.6044	0.1910	4,331
Oklahoma	0.2881	0.0960	2,189
Oregon	0.4891	0.1542	3,643
Pennsylvania	1.2095	0.3769	7,942
Rhode Island	0.0012	0.0004	8
South Carolina	0.1708	0.0549	1,399
South Dakota	0.1127	0.0374	936
Tennessee	0.2617	0.0820	1,824
Texas	4.1943	1.3746	29,137
Utah	0.2650	0.0871	2,067
Vermont	0.0023	0.0008	19
Virginia	0.2547	0.0796	1,844
Washington	0.4450	0.1450	3,018
West Virginia	0.0380	0.0117	271
Wisconsin	0.4285	0.1422	3,320
Wyoming	0.0244	0.0081	179
State Totals	**28.8930**	**9.3257**	**207,217**
Interstate Spillovers	**10.5815**	**3.1664**	**71,285**
U.S. Totals	**39.4744**	**12.4921**	**278,502**

Sources: GMU Schar Fuller; Dodge Data & Analytics; BEA; NAIOP

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

Appendix C-4

Impacts of Construction **(Hard Costs)** on State Economies **(Retail and Entertainment)**, 2016

State	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.2586	0.0846	2,058
Alaska	0.0156	0.0055	111
Arizona	0.6153	0.2075	4,954
Arkansas	0.1841	0.0593	1,467
California	4.0773	1.3494	27,911
Colorado	0.7405	0.2474	5,753
Connecticut	0.1486	0.0477	940
Delaware	0.0712	0.0194	429
District of Columbia	0.1256	0.0095	174
Florida	2.9516	0.9936	24,961
Georgia	1.6784	0.5490	13,258
Hawaii	0.1735	0.0600	1,285
Idaho	0.1038	0.0348	877
Illinois	1.5541	0.4891	10,280
Indiana	0.3856	0.1213	2,814
Iowa	0.4443	0.1428	3,319
Kansas	0.3126	0.0926	2,187
Kentucky	0.4065	0.1242	3,077
Louisiana	0.3101	0.1044	2,262
Maine	0.0613	0.0205	514
Maryland	0.6247	0.1978	4,084
Massachusetts	1.1208	0.3537	6,940
Michigan	0.5262	0.1747	4,214
Minnesota	0.5249	0.1678	3,688
Mississippi	0.1378	0.0448	1,113
Missouri	0.7084	0.2159	5,109
Montana	0.1045	0.0355	900
Nebraska	0.1730	0.0565	1,280
Nevada	0.4143	0.1379	3,000
New Hampshire	0.0855	0.0261	554
New Jersey	0.6626	0.2044	4,200
New Mexico	0.1380	0.0467	1,160
New York	2.8315	0.8808	17,597
North Carolina	1.0884	0.3518	8,826
North Dakota	0.0415	0.0131	269
Ohio	1.0635	0.3361	7,621
Oklahoma	0.4001	0.1333	3,041
Oregon	0.3963	0.1249	2,952
Pennsylvania	1.6107	0.5019	10,576
Rhode Island	0.0408	0.0119	256
South Carolina	0.4300	0.1382	3,522
South Dakota	0.0677	0.0225	562
Tennessee	1.0269	0.3218	7,158
Texas	4.7932	1.5708	33,298
Utah	0.2919	0.0960	2,276
Vermont	0.0227	0.0073	182
Virginia	1.2615	0.3943	9,130
Washington	0.5105	0.1664	3,462
West Virginia	0.0394	0.0121	281
Wisconsin	0.4496	0.1492	3,484
Wyoming	0.0202	0.0067	148
State Totals	**36.2254**	**11.6637**	**259,514**
Interstate Spillovers	**13.9293**	**4.2083**	**94,340**
U.S. Totals	**50.1547**	**15.8720**	**353,854**

Sources: GMU Schar Fuller; 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)**, 2016

State	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	1.4402	0.4713	11,462
Alaska	0.0729	0.0257	519
Arizona	2.2512	0.7592	18,123
Arkansas	0.8724	0.2810	6,952
California	15.6742	5.1876	107,296
Colorado	3.0065	1.0046	23,358
Connecticut	0.6908	0.2219	4,372
Delaware	0.1503	0.0410	906
District of Columbia	1.5651	0.1188	2,168
Florida	8.1193	2.7332	68,662
Georgia	6.6069	2.1612	52,188
Hawaii	0.3248	0.1123	2,405
Idaho	0.4213	0.1412	3,561
Illinois	5.9199	1.8633	39,160
Indiana	1.7670	0.5560	12,894
Iowa	1.2200	0.3921	9,113
Kansas	1.8464	0.5469	12,921
Kentucky	2.2532	0.6886	17,058
Louisiana	11.2228	3.7796	81,868
Maine	0.1643	0.0550	1,377
Maryland	2.3216	0.7349	15,178
Massachusetts	4.3700	1.3792	27,061
Michigan	6.4784	2.1509	51,888
Minnesota	1.6513	0.5278	11,602
Mississippi	0.2958	0.0961	2,390
Missouri	2.8664	0.8735	20,673
Montana	0.1955	0.0664	1,684
Nebraska	1.3127	0.4284	9,710
Nevada	1.9905	0.6626	14,414
New Hampshire	0.1220	0.0373	791
New Jersey	3.9772	1.2272	25,213
New Mexico	0.2706	0.0915	2,275
New York	22.5970	7.0293	140,431
North Carolina	4.3510	1.4063	35,283
North Dakota	0.2910	0.0920	1,883
Ohio	3.8264	1.2091	27,420
Oklahoma	1.2716	0.4238	9,664
Oregon	2.8211	0.8893	21,014
Pennsylvania	4.8404	1.5083	31,784
Rhode Island	0.2775	0.0811	1,737
South Carolina	2.3075	0.7417	18,901
South Dakota	0.8302	0.2757	6,894
Tennessee	3.5071	1.0989	24,446
Texas	23.0484	7.5534	160,114
Utah	0.9472	0.3115	7,387
Vermont	0.0683	0.0221	549
Virginia	3.5774	1.1180	25,890
Washington	3.1946	1.0413	21,665
West Virginia	0.1620	0.0498	1,156
Wisconsin	2.0977	0.6959	16,254
Wyoming	0.1193	0.0397	876
State Totals	**171.5771**	**55.0035**	**1,212,590**
Interstate Spillovers	**69.8242**	**21.3905**	**490,558**
U.S. Totals	**241.4013**	**76.3940**	**1,703,149**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.052	0.112	0.037	889
Alaska	0.011	0.019	0.007	135
Arizona	0.160	0.328	0.111	2,638
Arkansas	0.041	0.082	0.026	651
California	1.381	2.934	0.971	20,087
Colorado	0.246	0.530	0.177	4,121
Connecticut	0.010	0.018	0.006	117
Delaware	0.016	0.029	0.008	173
District of Columbia	0.533	0.598	0.045	828
Florida	0.435	0.891	0.300	7,537
Georgia	0.720	1.651	0.540	13,044
Hawaii	0.027	0.050	0.017	371
Idaho	0.043	0.079	0.026	667
Illinois	0.353	0.810	0.255	5,359
Indiana	0.089	0.196	0.062	1,428
Iowa	0.080	0.155	0.050	1,161
Kansas	0.161	0.319	0.094	2,231
Kentucky	0.052	0.109	0.033	829
Louisiana	0.042	0.083	0.028	608
Maine	0.021	0.040	0.013	334
Maryland	0.291	0.545	0.172	3,561
Massachusetts	0.600	1.137	0.359	7,041
Michigan	0.484	1.029	0.342	8,245
Minnesota	0.077	0.168	0.054	1,184
Mississippi	0.008	0.016	0.005	132
Missouri	0.195	0.417	0.127	3,009
Montana	0.019	0.035	0.012	302
Nebraska	0.033	0.062	0.020	456
Nevada	0.237	0.437	0.145	3,161
New Hampshire	0.005	0.009	0.003	59
New Jersey	0.099	0.202	0.062	1,280
New Mexico	0.029	0.050	0.017	421
New York	4.104	7.504	2.334	46,633
North Carolina	0.520	1.139	0.368	9,236
North Dakota	0.033	0.058	0.018	377
Ohio	0.280	0.641	0.203	4,595
Oklahoma	0.107	0.220	0.073	1,673
Oregon	0.386	0.777	0.245	5,786
Pennsylvania	0.190	0.429	0.134	2,814
Rhode Island	0.051	0.090	0.026	566
South Carolina	0.042	0.091	0.029	746
South Dakota	0.031	0.058	0.019	483
Tennessee	0.213	0.480	0.150	3,342
Texas	1.733	4.157	1.362	28,876
Utah	0.073	0.162	0.053	1,266
Vermont	0.001	0.002	0.001	13
Virginia	0.433	0.844	0.264	6,109
Washington	0.383	0.793	0.258	5,377
West Virginia	0.005	0.009	0.003	67
Wisconsin	0.212	0.439	0.145	3,398
Wyoming	0.003	0.005	0.002	33
State Totals	**15.349**	**31.039**	**9.815**	**213,449**
Interstate Spillovers		**13.626**	**4.320**	**101,670**
U.S. Totals	**15.349**	**44.664**	**14.134**	**315,118**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.156	0.335	0.110	2,668
Alaska	0.000	0.000	0.000	–
Arizona	0.010	0.021	0.007	171
Arkansas	0.037	0.074	0.024	588
California	0.132	0.280	0.093	1,919
Colorado	0.027	0.058	0.019	452
Connecticut	0.054	0.100	0.032	630
Delaware	0.000	0.000	0.000	1
District of Columbia	0.000	0.000	0.000	–
Florida	0.067	0.138	0.047	1,170
Georgia	0.010	0.024	0.008	188
Hawaii	0.000	0.000	0.000	1
Idaho	0.018	0.034	0.011	286
Illinois	0.040	0.091	0.029	602
Indiana	0.027	0.060	0.019	435
Iowa	0.050	0.096	0.031	717
Kansas	0.016	0.031	0.009	220
Kentucky	0.199	0.419	0.128	3,173
Louisiana	1.979	3.930	1.323	28,667
Maine	0.000	0.000	0.000	–
Maryland	0.017	0.032	0.010	210
Massachusetts	0.068	0.128	0.040	794
Michigan	0.560	1.191	0.396	9,543
Minnesota	0.066	0.145	0.046	1,018
Mississippi	0.022	0.043	0.014	350
Missouri	0.057	0.121	0.037	874
Montana	0.000	0.000	0.000	–
Nebraska	0.182	0.342	0.112	2,529
Nevada	0.004	0.007	0.002	48
New Hampshire	0.001	0.002	0.000	10
New Jersey	0.247	0.506	0.156	3,207
New Mexico	0.000	0.000	0.000	1
New York	0.113	0.207	0.064	1,284
North Carolina	0.008	0.018	0.006	145
North Dakota	0.000	0.001	0.000	4
Ohio	0.102	0.234	0.074	1,676
Oklahoma	0.011	0.022	0.007	165
Oregon	0.015	0.031	0.010	229
Pennsylvania	0.165	0.371	0.116	2,438
Rhode Island	0.004	0.007	0.002	46
South Carolina	0.255	0.554	0.178	4,538
South Dakota	0.103	0.190	0.063	1,578
Tennessee	0.177	0.400	0.125	2,786
Texas	0.643	1.542	0.505	10,712
Utah	0.001	0.001	0.000	9
Vermont	0.008	0.015	0.005	118
Virginia	0.009	0.018	0.006	128
Washington	0.062	0.129	0.042	877
West Virginia	0.013	0.023	0.007	165
Wisconsin	0.031	0.065	0.021	500
Wyoming	0.015	0.024	0.008	174
State Totals	**5.782**	**12.059**	**3.944**	**88,045**
Interstate Spillovers		**4.765**	**1.381**	**30,655**
U.S. Totals	**5.782**	**16.824**	**5.324**	**118,700**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.001	0.003	0.001	24
Alaska	0.002	0.003	0.001	19
Arizona	0.085	0.174	0.059	1,399
Arkansas	0.032	0.064	0.021	513
California	0.394	0.838	0.277	5,735
Colorado	0.085	0.184	0.061	1,430
Connecticut	0.027	0.050	0.016	318
Delaware	0.001	0.002	0.001	13
District of Columbia	0.003	0.003	0.000	4
Florida	0.284	0.582	0.196	4,921
Georgia	0.088	0.202	0.066	1,594
Hawaii	0.004	0.007	0.002	51
Idaho	0.005	0.008	0.003	71
Illinois	0.208	0.477	0.150	3,156
Indiana	0.075	0.164	0.052	1,200
Iowa	0.017	0.032	0.010	239
Kansas	0.076	0.150	0.044	1,051
Kentucky	0.047	0.100	0.031	757
Louisiana	0.016	0.032	0.011	237
Maine	0.001	0.002	0.001	15
Maryland	0.036	0.068	0.021	444
Massachusetts	0.022	0.042	0.013	259
Michigan	0.030	0.064	0.021	513
Minnesota	0.033	0.073	0.023	513
Mississippi	0.000	0.001	0.000	5
Missouri	0.085	0.182	0.056	1,316
Montana	0.001	0.002	0.001	14
Nebraska	0.008	0.016	0.005	118
Nevada	0.061	0.113	0.038	816
New Hampshire	0.001	0.002	0.001	15
New Jersey	0.157	0.321	0.099	2,035
New Mexico	0.002	0.003	0.001	24
New York	0.156	0.286	0.089	1,776
North Carolina	0.050	0.108	0.035	880
North Dakota	0.013	0.024	0.007	153
Ohio	0.057	0.132	0.042	944
Oklahoma	0.031	0.063	0.021	477
Oregon	0.053	0.107	0.034	794
Pennsylvania	0.117	0.264	0.082	1,731
Rhode Island	0.000	0.000	0.000	2
South Carolina	0.017	0.037	0.012	305
South Dakota	0.013	0.025	0.008	204
Tennessee	0.025	0.057	0.018	398
Texas	0.381	0.914	0.300	6,351
Utah	0.026	0.058	0.019	450
Vermont	0.000	0.001	0.000	4
Virginia	0.028	0.056	0.017	402
Washington	0.047	0.097	0.032	658
West Virginia	0.005	0.008	0.003	59
Wisconsin	0.045	0.093	0.031	724
Wyoming	0.003	0.005	0.002	39
State Totals	**2.957**	**6.298**	**2.033**	**45,169**
Interstate Spillovers		**2.307**	**0.690**	**15,539**
U.S. Totals	**2.957**	**8.605**	**2.723**	**60,707**

Sources: GMU Schar Fuller; Dodge Data & Analytics; BEA; NAIOP

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

Appendix D-4

Impacts of Tenant Improvements on State Economies **(Retail and Entertainment)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.046	0.098	0.032	778
Alaska	0.003	0.006	0.002	42
Arizona	0.114	0.233	0.078	1,873
Arkansas	0.035	0.070	0.022	555
California	0.726	1.542	0.510	10,556
Colorado	0.130	0.280	0.094	2,176
Connecticut	0.031	0.056	0.018	356
Delaware	0.015	0.027	0.007	162
District of Columbia	0.042	0.047	0.004	66
Florida	0.544	1.116	0.376	9,440
Georgia	0.277	0.635	0.208	5,014
Hawaii	0.036	0.066	0.023	486
Idaho	0.021	0.039	0.013	332
Illinois	0.256	0.588	0.185	3,888
Indiana	0.066	0.146	0.046	1,064
Iowa	0.087	0.168	0.054	1,255
Kansas	0.060	0.118	0.035	827
Kentucky	0.073	0.154	0.047	1,164
Louisiana	0.059	0.117	0.039	855
Maine	0.012	0.023	0.008	194
Maryland	0.126	0.236	0.075	1,545
Massachusetts	0.224	0.424	0.134	2,625
Michigan	0.094	0.199	0.066	1,594
Minnesota	0.091	0.199	0.063	1,395
Mississippi	0.026	0.052	0.017	421
Missouri	0.125	0.268	0.082	1,932
Montana	0.021	0.040	0.013	340
Nebraska	0.035	0.065	0.021	484
Nevada	0.085	0.157	0.052	1,135
New Hampshire	0.017	0.032	0.010	210
New Jersey	0.122	0.251	0.077	1,589
New Mexico	0.030	0.052	0.018	439
New York	0.586	1.071	0.333	6,655
North Carolina	0.188	0.412	0.133	3,338
North Dakota	0.009	0.016	0.005	102
Ohio	0.176	0.402	0.127	2,882
Oklahoma	0.074	0.151	0.050	1,150
Oregon	0.074	0.150	0.047	1,116
Pennsylvania	0.271	0.609	0.190	4,000
Rhode Island	0.009	0.015	0.005	97
South Carolina	0.075	0.163	0.052	1,332
South Dakota	0.014	0.026	0.009	213
Tennessee	0.172	0.388	0.122	2,707
Texas	0.756	1.813	0.594	12,593
Utah	0.050	0.110	0.036	861
Vermont	0.005	0.009	0.003	69
Virginia	0.245	0.477	0.149	3,453
Washington	0.093	0.193	0.063	1,309
West Virginia	0.008	0.015	0.005	106
Wisconsin	0.082	0.170	0.056	1,318
Wyoming	0.005	0.008	0.003	56
State Totals	**6.518**	**13.700**	**4.411**	**98,148**
Interstate Spillovers		**5.268**	**1.592**	**35,679**
U.S. Totals	**6.518**	**18.968**	**6.003**	**133,827**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.255	0.548	0.179	4,359
Alaska	0.016	0.027	0.010	196
Arizona	0.370	0.755	0.255	6,081
Arkansas	0.145	0.289	0.093	2,306
California	2.633	5.595	1.852	38,297
Colorado	0.487	1.053	0.352	8,179
Connecticut	0.122	0.224	0.072	1,421
Delaware	0.033	0.058	0.016	350
District of Columbia	0.578	0.648	0.049	898
Florida	1.330	2.728	0.918	23,069
Georgia	1.095	2.512	0.822	19,839
Hawaii	0.067	0.123	0.042	909
Idaho	0.087	0.160	0.054	1,355
Illinois	0.856	1.966	0.619	13,005
Indiana	0.257	0.566	0.178	4,127
Iowa	0.234	0.451	0.145	3,372
Kansas	0.312	0.619	0.183	4,329
Kentucky	0.371	0.782	0.239	5,923
Louisiana	2.097	4.163	1.402	30,367
Maine	0.034	0.065	0.022	543
Maryland	0.470	0.881	0.279	5,759
Massachusetts	0.914	1.731	0.546	10,720
Michigan	1.167	2.484	0.825	19,894
Minnesota	0.268	0.585	0.187	4,109
Mississippi	0.057	0.112	0.037	908
Missouri	0.462	0.989	0.301	7,131
Montana	0.041	0.076	0.026	656
Nebraska	0.258	0.485	0.158	3,587
Nevada	0.386	0.713	0.237	5,160
New Hampshire	0.023	0.045	0.014	293
New Jersey	0.625	1.279	0.395	8,111
New Mexico	0.060	0.105	0.036	884
New York	4.959	9.067	2.821	56,348
North Carolina	0.766	1.677	0.542	13,599
North Dakota	0.056	0.098	0.031	636
Ohio	0.615	1.409	0.445	10,098
Oklahoma	0.222	0.456	0.152	3,465
Oregon	0.529	1.064	0.335	7,926
Pennsylvania	0.743	1.673	0.521	10,983
Rhode Island	0.065	0.113	0.033	710
South Carolina	0.388	0.845	0.272	6,921
South Dakota	0.162	0.298	0.099	2,478
Tennessee	0.587	1.325	0.415	9,234
Texas	3.513	8.426	2.761	58,532
Utah	0.150	0.332	0.109	2,586
Vermont	0.014	0.025	0.008	204
Virginia	0.715	1.394	0.436	10,092
Washington	0.585	1.212	0.395	8,221
West Virginia	0.031	0.056	0.017	398
Wisconsin	0.371	0.767	0.254	5,939
Wyoming	0.026	0.041	0.014	303
State Totals	**30.605**	**63.096**	**20.202**	**444,810**
Interstate Spillovers		**25.965**	**7.982**	**183,542**
U.S. Totals	**30.605**	**89.062**	**28.184**	**628,352**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.252	0.533	0.180	4,321
Alaska	0.054	0.092	0.033	669
Arizona	0.778	1.605	0.555	13,041
Arkansas	0.198	0.389	0.130	3,183
California	6.695	14.379	4.887	98,698
Colorado	1.190	2.602	0.891	20,319
Connecticut	0.049	0.090	0.030	577
Delaware	0.079	0.139	0.039	831
District of Columbia	2.582	3.014	0.270	4,702
Florida	2.107	4.369	1.510	37,214
Georgia	3.488	8.043	2.695	63,136
Hawaii	0.133	0.246	0.087	1,873
Idaho	0.209	0.381	0.132	3,279
Illinois	1.709	3.943	1.276	26,399
Indiana	0.431	0.936	0.304	7,008
Iowa	0.390	0.746	0.248	5,744
Kansas	0.778	1.534	0.468	10,958
Kentucky	0.252	0.524	0.165	4,045
Louisiana	0.203	0.402	0.139	2,992
Maine	0.102	0.193	0.067	1,649
Maryland	1.409	2.687	0.874	17,766
Massachusetts	2.909	5.613	1.826	35,030
Michigan	2.345	4.975	1.700	40,117
Minnesota	0.374	0.818	0.269	5,819
Mississippi	0.040	0.078	0.026	644
Missouri	0.945	2.010	0.624	14,513
Montana	0.092	0.169	0.059	1,487
Nebraska	0.159	0.298	0.101	2,257
Nevada	1.147	2.132	0.730	15,768
New Hampshire	0.023	0.044	0.014	291
New Jersey	0.478	0.990	0.313	6,339
New Mexico	0.138	0.244	0.085	2,094
New York	19.891	36.935	11.674	227,845
North Carolina	2.522	5.506	1.832	45,092
North Dakota	0.160	0.281	0.092	1,882
Ohio	1.356	3.084	1.003	22,432
Oklahoma	0.518	1.060	0.364	8,299
Oregon	1.870	3.763	1.226	28,822
Pennsylvania	0.923	2.062	0.660	13,636
Rhode Island	0.249	0.442	0.133	2,844
South Carolina	0.203	0.438	0.145	3,640
South Dakota	0.153	0.279	0.096	2,366
Tennessee	1.031	2.313	0.746	16,441
Texas	8.399	20.153	6.761	141,201
Utah	0.355	0.788	0.266	6,337
Vermont	0.004	0.008	0.003	62
Virginia	2.098	4.110	1.306	29,334
Washington	1.855	3.845	1.292	26,500
West Virginia	0.025	0.045	0.014	330
Wisconsin	1.028	2.105	0.718	16,598
Wyoming	0.014	0.022	0.008	166
State Totals	**74.392**	**151.462**	**49.064**	**1,046,590**
Interstate Spillovers		**64.661**	**20.960**	**492,549**
U.S. Totals	**74.392**	**216.123**	**70.024**	**1,539,139**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.736	1.560	0.522	12,586
Alaska	0.000	0.000	0.000	–
Arizona	0.049	0.101	0.035	816
Arkansas	0.174	0.343	0.113	2,786
California	0.621	1.330	0.449	9,125
Colorado	0.127	0.276	0.094	2,154
Connecticut	0.255	0.472	0.154	3,002
Delaware	0.000	0.001	0.000	4
District of Columbia	0.000	0.000	0.000	–
Florida	0.318	0.657	0.226	5,585
Georgia	0.049	0.112	0.037	884
Hawaii	0.000	0.001	0.000	5
Idaho	0.087	0.159	0.054	1,358
Illinois	0.186	0.430	0.138	2,869
Indiana	0.128	0.278	0.089	2,066
Iowa	0.234	0.448	0.148	3,426
Kansas	0.074	0.147	0.045	1,044
Kentucky	0.935	1.955	0.610	15,009
Louisiana	9.316	18.439	6.341	136,517
Maine	0.000	0.000	0.000	–
Maryland	0.081	0.154	0.050	1,012
Massachusetts	0.319	0.612	0.198	3,812
Michigan	2.635	5.596	1.898	45,042
Minnesota	0.313	0.683	0.223	4,841
Mississippi	0.103	0.202	0.067	1,656
Missouri	0.267	0.568	0.176	4,101
Montana	0.000	0.000	0.000	–
Nebraska	0.855	1.608	0.537	12,097
Nevada	0.017	0.032	0.011	232
New Hampshire	0.004	0.007	0.002	47
New Jersey	1.163	2.402	0.754	15,342
New Mexico	0.000	0.000	0.000	3
New York	0.532	0.983	0.310	6,078
North Carolina	0.038	0.084	0.028	685
North Dakota	0.002	0.003	0.001	18
Ohio	0.480	1.095	0.353	7,931
Oklahoma	0.050	0.102	0.035	791
Oregon	0.072	0.145	0.047	1,101
Pennsylvania	0.776	1.738	0.553	11,470
Rhode Island	0.020	0.035	0.010	222
South Carolina	1.198	2.593	0.851	21,465
South Dakota	0.484	0.888	0.302	7,489
Tennessee	0.834	1.875	0.600	13,259
Texas	3.025	7.259	2.421	50,746
Utah	0.002	0.005	0.002	42
Vermont	0.038	0.069	0.023	565
Virginia	0.043	0.084	0.026	598
Washington	0.294	0.609	0.203	4,182
West Virginia	0.061	0.108	0.034	784
Wisconsin	0.147	0.301	0.102	2,366
Wyoming	0.069	0.111	0.038	836
State Totals	**27.210**	**56.658**	**18.911**	**418,052**
Interstate Spillovers		**22.425**	**6.559**	**143,811**
U.S. Totals	**27.210**	**79.084**	**25.471**	**561,863**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.011	0.024	0.008	194
Alaska	0.012	0.021	0.008	153
Arizona	0.675	1.390	0.479	11,283
Arkansas	0.255	0.503	0.167	4,098
California	3.128	6.707	2.271	46,021
Colorado	0.676	1.475	0.504	11,509
Connecticut	0.217	0.402	0.132	2,560
Delaware	0.010	0.018	0.005	105
District of Columbia	0.020	0.024	0.002	36
Florida	2.251	4.661	1.605	39,659
Georgia	0.697	1.607	0.537	12,624
Hawaii	0.030	0.055	0.019	415
Idaho	0.036	0.066	0.023	568
Illinois	1.647	3.797	1.224	25,377
Indiana	0.593	1.289	0.416	9,617
Iowa	0.131	0.252	0.083	1,931
Kansas	0.600	1.183	0.360	8,428
Kentucky	0.376	0.785	0.246	6,041
Louisiana	0.130	0.257	0.089	1,906
Maine	0.007	0.014	0.005	117
Maryland	0.287	0.546	0.177	3,606
Massachusetts	0.175	0.337	0.109	2,102
Michigan	0.239	0.506	0.172	4,080
Minnesota	0.265	0.580	0.190	4,117
Mississippi	0.002	0.004	0.001	37
Missouri	0.676	1.440	0.446	10,394
Montana	0.007	0.013	0.004	113
Nebraska	0.067	0.127	0.043	956
Nevada	0.484	0.900	0.307	6,632
New Hampshire	0.010	0.019	0.006	124
New Jersey	1.244	2.572	0.810	16,447
New Mexico	0.013	0.022	0.008	192
New York	1.239	2.296	0.724	14,179
North Carolina	0.393	0.859	0.284	7,022
North Dakota	0.106	0.187	0.061	1,246
Ohio	0.456	1.038	0.336	7,533
Oklahoma	0.242	0.495	0.169	3,861
Oregon	0.420	0.845	0.274	6,447
Pennsylvania	0.929	2.078	0.663	13,727
Rhode Island	0.001	0.002	0.001	13
South Carolina	0.136	0.293	0.097	2,433
South Dakota	0.106	0.193	0.066	1,634
Tennessee	0.201	0.451	0.145	3,193
Texas	3.023	7.253	2.425	50,755
Utah	0.207	0.458	0.154	3,672
Vermont	0.002	0.004	0.001	33
Virginia	0.226	0.442	0.140	3,162
Washington	0.371	0.770	0.257	5,292
West Virginia	0.037	0.065	0.021	473
Wisconsin	0.358	0.735	0.250	5,778
Wyoming	0.026	0.042	0.014	317
State Totals	**23.451**	**50.103**	**16.537**	**362,215**
Interstate Spillovers		**18.043**	**5.469**	**122,444**
U.S. Totals	**23.451**	**68.146**	**22.005**	**484,659**

Sources: GMU Schar Fuller; 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 and Entertainment)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	0.245	0.517	0.174	4.192
Alaska	0.019	0.032	0.012	232
Arizona	0.612	1.263	0.438	10,271
Arkansas	0.187	0.367	0.123	3,007
California	3.896	8.375	2.852	57,498
Colorado	0.696	1.523	0.523	11,895
Connecticut	0.164	0.305	0.101	1,944
Delaware	0.082	0.145	0.040	863
District of Columbia	0.227	0.266	0.024	418
Florida	2.922	6.066	2.101	51,694
Georgia	1.485	3.425	1.150	26,875
Hawaii	0.193	0.357	0.127	2,724
Idaho	0.115	0.210	0.073	1,808
Illinois	1.373	3.169	1.027	21,236
Indiana	0.356	0.772	0.251	5,790
Iowa	0.467	0.892	0.297	6,888
Kansas	0.320	0.629	0.193	4,503
Kentucky	0.391	0.814	0.257	6,293
Louisiana	0.317	0.627	0.218	4,670
Maine	0.066	0.124	0.043	1,064
Maryland	0.677	1.293	0.421	8,554
Massachusetts	1.201	2.321	0.757	14,491
Michigan	0.502	1.065	0.365	8,591
Minnesota	0.488	1.068	0.352	7,600
Mississippi	0.141	0.275	0.092	2,276
Missouri	0.672	1.429	0.444	10,318
Montana	0.115	0.211	0.074	1,861
Nebraska	0.187	0.351	0.118	2,659
Nevada	0.456	0.848	0.291	6,281
New Hampshire	0.090	0.173	0.055	1,153
New Jersey	0.657	1.362	0.431	8,729
New Mexico	0.160	0.281	0.098	2,423
New York	3.144	5.844	1.849	36,032
North Carolina	1.009	2.203	0.735	18,057
North Dakota	0.048	0.084	0.027	563
Ohio	0.942	2.141	0.698	15,591
Oklahoma	0.395	0.807	0.278	6,330
Oregon	0.400	0.804	0.263	6,171
Pennsylvania	1.452	3.244	1.041	21,465
Rhode Island	0.047	0.084	0.025	540
South Carolina	0.401	0.866	0.287	7,203
South Dakota	0.074	0.136	0.047	1,155
Tennessee	0.924	2.074	0.671	14,764
Texas	4.057	9.734	3.271	68,242
Utah	0.267	0.593	0.201	4,783
Vermont	0.025	0.046	0.015	377
Virginia	1.313	2.574	0.819	18,349
Washington	0.500	1.037	0.349	7,156
West Virginia	0.044	0.079	0.025	577
Wisconsin	0.442	0.903	0.309	7,132
Wyoming	0.025	0.041	0.014	309
State Totals	**34.988**	**73.850**	**24.444**	**533,596**
Interstate Spillovers		**27.785**	**8.545**	**190,726**
U.S. Totals	**34.988**	**101.635**	**32.989**	**724,322**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Billions of Dollars)	Total Output (In Billions of Dollars)	Personal Earnings (In Billions of Dollars)	Jobs Supported
Alabama	1.244	2.634	0.884	21,293
Alaska	0.085	0.146	0.052	1,054
Arizona	2.113	4.359	1.507	35,411
Arkansas	0.813	1.603	0.533	13,074
California	14.340	30.792	10.459	211,341
Colorado	2.689	5.877	2.012	45,877
Connecticut	0.684	1.268	0.417	8,083
Delaware	0.171	0.303	0.084	1,803
District of Columbia	2.829	3.303	0.296	5,157
Florida	7.598	15.752	5.441	134,152
Georgia	5.720	13.188	4.419	103,519
Hawaii	0.356	0.659	0.233	5,018
Idaho	0.447	0.816	0.282	7,014
Illinois	4.916	11.340	3.665	75,881
Indiana	1.507	3.274	1.060	24,481
Iowa	1.222	2.339	0.776	17,990
Kansas	1.772	3.494	1.065	24,934
Kentucky	1.954	4.078	1.278	31,387
Louisiana	9.966	19.724	6.787	146,085
Maine	0.175	0.331	0.115	2,831
Maryland	2.454	4.679	1.522	30,938
Massachusetts	4.603	8.883	2.889	55,435
Michigan	5.721	12.143	4.136	97,830
Minnesota	1.441	3.149	1.033	22,377
Mississippi	0.287	0.559	0.187	4,613
Missouri	2.560	5.446	1.689	39,327
Montana	0.214	0.393	0.138	3,461
Nebraska	1.268	2.385	0.799	17,969
Nevada	2.105	3.911	1.339	28,914
New Hampshire	0.126	0.243	0.077	1,616
New Jersey	3.542	7.327	2.309	46,856
New Mexico	0.311	0.548	0.191	4,713
New York	24.805	46.058	14.557	284,135
North Carolina	3.963	8.651	2.879	70,856
North Dakota	0.316	0.554	0.181	3,709
Ohio	3.235	7.358	2.391	53,488
Oklahoma	1.204	2.464	0.846	19,281
Oregon	2.762	5.557	1.810	42,541
Pennsylvania	4.080	9.123	2.916	60,298
Rhode Island	0.317	0.563	0.170	3,620
South Carolina	1.938	4.191	1.379	34,740
South Dakota	0.817	1.497	0.510	12,644
Tennessee	2.990	6.713	2.162	47,657
Texas	18.504	44.399	14.877	310,944
Utah	0.831	1.845	0.623	14,834
Vermont	0.070	0.127	0.042	1,037
Virginia	3.680	7.210	2.292	51,442
Washington	3.021	6.261	2.101	43,130
West Virginia	0.167	0.298	0.095	2,163
Wisconsin	1.975	4.045	1.379	31,873
Wyoming	0.134	0.216	0.074	1,628
State Totals	**160.041**	**332.073**	**108.956**	**2,360,453**
Interstate Spillovers		**132.915**	**41.532**	**949,530**
U.S. Totals	**160.041**	**464.988**	**150.488**	**3,309,982**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	5,394	10,033	3,126	94
Alaska	752	1,254	398	10
Arizona	12,331	23,537	7,515	208
Arkansas	4,515	7,952	2,443	74
California	101,419	205,643	64,242	1,526
Colorado	19,721	40,848	12,844	342
Connecticut	164	285	86	2
Delaware	2,037	3,405	862	23
District of Columbia	28,797	35,134	3,464	87
Florida	31,196	59,748	19,122	553
Georgia	42,177	87,666	27,256	732
Hawaii	667	1,166	372	10
Idaho	2,929	4,867	1,545	48
Illinois	27,695	58,633	17,692	433
Indiana	7,915	15,250	4,596	128
Iowa	5,934	10,129	3,088	90
Kansas	12,695	23,090	6,459	179
Kentucky	8,450	15,899	4,617	136
Louisiana	3,673	6,850	2,146	60
Maine	1,406	2,435	777	23
Maryland	28,359	51,057	15,254	376
Massachusetts	21,513	39,062	11,729	275
Michigan	16,772	31,936	10,106	274
Minnesota	6,512	12,966	3,953	103
Mississippi	758	1,341	410	13
Missouri	10,183	19,414	5,546	157
Montana	1,238	2,126	675	21
Nebraska	2,267	3,880	1,197	35
Nevada	12,626	21,633	6,794	186
New Hampshire	258	447	129	3
New Jersey	3,957	7,674	2,230	54
New Mexico	3,034	5,175	1,618	49
New York	70,470	124,298	35,368	844
North Carolina	43,031	83,646	25,954	760
North Dakota	3,603	6,027	1,770	48
Ohio	23,515	47,847	14,513	374
Oklahoma	12,777	24,656	7,697	215
Oregon	24,684	44,730	13,520	383
Pennsylvania	8,227	16,621	4,944	120
Rhode Island	340	568	157	4
South Carolina	6,874	13,096	3,983	121
South Dakota	3,082	5,041	1,573	48
Tennessee	20,788	41,527	12,509	328
Texas	136,252	302,415	93,384	2,386
Utah	7,574	15,617	4,872	141
Vermont	19	32	10	0
Virginia	38,304	69,214	20,034	515
Washington	25,361	47,653	14,826	376
West Virginia	297	495	144	4
Wisconsin	19,740	35,995	11,327	320
Wyoming	268	416	128	4
State Totals	**872,546**	**1,690,432**	**509,007**	**13,294**
Interstate Spillovers		**611,162**	**150,682**	**3,819**
U.S. Totals	**872,546**	**2,301,594**	**659,688**	**17,113**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	2,566	4,772	1,487	45
Alaska	–	–	–	0
Arizona	255	487	155	4
Arkansas	934	1,644	505	15
California	3,989	8,089	2,527	60
Colorado	1,349	2,794	878	23
Connecticut	1,241	2,155	649	15
Delaware	6	9	2	0
District of Columbia	–	–	–	0
Florida	1,217	2,330	746	22
Georgia	435	904	281	8
Hawaii	–	–	–	0
Idaho	480	797	253	8
Illinois	1,232	2,608	787	19
Indiana	611	1,177	355	10
Iowa	1,749	2,986	910	27
Kansas	723	1,315	368	10
Kentucky	3,710	6,981	2,027	60
Louisiana	72	134	42	1
Maine	–	–	–	0
Maryland	296	534	159	4
Massachusetts	1,102	2,000	601	14
Michigan	3,257	6,201	1,962	53
Minnesota	2,367	4,713	1,437	37
Mississippi	341	603	184	6
Missouri	1,964	3,744	1,070	30
Montana	–	–	–	0
Nebraska	3,559	6,093	1,880	55
Nevada	101	173	54	1
New Hampshire	19	32	9	0
New Jersey	1,630	3,161	919	22
New Mexico	–	–	–	0
New York	2,488	4,389	1,249	30
North Carolina	183	357	111	3
North Dakota	–	–	–	0
Ohio	3,447	7,014	2,127	55
Oklahoma	319	616	192	5
Oregon	613	1,110	336	9
Pennsylvania	2,756	5,568	1,656	40
Rhode Island	80	133	37	1
South Carolina	5,642	10,750	3,270	99
South Dakota	439	719	224	7
Tennessee	4,963	9,914	2,986	78
Texas	6,338	14,068	4,344	111
Utah	–	–	–	0
Vermont	188	310	94	3
Virginia	151	273	79	2
Washington	2,439	4,582	1,426	36
West Virginia	627	1,045	304	8
Wisconsin	1,165	2,125	669	19
Wyoming	379	588	181	5
State Totals	**67,421**	**129,999**	**39,535**	**1,063**
Interstate Spillovers		**47,844**	**11,439**	**259**
U.S. Totals	**67,421**	**177,844**	**50,974**	**1,322**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	7	14	4	0
Alaska	26	43	14	0
Arizona	5,561	10,615	3,389	94
Arkansas	1,221	2,151	661	20
California	16,490	33,436	10,445	248
Colorado	3,983	8,251	2,594	69
Connecticut	1,263	2,194	661	16
Delaware	6	11	3	0
District of Columbia	15	19	2	0
Florida	13,888	26,599	8,513	246
Georgia	5,020	10,434	3,244	87
Hawaii	88	155	49	1
Idaho	278	462	147	5
Illinois	13,549	28,685	8,656	212
Indiana	5,930	11,426	3,444	96
Iowa	1,037	1,770	540	16
Kansas	5,991	10,897	3,048	84
Kentucky	3,202	6,024	1,749	51
Louisiana	595	1,110	348	10
Maine	48	84	27	1
Maryland	1,560	2,809	839	21
Massachusetts	1,063	1,931	580	14
Michigan	1,083	2,062	653	18
Minnesota	1,571	3,127	953	25
Mississippi	14	26	8	0
Missouri	3,886	7,409	2,117	60
Montana	25	43	14	0
Nebraska	373	639	197	6
Nevada	4,317	7,398	2,323	64
New Hampshire	72	125	36	1
New Jersey	5,748	11,147	3,240	79
New Mexico	106	181	57	2
New York	4,291	7,569	2,154	51
North Carolina	2,475	4,811	1,493	44
North Dakota	665	1,112	327	9
Ohio	3,430	6,979	2,117	54
Oklahoma	2,308	4,453	1,390	39
Oregon	3,257	5,903	1,784	50
Pennsylvania	7,084	14,313	4,257	103
Rhode Island	8	13	4	0
South Carolina	664	1,264	385	12
South Dakota	178	291	91	3
Tennessee	1,161	2,319	698	18
Texas	23,398	51,931	16,036	410
Utah	1,039	2,143	668	19
Vermont	24	39	12	0
Virginia	1,983	3,583	1,037	27
Washington	1,834	3,445	1,072	27
West Virginia	76	127	37	1
Wisconsin	1,738	3,169	997	28
Wyoming	42	65	20	1
State Totals	**153,673**	**304,803**	**93,132**	**2,441**
Interstate Spillovers		**100,554**	**23,053**	**573**
U.S. Totals	**153,673**	**405,357**	**116,184**	**3,014**

Sources: GMU Schar Fuller; Dodge Data & Analytics; BEA; NAIOP

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

Appendix F-4

Impacts of Operations on State Economies **(Retail and Entertainment)**, 2016

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	2,719	5,058	1,576	48
Alaska	119	198	63	2
Arizona	7,872	15,026	4,797	133
Arkansas	2,200	3,875	1,191	36
California	20,260	41,080	12,833	305
Colorado	8,712	18,044	5,674	151
Connecticut	1,647	2,860	862	20
Delaware	1,191	1,992	504	13
District of Columbia	1,327	1,620	160	4
Florida	29,911	57,286	18,334	531
Georgia	14,488	30,114	9,363	252
Hawaii	1,553	2,715	866	24
Idaho	1,494	2,483	788	24
Illinois	10,968	23,221	7,007	172
Indiana	5,291	10,194	3,072	85
Iowa	5,004	8,541	2,604	76
Kansas	4,040	7,347	2,055	57
Kentucky	5,872	11,048	3,208	94
Louisiana	3,802	7,090	2,221	62
Maine	546	946	302	9
Maryland	7,008	12,617	3,769	93
Massachusetts	6,188	11,237	3,374	79
Michigan	9,560	18,205	5,761	156
Minnesota	7,006	13,951	4,253	111
Mississippi	2,037	3,603	1,101	34
Missouri	7,880	15,024	4,292	122
Montana	1,097	1,884	598	19
Nebraska	2,168	3,712	1,145	33
Nevada	2,411	4,130	1,297	36
New Hampshire	585	1,016	294	7
New Jersey	6,775	13,140	3,819	93
New Mexico	1,571	2,680	838	26
New York	10,610	18,715	5,325	127
North Carolina	10,901	21,190	6,575	193
North Dakota	404	676	198	5
Ohio	9,762	19,863	6,025	155
Oklahoma	4,573	8,825	2,755	77
Oregon	3,881	7,033	2,126	60
Pennsylvania	10,561	21,337	6,346	154
Rhode Island	158	264	73	2
South Carolina	6,998	13,333	4,055	123
South Dakota	694	1,136	354	11
Tennessee	10,824	21,623	6,514	171
Texas	42,185	93,631	28,913	739
Utah	3,270	6,743	2,104	61
Vermont	194	319	97	3
Virginia	15,103	27,290	7,899	203
Washington	4,545	8,540	2,657	67
West Virginia	499	831	242	7
Wisconsin	6,965	12,700	3,997	113
Wyoming	61	94	29	1
State Totals	**325,491**	**636,079**	**194,306**	**5,176**
Interstate Spillovers		**222,498**	**51,781**	**1,208**
U.S. Totals	**325,491**	**858,577**	**246,087**	**6,384**

Sources: GMU Schar Fuller; 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)**, 2016

State	Direct Spending (In Thousands of Dollars)	Total Output (In Thousands of Dollars)	Personal Earnings (In Thousands of Dollars)	Jobs Supported
Alabama	10,686	19,877	6,193	187
Alaska	897	1,495	475	12
Arizona	26,019	49,665	15,857	438
Arkansas	8,869	15,622	4,800	146
California	142,159	288,248	90,048	2,138
Colorado	33,764	69,937	21,991	585
Connecticut	4,315	7,495	2,258	53
Delaware	3,240	5,417	1,371	37
District of Columbia	30,140	36,773	3,626	91
Florida	76,213	145,964	46,714	1,352
Georgia	62,120	129,118	40,144	1,079
Hawaii	2,308	4,035	1,288	35
Idaho	5,181	8,608	2,732	85
Illinois	53,444	113,148	34,142	836
Indiana	19,748	38,047	11,467	319
Iowa	13,724	23,426	7,142	209
Kansas	23,449	42,650	11,931	330
Kentucky	21,234	39,952	11,602	341
Louisiana	8,142	15,183	4,756	133
Maine	2,001	3,465	1,106	33
Maryland	37,223	67,017	20,022	493
Massachusetts	29,866	54,230	16,284	382
Michigan	30,672	58,405	18,482	500
Minnesota	17,456	34,757	10,596	276
Mississippi	3,151	5,573	1,703	52
Missouri	23,912	45,591	13,025	369
Montana	2,361	4,053	1,286	40
Nebraska	8,367	14,324	4,420	128
Nevada	19,455	33,334	10,469	287
New Hampshire	934	1,621	469	12
New Jersey	18,110	35,122	10,209	248
New Mexico	4,711	8,036	2,513	77
New York	87,860	154,970	44,096	1,052
North Carolina	56,591	110,004	34,132	1,000
North Dakota	4,671	7,814	2,295	62
Ohio	40,153	81,703	24,782	638
Oklahoma	19,977	38,550	12,035	337
Oregon	32,435	58,776	17,765	503
Pennsylvania	28,627	57,838	17,203	417
Rhode Island	585	978	271	7
South Carolina	20,178	38,443	11,693	355
South Dakota	4,393	7,187	2,242	69
Tennessee	37,736	75,383	22,707	595
Texas	208,173	462,046	142,677	3,646
Utah	11,883	24,503	7,645	222
Vermont	426	700	213	6
Virginia	55,540	100,359	29,048	747
Washington	34,179	64,220	19,980	506
West Virginia	1,499	2,499	728	20
Wisconsin	29,608	53,989	16,990	479
Wyoming	750	1,163	359	10
State Totals	**1,419,132**	**2,761,315**	**835,979**	**21,975**
Interstate Spillovers		**982,057**	**236,955**	**5,859**
U.S. Totals	**1,419,132**	**3,743,372**	**1,072,934**	**27,833**

Sources: GMU Schar Fuller; 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	2.1444	0.7018	17.0657
Alaska	1.6928	0.5958	12.0441
Arizona	2.0424	0.6888	16.4421
Arkansas	2.0016	0.6447	15.9508
California	2.1244	0.7031	14.5424
Colorado	2.1596	0.7216	16.7783
Connecticut	1.8400	0.5910	11.6449
Delaware	1.7637	0.4807	10.6261
District of Columbia	1.1226	0.0852	1.5548
Florida	2.0503	0.6902	17.3388
Georgia	2.2943	0.7505	18.1227
Hawaii	1.8257	0.6315	13.5220
Idaho	1.8333	0.6146	15.4965
Illinois	2.2974	0.7231	15.1972
Indiana	2.2002	0.6923	16.0555
Iowa	1.9324	0.6210	14.4339
Kansas	1.9857	0.5881	13.8961
Kentucky	2.1092	0.6446	15.9681
Louisiana	1.9853	0.6686	14.4823
Maine	1.8935	0.6338	15.8670
Maryland	1.8736	0.5931	12.2490
Massachusetts	1.8947	0.5980	11.7328
Michigan	2.1276	0.7064	17.0410
Minnesota	2.1818	0.6973	15.3290
Mississippi	1.9767	0.6423	15.9729
Missouri	2.1393	0.6519	15.4292
Montana	1.8439	0.6259	15.8797
Nebraska	1.8824	0.6143	13.9239
Nevada	1.8446	0.6140	13.3579
New Hampshire	1.9384	0.5927	12.5641
New Jersey	2.0473	0.6317	12.9788
New Mexico	1.7534	0.5929	14.7413
New York	1.8285	0.5688	11.3634
North Carolina	2.1890	0.7075	17.7512
North Dakota	1.7668	0.5587	11.4290
Ohio	2.2915	0.7241	16.4212
Oklahoma	2.0583	0.6860	15.6436
Oregon	2.0132	0.6346	14.9960
Pennsylvania	2.2512	0.7015	14.7823
Rhode Island	1.7570	0.5138	10.9996
South Carolina	2.1756	0.6993	17.8207
South Dakota	1.8466	0.6133	15.3338
Tennessee	2.2550	0.7066	15.7184
Texas	2.3987	0.7861	16.6634
Utah	2.2180	0.7294	17.2979
Vermont	1.8106	0.5865	14.5454
Virginia	1.9499	0.6094	14.1119
Washington	2.0715	0.6752	14.0483
West Virginia	1.7955	0.5522	12.8056
Wisconsin	2.0672	0.6858	16.0172
Wyoming	1.6172	0.5380	11.8665
U.S. Total	**2.91**	**0.9209**	**20.5308**

Source: BEA (2007-2013)

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	1.9504	0.7622	17.4013
Alaska	1.7681	0.7092	13.8984
Arizona	2.1707	0.8421	18.4322
Arkansas	1.8058	0.7145	16.8312
California	2.2665	0.8663	15.7580
Colorado	2.3202	0.8871	18.5386
Connecticut	1.9391	0.7191	12.8534
Delaware	1.7835	0.5273	10.0302
District of Columbia	1.3955	0.2022	3.1768
Florida	2.1932	0.8517	19.3169
Georgia	2.3635	0.8845	17.9749
Hawaii	1.9704	0.7738	16.9016
Idaho	1.7974	0.7213	16.8244
Illinois	2.3566	0.8649	16.7056
Indiana	2.0197	0.7642	17.2753
Iowa	1.8170	0.7075	16.2597
Kansas	1.8959	0.6691	15.0110
Kentucky	1.9534	0.7103	16.6342
Louisiana	1.9363	0.7675	15.8866
Maine	1.8990	0.7577	17.7171
Maryland	2.0771	0.7601	14.4432
Massachusetts	2.1080	0.7791	13.6209
Michigan	2.0919	0.8204	17.4449
Minnesota	2.2082	0.8247	16.6418
Mississippi	1.8020	0.7008	16.6352
Missouri	2.0610	0.7019	14.9865
Montana	1.7842	0.7287	17.5553
Nebraska	1.8743	0.7315	15.7703
Nevada	1.9310	0.7505	15.7180
New Hampshire	1.9337	0.6957	14.3698
New Jersey	2.1958	0.7708	14.7128
New Mexico	1.7937	0.7225	17.1300
New York	2.0012	0.6790	11.9203
North Carolina	2.1533	0.8226	18.5370
North Dakota	1.6894	0.6438	13.4392
Ohio	2.1846	0.8187	17.1369
Oklahoma	1.9799	0.7849	17.8914
Oregon	2.0079	0.7623	17.5223
Pennsylvania	2.1531	0.7872	14.7621
Rhode Island	1.8565	0.6439	13.4657
South Carolina	2.0791	0.7870	18.5512
South Dakota	1.7417	0.6961	16.3575
Tennessee	2.1904	0.8134	17.1391
Texas	2.4033	0.9006	17.5630
Utah	2.2307	0.8572	20.7190
Vermont	1.8078	0.7099	16.2348
Virginia	2.0051	0.6892	13.3117
Washington	2.0789	0.8031	15.4905
West Virginia	1.6919	0.6512	13.7055
Wisconsin	1.9475	0.7634	16.7725
Wyoming	1.5631	0.6317	13.7244
U.S. Total	**2.880766667**	**1.044866667**	**21.49676667**

Source: BEA (2007-2013)

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

Appendix G-3

Output, Earnings and Employment Multipliers: **Services to Buildings**

State	MULTIPLIERS		
	Output	Earnings	Jobs
Alabama	1.7921	0.5761	25.0809
Alaska	1.5764	0.5213	20.2826
Arizona	1.8776	0.616	22.8987
Arkansas	1.6901	0.5376	23.7426
California	1.9982	0.6429	21.6728
Colorado	1.9947	0.6485	24.0099
Connecticut	1.7513	0.5404	18.8623
Delaware	1.6601	0.4465	17.6124
District of Columbia	1.2177	0.1281	5.3811
Florida	1.8995	0.6235	25.3805
Georgia	2.0961	0.6617	24.571
Hawaii	1.7394	0.5698	21.1433
Idaho	1.6313	0.535	23.9897
Illinois	2.1207	0.6551	22.2546
Indiana	1.9311	0.5964	22.4899
Iowa	1.7023	0.5335	22.3115
Kansas	1.7651	0.504	19.4051
Kentucky	1.8702	0.5591	22.8621
Louisiana	1.7898	0.5763	24.4788
Maine	1.7307	0.569	23.6287
Maryland	1.8013	0.5512	19.6379
Massachusetts	1.8272	0.5637	19.2655
Michigan	1.9229	0.6222	23.0957
Minnesota	1.9899	0.6237	22.7869
Mississippi	1.7011	0.5367	23.8003
Missouri	1.9055	0.564	22.3258
Montana	1.62	0.5388	24.4248
Nebraska	1.6901	0.5371	23.3536
Nevada	1.6976	0.5507	22.4998
New Hampshire	1.7273	0.5113	18.3862
New Jersey	1.9671	0.5849	20.1022
New Mexico	1.6267	0.5349	23.883
New York	1.7711	0.5195	18.1428
North Carolina	1.9619	0.622	26.0806
North Dakota	1.5619	0.4811	19.6003
Ohio	2.0495	0.638	21.9941
Oklahoma	1.8284	0.5931	24.0507
Oregon	1.8057	0.5636	21.5082
Pennsylvania	1.973	0.6053	20.7752
Rhode Island	1.7014	0.4916	17.8955
South Carolina	1.9018	0.5879	24.8989
South Dakota	1.5867	0.5005	22.4711
Tennessee	1.9968	0.6153	22.3613
Texas	2.1282	0.6744	25.5611
Utah	1.9962	0.6419	26.0185
Vermont	1.6388	0.5178	22.9434
Virginia	1.7734	0.5267	19.2935
Washington	1.8483	0.5931	21.649
West Virginia	1.5864	0.4818	19.2475
Wisconsin	1.8293	0.5893	23.364
Wyoming	1.4622	0.4767	21.9758
U.S. Total	**2.7236**	**0.7447**	**16.6567**

Source: BEA (2007-2013)

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

Appendix G-4

Output, Earnings and Employment Multipliers: **Management Services**

State	MULTIPLIERS		
	Output	Earnings	Jobs
Alabama	1.98	0.803	22.2943
Alaska	1.8248	0.7556	16.3897
Arizona	2.2376	0.8924	23.0916
Arkansas	1.846	0.7584	21.0093
California	2.3451	0.9204	18.5128
Colorado	2.395	0.9402	22.2625
Connecticut	2.0074	0.7684	14.9747
Delaware	1.8181	0.5591	12.5816
District of Columbia	1.4135	0.2139	3.9423
Florida	2.2744	0.9078	22.4034
Georgia	2.4449	0.9391	20.853
Hawaii	2.0262	0.8216	22.2706
Idaho	1.8439	0.7653	21.339
Illinois	2.4404	0.9211	19.4311
Indiana	2.0687	0.8104	21.2033
Iowa	1.8622	0.7523	20.123
Kansas	1.9332	0.7053	18.2073
Kentucky	1.9977	0.7527	20.1535
Louisiana	1.9815	0.8119	19.7434
Maine	1.9471	0.8038	22.1073
Maryland	2.1356	0.806	16.649
Massachusetts	2.1767	0.8282	16.1734
Michigan	2.1419	0.8667	20.2411
Minnesota	2.2861	0.8786	20.0267
Mississippi	1.844	0.7433	20.7272
Missouri	2.1237	0.7465	18.8472
Montana	1.8319	0.774	21.8783
Nebraska	1.9236	0.7767	19.7741
Nevada	1.9881	0.7981	18.6263
New Hampshire	1.9737	0.7358	16.749
New Jersey	2.2792	0.8218	16.895
New Mexico	1.8326	0.7644	21.2845
New York	2.0894	0.7292	14.3098
North Carolina	2.2095	0.8705	21.323
North Dakota	1.7177	0.6796	17.0049
Ohio	2.24	0.8663	20.0086
Oklahoma	2.0412	0.8342	21.7367
Oregon	2.0601	0.8071	21.6918
Pennsylvania	2.2038	0.8314	17.0871
Rhode Island	1.9226	0.6893	16.8909
South Carolina	2.111	0.8275	22.6115
South Dakota	1.7875	0.7412	20.5708
Tennessee	2.2556	0.8624	19.7931
Texas	2.4683	0.9507	20.3011
Utah	2.3004	0.9085	24.974
Vermont	1.8634	0.7574	20.1201
Virginia	2.0516	0.7288	15.3673
Washington	2.1312	0.8488	18.4083
West Virginia	1.7251	0.6912	16.6841
Wisconsin	2.0073	0.8129	21.0737
Wyoming	1.6034	0.6733	16.7093
U.S. Total	**2.8145**	**0.9642**	**17.5741**

Source: BEA (2007-2013)

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

Appendix G-5

Output, Earnings and Employment Multipliers: **Utilities**

State	MULTIPLIERS		
	Output	Earnings	Jobs
Alabama	1.6086	0.3307	6.5199
Alaska	1.6383	0.3312	5.2654
Arizona	1.6111	0.3478	6.5592
Arkansas	1.5749	0.3128	6.0497
California	1.7673	0.3744	6.0142
Colorado	1.8653	0.4038	7.3335
Connecticut	1.4538	0.2852	4.3519
Delaware	1.5087	0.2585	4.2488
District of Columbia	1.18	0.0808	1.0895
Florida	1.5794	0.341	6.757
Georgia	1.6321	0.3469	6.6075
Hawaii	1.5094	0.3082	5.4147
Idaho	1.4261	0.2876	5.5179
Illinois	1.7448	0.3629	6.3962
Indiana	1.5917	0.3161	5.9731
Iowa	1.4148	0.2669	4.959
Kansas	1.6575	0.3163	5.7393
Kentucky	1.6203	0.312	6.0909
Louisiana	1.7652	0.37	6.7284
Maine	1.4518	0.2996	5.7155
Maryland	1.5159	0.2996	4.9417
Massachusetts	1.4981	0.2937	4.5211
Michigan	1.5343	0.3179	5.7387
Minnesota	1.6337	0.3324	5.8909
Mississippi	1.6126	0.3232	6.2809
Missouri	1.5637	0.2984	5.6998
Montana	1.6369	0.3304	6.3822
Nebraska	1.449	0.281	4.9393
Nevada	1.4366	0.288	4.9954
New Hampshire	1.4145	0.2601	4.2604
New Jersey	1.5929	0.3124	5.259
New Mexico	1.6668	0.3287	6.1891
New York	1.4862	0.2756	4.2802
North Carolina	1.5376	0.3168	6.0845
North Dakota	1.6824	0.3201	5.3225
Ohio	1.6617	0.3385	6.0981
Oklahoma	1.855	0.388	6.8763
Oregon	1.4821	0.2849	5.3646
Pennsylvania	1.7514	0.3578	6.0363
Rhode Island	1.401	0.239	3.9868
South Carolina	1.5395	0.3037	6.2564
South Dakota	1.4077	0.2807	5.2616
Tennessee	1.6064	0.3251	6.0574
Texas	1.9999	0.4358	7.7027
Utah	1.8415	0.3961	7.7567
Vermont	1.3631	0.2409	4.2614
Virginia	1.5589	0.3091	5.3104
Washington	1.5798	0.3234	5.7053
West Virginia	1.607	0.297	5.5595
Wisconsin	1.4854	0.3031	5.3796
Wyoming	1.5552	0.3	5.0743
U.S. Total	**2.2475**	**0.5075**	**9.5091**

Source: BEA (2007-2013)

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

Appendix G-6

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

State	MULTIPLIERS		
	Output	Earnings	Jobs
Alabama	1.8600	0.5796	17.5005
Alaska	1.6668	0.5291	13.4300
Arizona	1.9088	0.6094	16.8514
Arkansas	1.7614	0.5412	16.4663
California	2.0277	0.6334	15.0419
Colorado	2.0713	0.6513	17.3297
Connecticut	1.7367	0.5233	12.3964
Delaware	1.6718	0.4231	11.3119
District of Columbia	1.2201	0.1203	3.0098
Florida	1.9152	0.6129	17.7417
Georgia	2.0785	0.6462	17.3630
Hawaii	1.7486	0.5579	15.1559
Idaho	1.6616	0.5274	16.3440
Illinois	2.1171	0.6388	15.6471
Indiana	1.9267	0.5807	16.1293
Iowa	1.7069	0.5204	15.2083
Kansas	1.8189	0.5088	14.0737
Kentucky	1.8815	0.5464	16.0616
Louisiana	1.8648	0.5842	16.2925
Maine	1.7319	0.5526	16.5193
Maryland	1.8004	0.5379	13.2430
Massachusetts	1.8158	0.5452	12.8039
Michigan	1.9042	0.6026	16.3077
Minnesota	1.9911	0.6070	15.8070
Mississippi	1.7688	0.5405	16.5017
Missouri	1.9066	0.5447	15.4247
Montana	1.7171	0.5448	16.9047
Nebraska	1.7119	0.5283	15.3298
Nevada	1.7134	0.5381	14.7439
New Hampshire	1.7361	0.5021	12.7720
New Jersey	1.9394	0.5637	13.6905
New Mexico	1.7058	0.5334	16.3068
New York	1.7638	0.5019	11.9717
North Carolina	1.9439	0.6031	17.6678
North Dakota	1.6729	0.4912	13.2052
Ohio	2.0348	0.6172	15.8853
Oklahoma	1.9297	0.6024	16.8468
Oregon	1.8121	0.5477	15.5002
Pennsylvania	2.0204	0.6009	14.5764
Rhode Island	1.6717	0.4629	12.1988
South Carolina	1.9052	0.5795	17.6119
South Dakota	1.6360	0.5105	15.6378
Tennessee	1.9977	0.6017	15.7763
Texas	2.2195	0.6854	17.5132
Utah	2.0620	0.6433	18.6690
Vermont	1.6445	0.5011	15.2308
Virginia	1.8070	0.5230	13.4558
Washington	1.8790	0.5846	14.8114
West Virginia	1.6676	0.4856	13.4371
Wisconsin	1.8235	0.5738	16.1945
Wyoming	1.5509	0.4782	13.9011
U.S. Total	**2.6378**	**0.7560**	**19.6129**

Source: BEA (2007-2013)

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

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