

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, Excludes Multiplier Effect)	Jobs Supported ³ (In Millions, Includes Multiplier Effect)
2015	\$1,098.2	\$3.196	17.8%	\$1,011.3	22.5
2014 ⁴	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 Center for Regional Analysis

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 2014 data for construction spending and GDP and newly released multipliers.

Note: Data include residential and nonresidential buildings as well as infrastructure such as water, sewer, highways and power.

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 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 429.3 million square feet of buildings that commenced construction in 2015, 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 the national, state and local economies. It provides the appropriate basis for calculating the economic impacts of this spending as represented by its contribution to GDP, personal earnings (wages and salaries) and employment.

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

		Development Phases					Operations Phase
		Pre-Construction	Construction			Totals	Post-Construction
		Soft Construction (Soft Costs)	Site Development	Hard Construction (Hard Costs)	Tenant Improvements		Building Operations
		architecture, engineering, legal, marketing, management, administration	grading, paving, landscaping, roadway, parking, off-site improvements	labor, materials, construction management	interior design and construction (excludes furniture and equipment)		maintenance, repairs, custodial, utilities, property management
Direct Expenditures (In Billions of Dollars)	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
	2011	13.42	15.45	47.83	15.58	92.28	0.80
In 2015, direct expenditures of \$155.009 billion contributed \$450.38 billion to U.S. GDP.							
Total Economic Contribution¹ to GDP (In Billions of Dollars, Includes Multiplier Effect)	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
	2011	34.37	44.53	137.82	44.91	261.63	2.05
In 2015, direct expenditures of \$155.009 billion generated \$145.70 billion in personal earnings in the U.S.							
Personal Earnings² (In Billions of Dollars, Includes Multiplier Effect)	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
	2011	11.23	13.29	41.15	13.40	79.07	0.61
In 2015, direct expenditures of \$155.009 billion supported 3.2 million jobs in the U.S. economy.							
Jobs Supported³ (Includes Multiplier Effect)	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
	2011	259,805	339,156	1,049,630	341,981	1,990,572	15,600

Sources: NAIOP; Dodge Data & Analytics; GMU Center for Regional Analysis

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 includes the economic contributions of existing buildings. Based on the existing stock of commercial buildings, totaling 45.1 billion square feet in 2015, direct expenditures for building operations totaled \$145.6 billion and contributed \$384.1 billion to GDP. These direct expenditures also generated \$110.1 billion in personal earnings (wages and salaries) and supported a total of 2.86 million jobs. (See Table 3.)

Combining the economic contributions of new development with the economic contributions from operations of existing buildings in 2015 (data from Tables 2 and 3), direct expenditures of \$300.6 billion resulted in the following economic contributions to the U. S. economy:

- Contributed \$834.4 billion to U.S. GDP.
- Generated \$255.8 billion in personal earnings.
- Supported a total of 6.1 million jobs.

Year	Total Square Feet (In Billions)	Direct Expenditures for Building Operations	Total Economic Contribution ¹ to GDP	Personal Earnings ²	Jobs Supported ³ (In Millions)
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 Center for Regional Analysis

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; column values may not add up to overall totals due to rounding; see Appendix G for state and building type data.

Executive Summary

To an economist, buildings are much more than structures providing shelter. They are structures that create economic capacity for businesses. While the economic contributions accruing from the actual construction phase for new buildings are widely understood and valued, the pre-construction and post-construction impacts of the development process often are overlooked and undervalued.

Likewise, the job growth and income generated and supported by annual building operations represent a continuing flow of expenditures into local, state and national economies that extend over the life of the structures. These new buildings represent an expansion of the productive capacity of their local economies and serve as enablers that further enlarge the local, state and national economies. The jobs and output associated with the newly built capacity generate significant annual economic and fiscal benefits (e.g., tax revenues) at all governmental levels. Because these post-construction benefits are cumulative, their economic impacts become increasingly significant to the economy's growth.

Summary of Construction Activity

The commercial construction sector continued its recovery in 2015 after first showing signs of a rebound in 2011, following several consecutive years of decreased spending from its peak in 2008. The 2015 gains spanned most commercial building types and have generated increased construction employment.

Forecasts for 2016 project accelerating construction spending, with gains in fixed investment in commercial structures, such as office, retail, health care and distribution facilities, being partially offset by cutbacks in energy-related construction expenditures. However, the 2015 pullback in energy-related construction expenditures, which is expected to continue in 2016, is projected to rebound

in 2017. Similarly, the positive trends in commercial construction spending, especially in office, retail, health care and warehouse buildings, are projected to continue their expansion in 2017 and 2018.

The contribution of construction spending to the U.S. economy is well understood. This linkage between the national economy's accelerating expansion and the recovery of residential and nonresidential construction spending was particularly evident in 2013. It accelerated in 2014 and continued in 2015, despite sharp reductions in the energy sector that curtailed related construction spending. Still, total residential and nonresidential construction expenditures across all categories increased 17.6 percent in 2015, helping the U.S. economy to achieve a 2.4 percent gain in GDP in the face of weakening global economic performance. (The total GDP contribution of construction spending increased 10.5 percent.) According to IHS economics, the construction industry is expected to continue growing at single-digit rates after 2018, until at least the end of the current decade.

With the direct and indirect impact of construction spending on the U.S. economy (GDP) in 2015 totaling \$3.2 trillion and accounting for 17.8 percent of GDP, the continuing growth of construction spending that began in 2011 will provide continuing support to the economy's growth rate during the next several years. That is, the growth rate for construction spending will exceed the GDP growth rate annually for at least the next five years.

Measuring Economic Value. To fully understand the impact of development expenditures on the performance of the national, state and local economies, one must identify and measure the range and composition of activities and associated spending and their interdependencies with the economy's other sectors. The economic value of commercial buildings extends well beyond their initial construction value, and even this

construction value is often understated. In order to establish the comprehensive measure of this value, it is necessary to understand that the process of creating the built environment is carried out in a logical sequence, and the underlying elements in each phase must be examined to determine the full expenditures associated with commercial buildings. These key phases consist of the following:

- Pre-construction (soft costs), including design, engineering, legal and other processes.
- Construction, including site development, building activity (hard costs) and tenant improvements.
- Post-construction, including ongoing building operations.

Direct spending during these three development phases provides the foundation for calculating the contribution of development to the national economy as well as to respective state and local economies.

Five expenditure types are examined to determine the monetary expenditures associated with development, construction and operations. These consist of the following:

- Soft construction costs (architecture, engineering, marketing, legal, management, administration).
- Site development costs (grading, paving, landscaping, roadway, parking, off-site improvements).
- Hard construction costs (labor, materials, construction management).
- Tenant improvements (interior design and construction, excluding furniture and equipment).
- Building operations (maintenance, repair, custodial services, utilities, property management).

The direct spending for development and operations generates additional jobs and increases payrolls. These dollars are re-spent within the local, state and national economies, generating additional economic benefits. The total economic impact of these direct development-related expenditures can be calculated by applying national, state and local multipliers. These multipliers measure the far-reaching effects of the initial expenditures on the overall U.S. economy as these initial expenditures are recycled/re-spent within the economy. Using the multipliers, this report calculates the following:

- Total economic contribution to the U.S. economy (GDP).
- New personal earnings (wages and salaries) generated.
- Jobs supported throughout the U.S. economy, including direct construction jobs.

The “jobs supported” figures do not equate only to net new jobs; they include both new and existing jobs in the economy needed to support the 2015 level of development, construction and operations reported herein.

Combined, the pre-construction, construction, and operations phases — and their associated economic impacts — represent commercial real estate development’s enduring financial strength and compounded contribution to the economy. The economic contributions associated with new office, industrial, warehouse and retail development in 2015 are summarized in Table 2.

The Importance of the Construction Sector to U.S. GDP. In 2015, construction spending nationwide for residential and nonresidential buildings and nonbuildings (e.g., roads, bridges, pipelines) totaled \$1.1 trillion and, when multiplied to reflect its full contribution, accounted for 17.8 percent of GDP. (See Table 1.) This spending level, while still below its high in 2006, when construction spending totaled \$1.16 trillion and accounted, with the full

multiplier effect, for 28.8 percent of GDP, is the greatest value of direct construction spending since that peak. The importance of the construction sector to the vitality of the national economy is illustrated by the 30.0 percent decline in construction spending between 2007 and 2010 and the 2.2 million construction jobs lost during that period.

Beyond those construction jobs, this decline in construction spending negatively impacted employment across the broader economy, most visibly in the manufacturing, professional and business services, and retail sectors. Decreased employment brought about declining personal earnings across all sectors as payroll expenditures fell during the building industry's long recession.

The construction sector's recovery, beginning in mid-2011, established the foundation for the forecasts for the U.S. economy going forward. However, this recovery lost momentum in 2013, as the global economy continued to struggle with its recovery (especially in Europe) and the U.S. economy digested changes in fiscal policy and federal spending reductions. In 2014, GDP gained 2.4 percent, despite its first-quarter decline, and was boosted by increased consumer confidence and increasing consumer spending in response to a rapid decline in energy prices during the second half of 2014.

These favorable conditions at the end of 2014 raised the initial 2015 GDP forecast to 3.0 percent. However, lower-than-expected growth in the Asian economies, continuing weak economic performance in Europe, declining U.S. exports due to the strength of the dollar against the currencies of the nation's major trading partners and continuing geopolitical uncertainty took their toll on the U.S. economy and resulted in annual growth of only 2.4 percent.

With these global headwinds projected to continue in 2016, combined with the negative effects from disinvestment in the domestic energy sector as well as the strength of the U.S. dollar and the adverse effect on demand for U.S. manufactured goods, the revised GDP forecast for 2016 was lowered in April 2016 to 2.1 percent from its 2.9 percent target at the beginning of the year. With the Federal Reserve Board expected to continue to slowly tighten interest rates this year and in each of the next two years as wage rates and inflation pressures rise, GDP growth is expected to moderate slightly after peaking in 2017 but remain positive at least to 2021. Strong consumer spending and growth in housing investment and construction more broadly will drive much of this economic growth going forward.

Table 4
Total U.S. Construction Spending, 2010-2015
(In Billions of Current Year Dollars)

Type	Value	Percent Change 2014-2015
Residential Building		
2015	\$ 424.0	13.0%
2014	375.1	
2013	329.2	
2012	276.0	
2011	252.6	
2010	252.3	
Nonresidential Building		
2015	\$ 430.7	15.8%
2014	371.8	
2013	342.7	
2012	338.6	
2011	319.1	
2010	330.2	
Nonbuilding ¹		
2015	\$243.5	-1.2%
2014	246.5	
2013	234.4	
2012	235.8	
2011	216.6	
2010	226.7	
Total		
2015	\$1,098.2	17.6%
2014	933.4	
2013	906.4	
2012	850.4	
2011	788.3	
2010	809.3	

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

¹Includes infrastructure such as water and sewer, highways, power.

Note: All historic data have been updated to reflect the latest census release.

Office, Industrial, Warehouse and Retail Hard Construction Spending Weakens in 2015. At the pre-recession peak in 2007, hard construction expenditures totaled \$96.2 billion and accounted for 875.6 million square feet of new office, industrial, warehouse and retail building space. (See Table 5.) During the next three years, hard construction spending declined by 55.4 percent and the amount of space constructed declined by 73.3 percent.

Hard construction spending reversed this downward trend in 2011, when it increased for the first time since 2007. This recovery accelerated for four years, through 2014. However, due to construction spending reductions in highly specialized and tremendously costly energy-related buildings, industrial construction expenditures declined by 31.6 percent in 2015, offsetting the 6.6 percent increase in construction expenditures for office, warehouse and retail buildings combined. In 2015, hard cost expenditures for office, industrial, warehouse and retail development totaled \$81.2 billion, down \$6.6 billion from its 2014 total of \$87.8 billion, for a decline of 7.5 percent. A total of 429.3 million square feet of building space was added to the inventory in 2015, down 3.1 percent from the 443.2 million square feet added in 2014.

Table 5
Office, Industrial, Warehouse and Retail Construction in the U.S.

Year	Value (In Billions of Current Year Dollars) ¹	Net New Square Feet (In Millions)
2015	\$81.2	429.3
2014	87.8	443.2
2013	61.1	363.6
2012	52.8	333.2
2011	53.3	262.3
2010	42.9	233.6
2009	47.7	273.1
2008	91.0	640.1
2007	96.2	875.6

Source: Dodge Data & Analytics, *Construction Analytics*

¹Hard costs

As the U.S. economic recovery began to expand in 2010, hard construction spending has generated important economic benefits and has helped drive the economy's growth, beginning in mid-2011, with the generation of 64,000 direct construction jobs during the last half of the year. Since 2011, continuing growth of construction spending has added a total of 986,000 net new direct construction jobs through 2015, with 296,000 of these being added in 2015.

The growth of construction spending has stimulated job growth in construction-related industries. The accumulated effects of this direct, indirect and induced job growth are reflected in the trends in total construction job growth nationally. These turned positive in 2011, following a 0.7 percent decline in 2010 and, according to the U.S. Bureau of Labor Statistics, have increased each year since: up 1.7 percent in 2012, 1.6 percent in 2013, 1.9 percent in 2014 and 2.1 percent in 2015. Total U.S. employment is projected to increase 1.9 percent in 2016.

As shown in Table 2 on page 3, the effects of \$81.2 billion in hard construction expenditures added \$236.2 billion to the national economy (GDP) in 2015, as the full impact of these hard construction expenditures (payroll and purchases) circulated through the economy. This hard construction spending supported 1.7 million jobs (full-time, year-round equivalent) across all sectors of the economy, generating personal earnings totaling \$74.8 billion. This hard construction spending accounted for 52.4 percent of total spending for office, industrial, warehouse and retail building development in 2015.

The other 47.6 percent of total development-related expenditures included soft construction (soft costs), site development and tenant improvement costs. In 2015, this development-related spending totaled an estimated \$73.8 billion. It also:

- Contributed \$214.2 billion to U.S. GDP.
- Generated \$71.0 billion in new personal earnings.
- Supported a total of 1.5 million jobs.

The combined economic contributions of the \$155.0 billion in expenditures made during all four phases of development added 429.3 million square feet of new office, industrial, warehouse and retail building space to the existing inventory during 2015. It also:

- Contributed \$450.4 billion to U.S. GDP.
- Generated \$145.7 billion in new personal earnings.
- Supported a total of 3.2 million jobs that spanned the full breadth of the economy.

Contributions of Building Operations in 2015.

In addition to the significant contribution to GDP and job and income growth nationwide that constructing 429.3 million square feet of new building space represents, these buildings continue to provide economic benefits to their economies long after construction is completed. These economic impacts include spending re-

quired to maintain and operate the buildings and the value of the work done in them. The operating expenditures associated with the office, industrial, warehouse and retail space built in 2015 are estimated to total \$1.4 billion annually. This direct spending for building operations will:

- Add \$3.7 billion to U.S. GDP.
- Generate \$1.1 billion in new personal earnings.
- Support 27,299 new jobs.

These operating expenditures are annual and recur yearly over the life span of the building. Adding these new operating expenditures to those required to operate the total 45.1 billion square foot inventory of office, retail and industrial/flex building space in existence in 2015 brings this operating expenditure total to \$147.0 billion with an overall contribution to GDP totaling \$387.7 billion. These total operating expenditures would support 2.9 million jobs nationwide with personal earnings (wages and salaries) of \$111.1 billion.

Jobs Housed in Net New 2015 Space. Similarly, the potential productive value of these new building spaces represents a significant annual contribution to the local, state and national economies. The actual total output value of this new space is the sum of the values of the work done in these buildings. A partial measure of this total value is represented by the jobs that could be housed in this space and the earnings that these jobs may generate. Using updated jobs-per-square feet estimates reflecting current occupancy patterns and current average salary levels, this new space would have the capacity to house 1.084 million jobs with an annual payroll of \$53.0 billion. (See Table 20 on page 33.)

Outlook: Construction Spending and U.S. GDP.

The strength of the U.S. economy's recovery is directly linked to the pace of recovery experienced by the construction sector, both residential and nonresidential. As construction expenditures have increased since 2011, GDP has grown as well in spite of major disruptions from external

forces such as federal spending reductions in 2013 and collapse of the commodities-dependent (oil and other minerals) economies in 2015 that resulted in the U.S. economy not reaching its full potential. Still, the U.S. economy has sustained a 2.4 percent growth rate two years in a row in spite of growing uncertainties in international markets and the growing strength of the dollar among international currencies. And, these conditions are expected to prevail through 2016 and continue to dampen GDP growth this year.

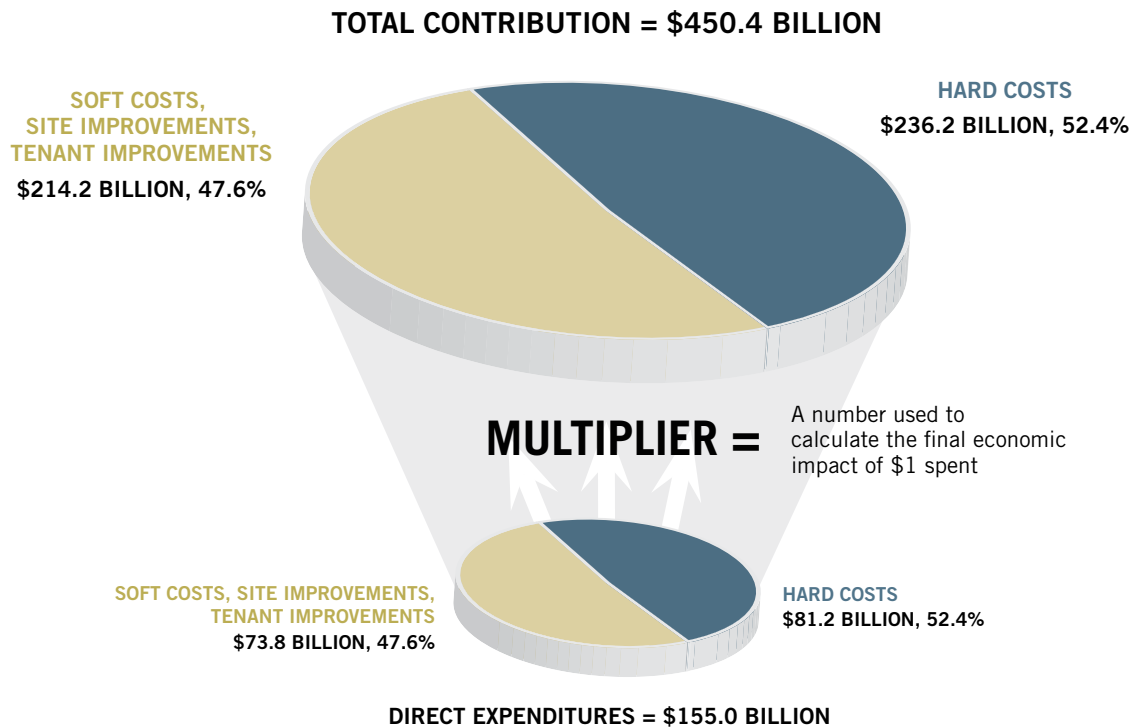
In spite of these uncertain global economic conditions, forecasts for the U.S. economy beyond 2016 remain positive, with the broad base of the economy projected to grow through 2021 according to IHS Economics (April 2016). This positive economic outlook reflects continued strong performance of both residential and nonresidential construction with combined annual growth rates exceeding the projected GDP growth rate for each of the next five years.

IHS Economics (April 2016) projects that fixed investment in both residential and nonresidential (retail, office, health care and warehouse) construction will increase between 8 and 10 percent in 2016. With total construction spending accounting directly for 6.1 percent of GDP and contributing a total economic impact in support of GDP of 17.8 percent, the growth of construction spending this year will be important to sustaining the economy's expansion, given the growing turbulence in the global economy.

Employment growth in 2016 is projected to closely parallel the record gains achieved in 2015. The growth of personal income, which has lagged the recovery, is expected to register stronger growth as unemployment remains below 5 percent, thereby fueling expansion-induced wage pressures. With growing personal earnings and continuing low energy prices, consumer spending is projected to remain strong in 2016 and should continue to support the growth of the residential construction sector. This combination of continuing job growth and increasing residential demand will provide a solid foundation for the construction sector in 2016. Going forward, the U.S. economy cannot achieve a sustained expansion in the absence of the construction industry's full recovery, which currently is projected to be achieved in 2017.

The analyses presented in this report define the economic impacts of the nonresidential building construction industry, highlighting the economic impacts flowing from office, industrial, warehouse and retail construction and operations. As the economy continues to grow, it is important for government officials at all levels — as well as investors, developers and builders — to understand the range and magnitude of the construction industry's contributions to the national, state and local economies; their patterns of performance during the business cycle; and the direct correlation between the magnitude and length of the expansion and the health and performance of the building industry.

Figure 1
How Commercial Building Development Contributed to the U.S. Economy in 2015



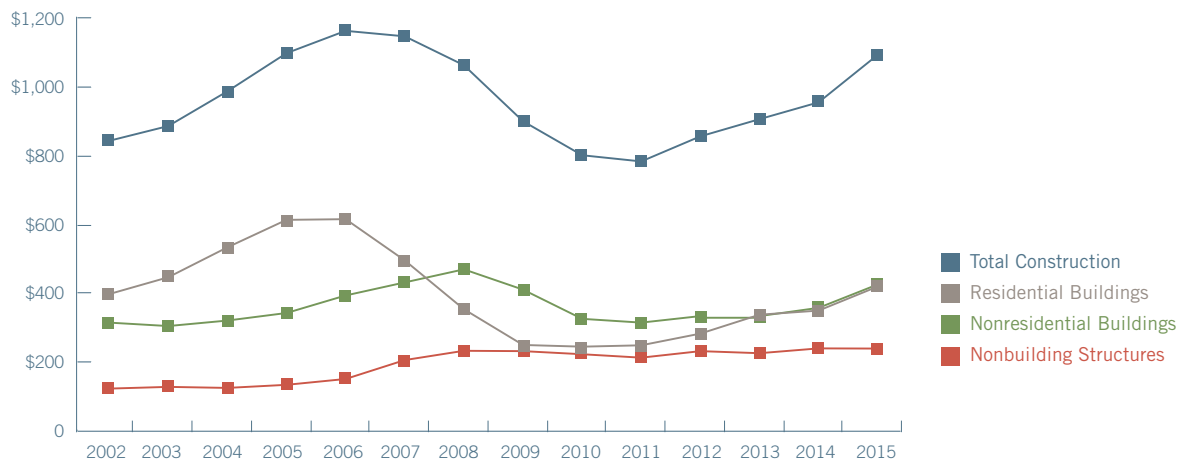
Construction Sector Trends and Outlook

The Great Recession began in December 2007 and ended in June 2009. Although the economy will have been in recovery for a full seven years by June 2016, the consequences of the recession remain evident. Many sectors have not recovered the jobs lost during the downturn, and their growth has been uneven from quarter to quarter.

While employment growth accelerated in 2014 and this positive trend continued through 2015 and into the first quarter of 2016, adding an average of more than 200,000 net new jobs per month, average wage growth has not recovered to pre-recession levels. Still, unemployment has fallen below 5 percent and the labor force is now increasing for the first time since the recession. This has raised concerns that wage inflation will impact the economy's performance going forward, as will higher interest rates. (The Federal Reserve Board raised the federal funds rate to 0.5 percent at its December 2015 meeting and is expected to possibly raise rates twice in 2016, to 1.0 percent by the December 2016 meeting. The federal funds rate is expected to peak at 3.0 percent by 2019.)

Construction was one of the hardest-hit sectors during the recession. The value of total construction put in place, according to data provided by the U.S. Census, decreased from \$1.167 trillion to \$778.2 billion, a decline of 33.3 percent, from its peak in 2006 to the bottom of the business cycle (for the construction sector) in 2011. The value of residential construction declined 60.2 percent from its peak in 2006 to its trough in 2011. For nonresidential construction (buildings and nonbuildings), the value of construction activity peaked in 2008 and declined 31 percent over three years to 2011, when construction spending began the recovery that registered a solid gain of 9.3 percent in 2012, followed by a 19.2 percent gain in 2013. In 2014 construction spending increased 13.9 percent and in 2015 it registered its third consecutive year of double-digit gains, increasing 13.0 percent (See Figure 2.)

Figure 2
Construction Spending in the U.S., 2002-2015
(In Billions of Current Dollars)



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

Construction Sector Growth Remains Strong in 2015. The construction sector has been in recovery for five years and still has not regained pre-recession levels of activity. Still it has come a long way back. In 2015, the total value of construction put in place was 39.3 percent greater than construction spending in 2011. But not all types of construction spending are growing at the same rate. The value of residential construction spending increased 67.8 percent between 2011 and 2015, while the value of nonresidential building construction expenditures increased 35.0 percent. Nonbuilding construction spending (infrastructure) increased 12.4 percent over this three-year period.

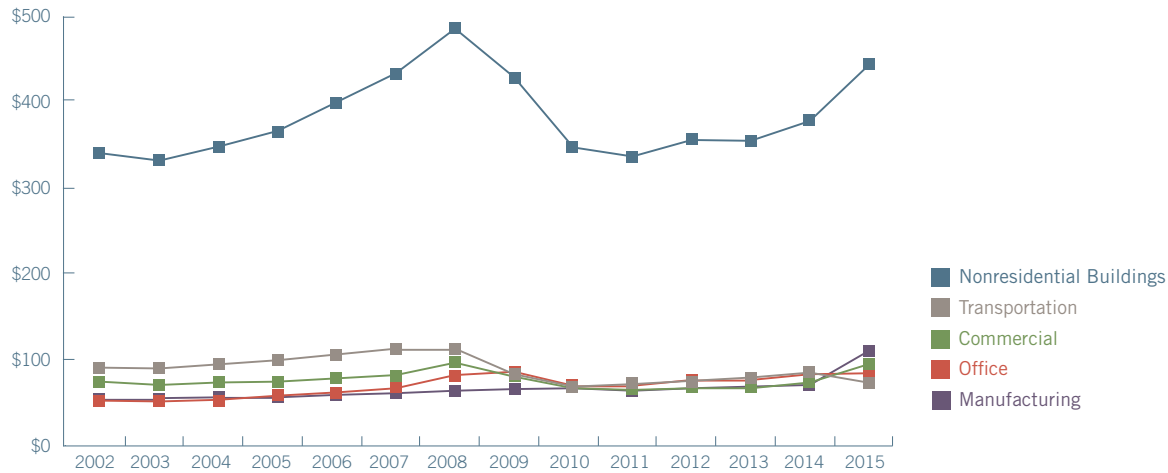
Current forecasts by IHS Economics show the construction sector continuing its upward trend in the value of construction put in place, although different building types will experience different performance patterns. Residential construction is projected to increase each year (starts and residential fixed investment), at least until 2021, with the peak rate of construction spending occurring in 2017. In contrast, nonresidential building construction spending presents an uneven growth trend. It will be negatively impacted by weakness in manufacturing and energy-related construction in 2017 and 2018. Yet construction spending for retail, office and health care buildings is projected to remain strong in 2016, peak in 2017 and continue to grow through at least 2021.

Residential Construction Continues to Expand. Figure 2 illustrates the patterns of total construction spending by major category over the business cycle. Residential construction spending peaked as a percentage of total construction spending in 2005 at 56 percent, with its share declining each subsequent year to 2009, when it reached 28.1 percent. After bottoming out in mid-2011, residential construction has regained share each year. By 2015, residential construction spending accounted for 38.6 percent of total construction (both building and nonbuilding).

Nonresidential Construction Expands in 2015. The value of nonresidential building construction peaked in 2008. In 2009, nonresidential building construction spending declined by 8.4 percent. This contraction accelerated in 2010, with the value of new nonresidential construction decreasing 14.4 percent. During the three-year period from 2008 to 2011, the value of nonresidential construction declined 24.6 percent. This downward trend in construction spending slowed to 3.8 percent in 2011 and, for several building types, turned positive. Nonresidential building construction spending increased in 2012 but held steady in 2013 before registering a solid 7.1 percent gain in 2014. In 2015, the value of nonresidential construction put in place increased 9.0 percent.

As shown in Figure 3, construction spending for four categories of nonresidential building types — office, retail, transportation (which, in the U.S. Census data set, includes warehouse properties) and manufacturing — has tracked a relatively smooth pattern through each category's respective growth cycle. Since 2012, total construction spending for 10 nonresidential building types (see Table 6) has increased 27.2 percent. Over this period, three building types — health care, public safety and religious — have experienced decreases in construction spending, while strong gains have been registered by retail (42.3 percent), manufacturing (74.8 percent), office (48.7 percent), lodgings (95.4 percent) and transportation, which includes warehouse (17.9 percent). The performance of these nonresidential building types is shown in Figure 3 and in Table 6.

Figure 3
Nonresidential Construction Spending in the U.S., 2002-2015
(In Billions of Current Dollars)



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

Table 6
U.S. Nonresidential Construction Spending, 2012-2015
(In Billions of Current Year Dollars)

Type of Structure	2012	2013	2014	2015	% Change 2012-2015
Transportation	\$37.9	\$39.4	\$41.8	\$44.7	17.9
Health Care	42.6	40.7	38.4	40.0	-6.1
Retail	47.3	53.2	62.7	67.3	42.3
Manufacturing ¹	47.7	50.5	57.8	83.4	74.8
Amusement/Recreation	15.5	15.2	16.6	20.7	33.5
Education	84.7	79.1	79.7	85.0	0.4
Public Safety	10.4	9.5	9.4	8.9	-14.4
Office	37.8	38.0	46.1	56.2	48.7
Religious	3.9	3.6	3.2	3.4	-12.8
Lodgings	10.8	13.5	16.1	21.1	95.4
Total²	\$338.6	\$342.7	\$371.8	\$430.7	27.2%

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

¹ Includes warehouse/flex space.

² Totals include some miscellaneous state and local government buildings but exclude spending for nonbuilding construction on items such as communications, power, highways, sewer and water.

Note: All historic data have been updated to reflect the latest census release.

Outlook: Residential and Nonresidential

Construction. The U.S. economy completed its seventh year of recovery in June 2016. This recovery has been characterized by uneven growth rates for GDP and personal earnings, a job growth trend that was the strongest since 2006 and has continued through the first quarter of 2016, a steadily declining unemployment rate and a lengthy recovery of the residential and nonresidential construction sectors. In 2015, the unemployment rate fell from 5.6 to 5.0 percent by year's end while 2.6 million net new jobs were added. Increases in consumer confidence and lower energy costs supported increased consumer spending in 2015 as was expected. Yet weakness in manufacturing, attributable primarily to decreased exports, dampened the GDP forecast in 2015, with actual GDP coming in at 2.4 percent, the same as for 2014. The economic headwinds that could undercut 2016's growth rate include higher interest rates, a weaker dollar that is making exports more expensive and imports cheaper, continuing weaker global economic performance, geopolitical uncertainty and incidents of terrorism, and disruptions in the energy sector affecting capital investment and consumer confidence.

Residential building construction spending has increased each year since 2010 and is up 68.0 percent over this period. Multifamily housing construction has increased its share of residential construction spending during this recovery and is expected to retain a larger share of residential construction spending even after single-family housing construction increases towards its equilibrium level over the next three years. Current forecasts by IHS Economics (April 2016) indicate that residential construction spending is projected to increase 9.5 percent in 2016 after increasing a strong 8.9 percent in 2015. IHS Economics is projecting healthy gains in residential fixed investment in 2017 (up 8.3 percent) and in 2018 (up 5.5 percent).

Single- and multifamily housing starts in 2015 totaled 1.1 million units. Starts are projected to increase each of the next five years, with 1.2 million starts expected in 2016. By 2020, starts are projected to reach 1.6 million units. Current

forecasts have residential building peaking in 2021 at 1.63 million starts. Still, just a year ago, this volume of starts had been expected by 2017. This underscores the slower pace of growth in residential construction than had been anticipated, dating back to the early years of the recovery. Thirty-year fixed home mortgage rates, currently just below 4.0 percent, are projected to rise to 5.0 percent by 2018 and to peak at 5.7 percent by 2019. These higher rates will reinforce the slower recovery of residential construction during the remainder of this business cycle.

Nonresidential construction expenditures turned positive in 2011, increased by 7.2 percent in 2012, and held almost steady in 2013, when they increased by 0.5 percent. They then registered solid gains of 7.1 percent and 9.0 percent in 2014 and 2015, respectively. Forecasts for 2016 confirm an uneven pattern of investment across the broad range of building types. Construction spending for manufacturing structures increased steadily over the 2011 to 2014 period (by 42.4 percent), with fixed investment up 49.1 percent in 2015. In contrast to this high rate of increase, fixed investment in manufacturing structures is projected to decrease slightly, by 0.6 percent, in 2016 and to decrease more significantly, by 7.2 percent, in 2017.

Construction spending for retail and office buildings was up in 2015 and is projected to continue growing in 2016 before peaking in 2017. Beyond 2017, it is expected to experience continuing but slower growth. Construction spending for warehouse and flex space has increased steadily since 2011, but is projected to register slower growth in 2016. These slower growth trends are expected to continue over the remainder of the decade. 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 2017 and 2018 at about 2.7 percent and returning to around 2.4 percent in 2019. The annual GDP growth rate for 2016 is currently forecast at 2.3 percent, slightly slower than the 2.4 percent rates achieved in both 2014 and 2015.