



Industry Focus. Powerful Results.™

2017

FMI's Construction Outlook

First Quarter Report with Second Quarter Nonresidential Construction Index



NRCI

If you are an executive for a construction firm in nonresidential building markets and would like to become a panelist for the “FMI Nonresidential Construction Index,” please send your information or questions about this survey to Phil Warner at pwarner@fminet.com. The survey is sent to panelists quarterly and should take approximately 10 minutes to complete. Panelists will receive the full quarterly report free of charge.

NRCI for Nonbuilding Construction—Heavy, Highway and Civil

Inaugurated in the second quarter of 2017, the NRCI for nonbuilding contractors parallels the format of the of the NRCI with a special focus on the nonbuilding sector represented by heavy, highway and civil contractors, H/H/C.

If you are an executive for an H/H/C construction firm in nonbuilding markets and would like to become a panelist for the “FMI Nonresidential Construction Index,” please send your information or questions about this survey to Phil Warner at pwarner@fminet.com. The survey is sent to panelists quarterly and should take approximately 10 minutes to complete. Panelists will receive the full quarterly report free of charge.

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FIRST QUARTER 2017 CONSTRUCTION OUTLOOK

CONSTRUCTION FORECAST

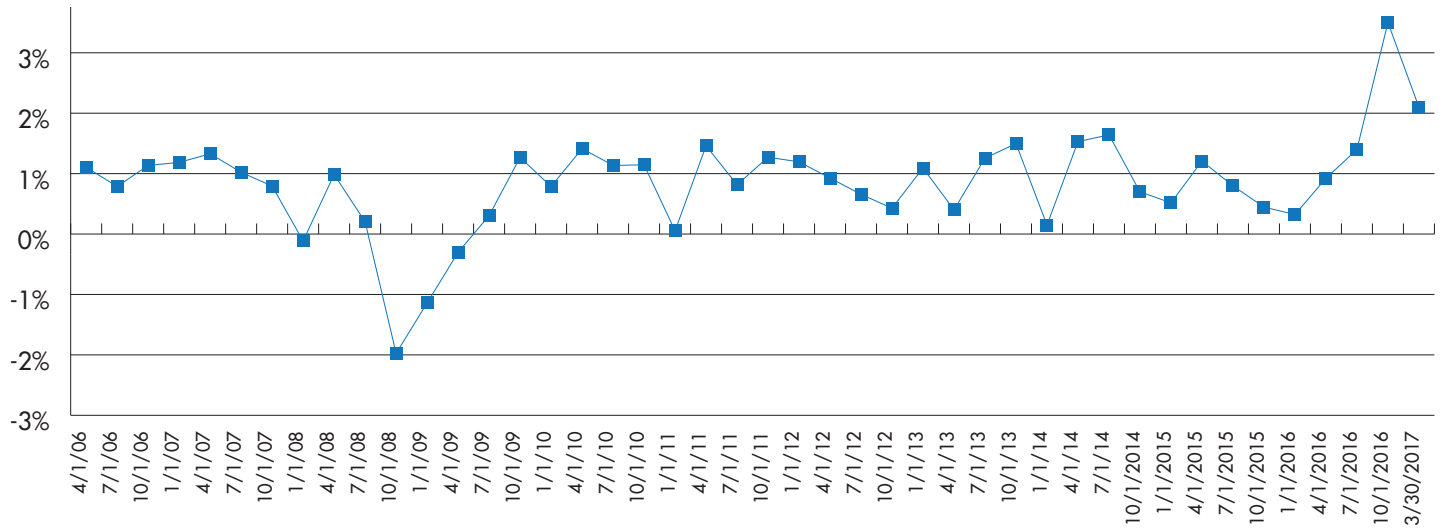
With all the recent public discussion on infrastructure, we might expect that spending for highways and bridges, water supply, sewage and waste disposal, and conservation and development would be growing at an increasing pace. That was not the case for 2016, when highway and street construction grew only 2%, white water supply construction dropped 6%, and sewage and waste disposal sank 8%. For 2017, we are more optimistic for growth in these areas at around 2% to 3%.

Overall, our forecast for construction put in place totals for 2017 calls for an increase of 6%. With GDP most recently reporting 2.1 percent growth in the fourth quarter of 2016, construction growth of 6% looks solid. Although this is a drop from the hot pace of growth from 2013 through 2015, it seems to indicate that the recovery bounce is over and more normal growth is in store for the next few years. Lodging is one of those areas that experienced a sharp recovery post-recession. We expect the peak has been reached in this cycle and slower growth is in store until vacancy rates improve again. Still, 2017 will be a good year for lodging construction with 9% growth. Office construction has followed a similar recovery pattern as lodging, and we expect it to slow to 8% growth in 2017. Commercial construction, especially in retail construction, is forecast to drop to 6% in 2017 and slip lower throughout our forecast horizon of 2020. The 20/20 vision for retail construction will likely look more like Amazon than Sears or any of the other big-box chains currently closing stores at an alarming rate. Retail shopping has been disrupted, and it remains to be seen how many current retailers will be able to adapt and go on to the next generation. Those who make a living building storefronts will need to adapt to whatever is next, and there is always something that is next.

After an astounding 33% growth rate in 2015, manufacturing construction went in retreat in 2016, losing 3%. We expect to see 8% growth in 2017 as manufacturing companies update and build more efficient facilities to take advantage of technology and to make American manufactured goods more competitive against goods from countries with low labor costs. While these efforts will bring some good jobs to America, many manufacturers are cautious to note that hiring won't compare to the old days as robotics take the place of workers. Still, these should be good jobs needing more technical expertise than in the past.

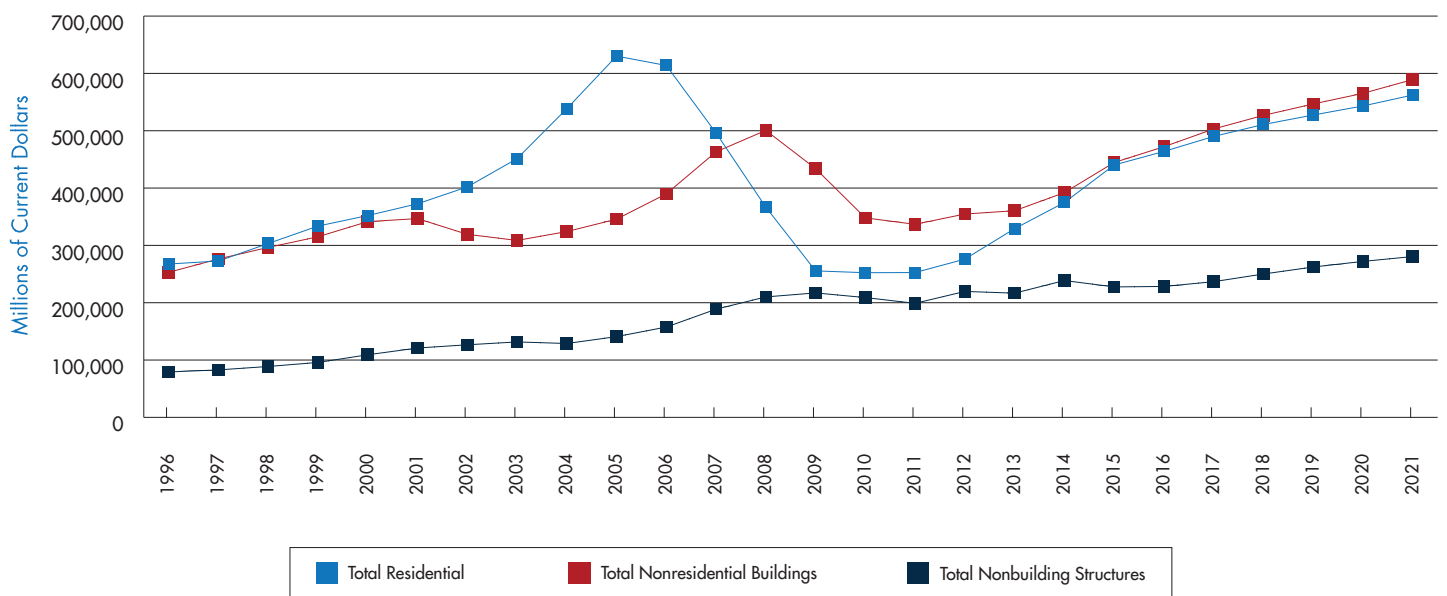
Unemployment remains at or below 5%. There are some signs of inflation, at least enough for the Federal Reserve to raise interest rates a bit, but nothing like high inflation. Sports franchises are building new arenas and, in some cases, are moving to new cities. Consumers are spending and buying new homes. The economy appears to be in good shape right now. That outlook may overlook the many challenges, economic and societal, that face North America. Troubles exist all around the world, and there will be economic consequences. However, we can only focus here on the immediate look at the construction industry where one of the biggest problems remains finding enough of the right people to get the work done.

GROSS DOMESTIC PRODUCT PERCENT CHANGE, QUARTERLY, SEASONALLY ADJUSTED ANNUAL RATE



Source: FMI Research Services

FMI CONSTRUCTION PUT IN PLACE ESTIMATED FOR THE UNITED STATES



Source: FMI Research Services

SECOND QUARTER 2017 NONRESIDENTIAL CONSTRUCTION INDEX

NRCI SUMMARY

The Index score for the NRCI slipped 1.1 points but maintains a level of optimism for construction in 2017. The backlog index indicates a median of 12 months, unchanged for the last three quarters, and the cost of labor index is still indicating higher costs. When labor and materials costs rise, the overall NRCI index decreases somewhat. Nonetheless, as we have noted before, rising costs of labor and materials indicate that the economy is supporting these increases. Other economic components gained or lost within a point of last quarter's results. The areas to watch, however, are the market indexes. As in our Outlook forecast, panelists expect manufacturing construction to have solid growth for the next three months to three years. Other markets are still registering solidly positive numbers, but lodging, office and commercial construction indicate that NRCI panelists expect a sharp downturn in those markets next year, particularly for commercial and lodging construction.

NEW INDEX FOR HEAVY, HIGHWAY AND CIVIL CONTRACTORS (H/H/C)

We sent out our inaugural NRCI survey for H/H/C contractors in the second quarter. Since one quarter is insufficient to establish a baseline, we are not yet publishing the detailed results. However, we can say that the results for H/H/C contractors are in line with the nonresidential building construction contractors participating in the NRCI survey, but with a different point of view that we think will be informative in future quarters. While we aren't publishing index details this quarter, we have detailed the response of both surveys to our Current Issues questions, which focused on expectations surrounding the ambitious infrastructure initiative outlined by the president.

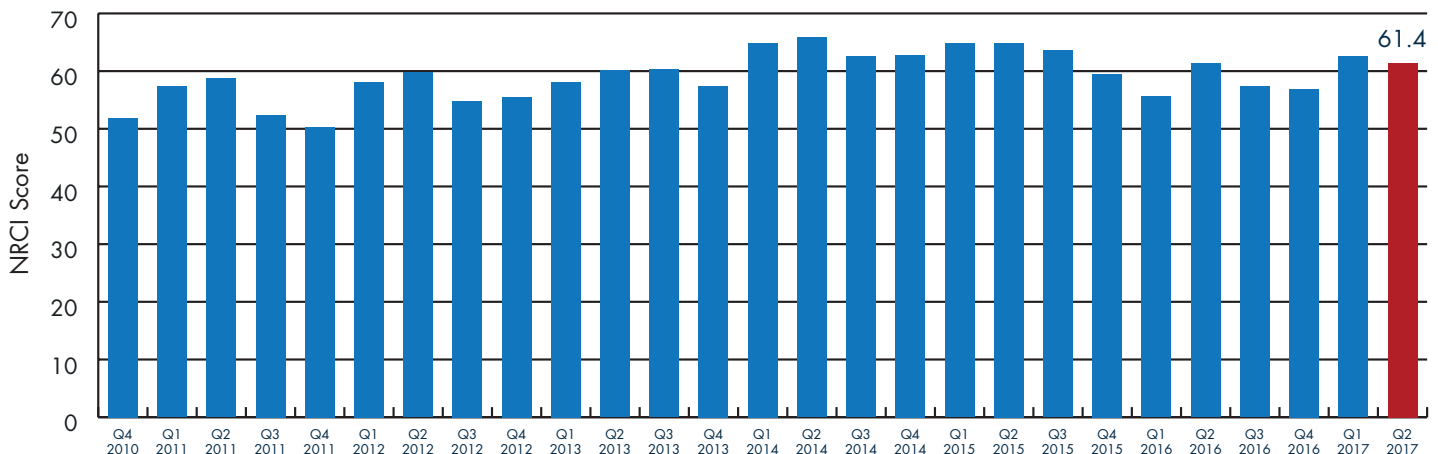
NRCI SCORES SINCE INCEPTION — Q4 2010 TO Q2 2017
Scores above 50 indicate expansion, below 50 contraction.

Current NRCI Reading
for Q2 2017

61.4

Previous Reading

62.5



CURRENT ISSUES INFRASTRUCTURE

When on the campaign trail, candidates talked a lot about creating jobs by tackling the big problems of infrastructure and investing a trillion dollars. Infrastructure was a top focus of the campaign. Thus, the construction industry would be right in thinking that action on infrastructure was imminent early in the new administration. However, as always, elections end as the realities of politics and economics kick in. Now that we have had some time to think about the future of infrastructure investment, we asked the panelists for the NRCI as well as new participants from a select list of H/H/C contractors to express their expectations for infrastructure investment. Given the difficulties the industry has had, and still has, recruiting needed workers to handle current backlogs, we asked how employment might change with a new infrastructure initiative.

Adding the responses from H/H/C contractors to those of the NRCI panelists allows us to make some interesting comparisons between the two groups. Most of the differences are not too surprising. For instance, only 3% of H/H/C contractors don't think the new infrastructure plan, when implemented, will make much difference to their markets, while 22% of building contractors don't expect a lot of new business from an infrastructure initiative. Given the current realities and priorities of the administration and Congress, 58% of H/H/C contractors don't expect any action on a program until at least early next year. More telling is that there is still a great deal of uncertainty for both contractor groups.

In light of the current uncertainty in the particulars of a new infrastructure initiative, we asked construction executives to estimate the changes in revenue they might see if new investment at the levels proposed by the president were to occur within the next year. The majority of the H/H/C group expect the gain would be in the range of 5% to 10% additional revenue compared to the building contractors of the NRCI where only 17% expect 5% to 10% more revenue, and 33% expect less than 5% additional revenue when a program is enacted.

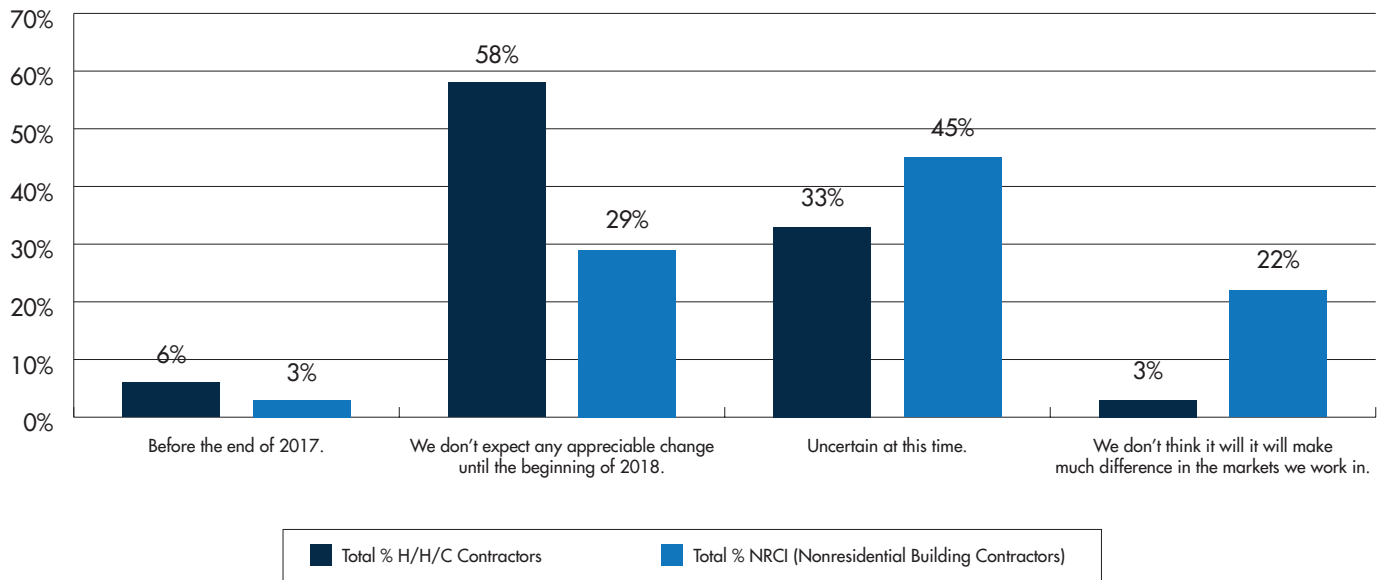
With no detailed program or bill yet on the table, these responses are hypothetical and forward-looking only. But these responses do put some things in perspective, especially for our final two questions about where respondents think the spending will be allotted and their current thinking about whether or not the industry has, or will have, the needed workers to perform the added work. The top-two expected

investment target areas for both groups were highways, and bridges and tunnels. Other areas for needed infrastructure investment were expected to receive very little attention in a new infrastructure program. These observations agree with our Outlook forecast, especially for areas like water supply and water and wastewater construction.

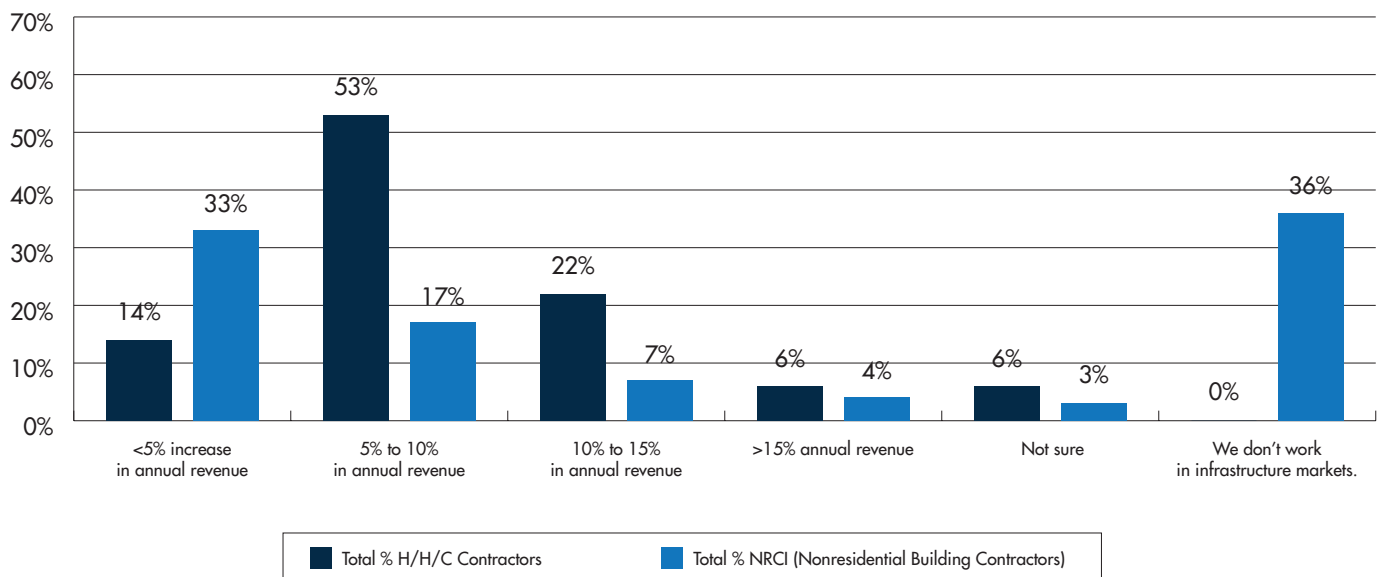
Several respondents commented that infrastructure is badly needed in America. However, unlike the programs of the previous administration, when the country badly needed to get people back to work to pull the country out of the recession, no one seems to be scrambling to find shovel-ready projects these days. Several sources like the "U.S. Treasury Infrastructure Report for the Build America Investment Initiative" have detailed a number of large projects they think could help America economically, but few have spent much time considering labor issues, especially as most of the current discussion is focused on increasing jobs as much as it is on improving infrastructure. How would adding an average of \$100 billion a year for 10 years affect employment concerns in the construction industry? The good news, especially for H/H/C contractors, is that it will help recruit people to the industry, because it will help show that there is a greater likelihood of sustained work in the sector. On the other hand, many noted that the increased spending will put a strain on an already thin pool of potential workers and raise the cost of labor. Right now, 25% of building contractors and 15% of H/H/C contractors don't think the industry is ready to ramp up for the additional spending. When an infrastructure program is authorized, causing additional labor shortages, it may not add as many jobs, as it will force the industry to be more productive and adapt new processes and technologies.

Selected comments from both surveys are listed below. When (or if) a new infrastructure plan is enacted, all agree that there will be challenges, especially in the area of labor. However, it is good that there are ongoing discussions about the area of infrastructure. Hopefully, those discussions will lead to good solutions.

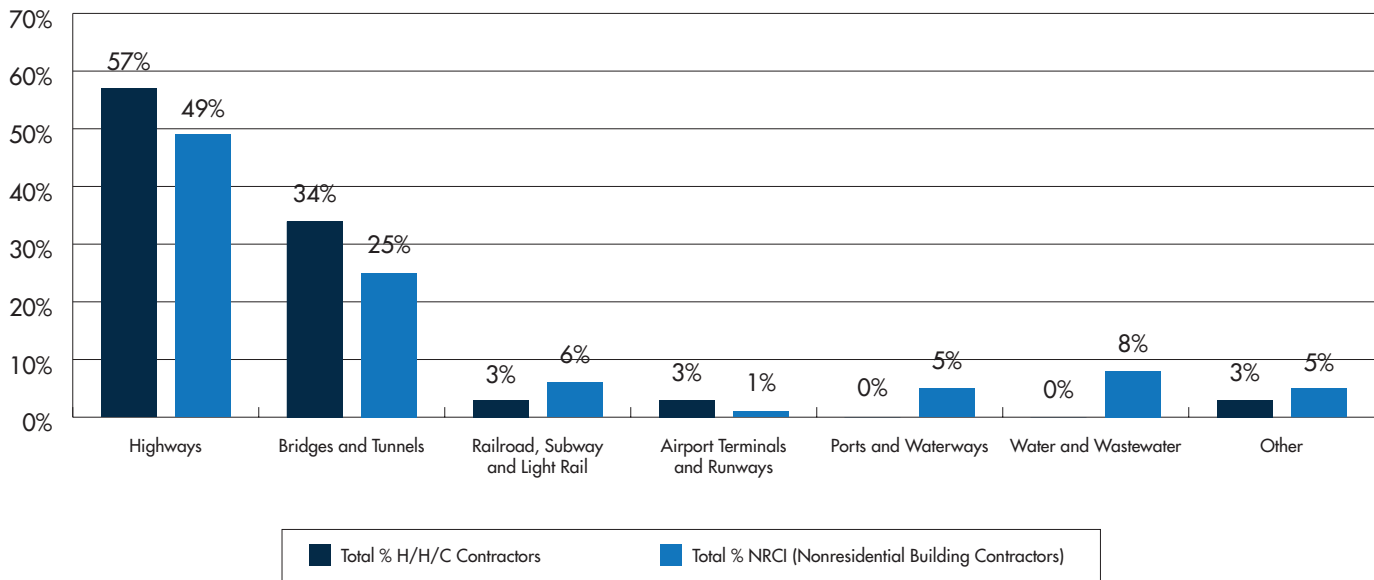
The president has outlined an ambitious infrastructure initiative. When do you expect to see the impact of this initiative implemented or growth show up in your market segment?



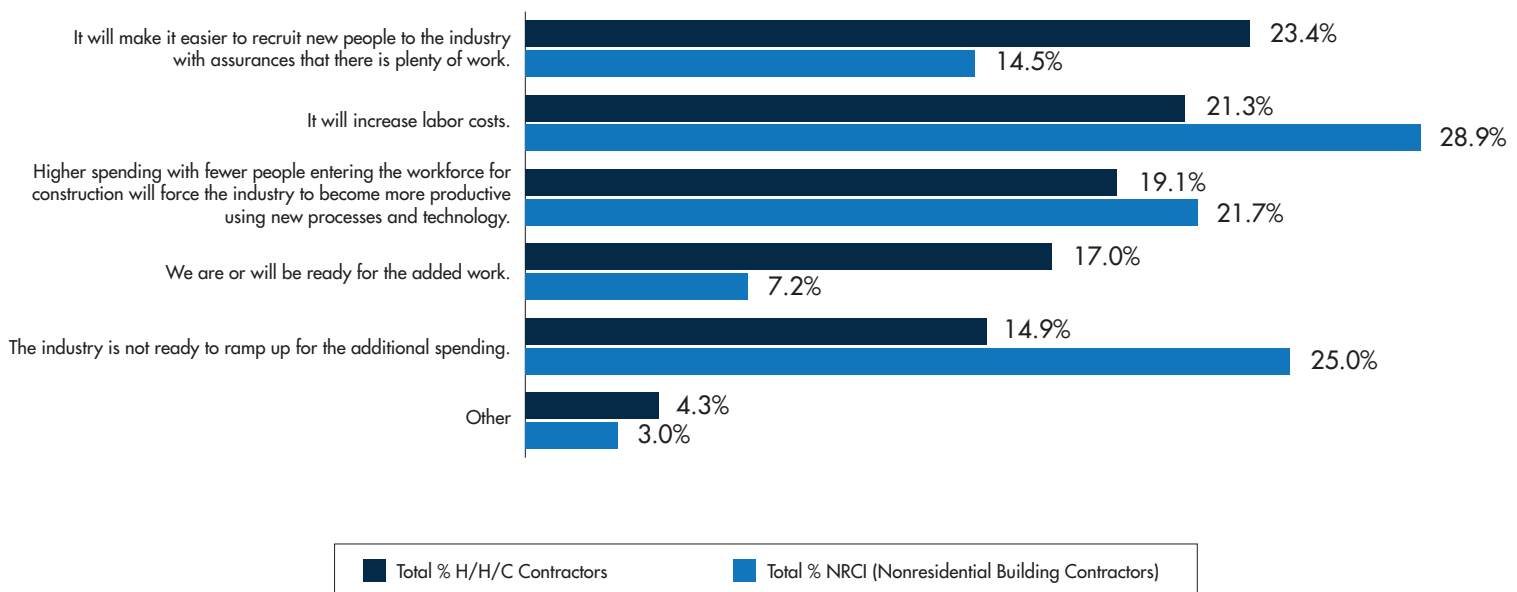
Assuming an infrastructure initiative will be implemented within the next year, how much do you expect the new spending will add to your annual revenue? (as a % of current revenue)



Which infrastructure market do you expect will get most of the new investment from an infrastructure initiative?



Over the past few years and for 2017, we have consistently heard concerns about hiring enough new people with the right skills in the construction industry. How would adding an average of \$100 billion a year for 10 years affect employment concerns in the construction industry?



COMMENTS ON INFRASTRUCTURE SPENDING:

- Badly needed.
- Between the infrastructure spending and immigration, I feel that labor will be more expensive. The capital markets will have understood this.
- Can't happen too fast.
- Highway spending will appear to be the focus since the president's administration has stated that, to generate private investment in its infrastructure program, more toll roads and pay-to-travel facilities will be required to allow for a revenue stream to repay private upfront investment. Therefore, the focus will be highways first; bridges next; and airports, ports, heavy rail (freight), commuter rail and transit last.
- Improving our public infrastructure is sorely needed. It will lead to a more competitive marketplace and improve our country's ability to move products and services throughout the continental U.S.
- Like most construction sectors, there is a labor shortage that will continue to hinder quality and productivity. Attracting and training the next generation of workers, in all the various subtrades, will be essential to keeping the industry growing at a healthy rate and able to handle the growing volume.
- One of the challenges in California will be increased infrastructure spending coupled with the uncertainty of the immigration policy. A lot of construction workers in this area are immigrants, and, although we believe that they are legal immigrants, a change in immigration policy relative to illegal immigrants may affect other parts of the economy, residential housing and some commercial construction in a way that it will spill over into the work that we do in San Francisco. We aren't seeing this effect yet, but [changing immigration policy] does lead to uncertainty.
- Our industry does not have the skilled labor capacity to handle an additional \$100 billion a year in construction. It would be a colossal disaster unless there is a comprehensive immigration reform plan that allows documented workers a longer stay and is opened to more workers.
- Present workload and lack of labor are driving budgets and cost of projects so high that projects will be delayed or canceled.
- The government would get the best value if it approved this spending plan but then released projects for construction during periods of time when GDP begins to slow or unemployment begins to rise.
- The bill will help the large contractors at the expense of the smaller companies.

COMMENTS ON INFRASTRUCTURE SPENDING (HEAVY/HIGHWAY/CIVIL CONTRACTORS' RESPONSE):

- In 2009 and 2010 when the administration did its Recovery Act, our revenues increased dramatically. We were able to man our projects using minimal new hires and increasing our overtime for our crews. We did this based on the fact that we assumed the Recovery Act would be a short-term solution, which it was. However, if a 10-year program was initiated, we would be able to recruit and train a new pool of labor. As you are aware, our current labor pools are growing older with younger people joining the local union crafts.
- Labor availability is a serious issue. Locally, we have not recovered the headcount from the previous cycle. Perhaps a large sustained investment will attract new participants. However, I believe labor will just get tighter.
- Make sure all states are given fair shares, i.e., miles of roads, number of bridges, airports.
- Please, no more band-aids. Cut the states loose and let them spend on necessary bridge repairs and highway growth.
- We need to lift the cap on Private Activity Bonds for water/wastewater projects.

RESIDENTIAL CONSTRUCTION

The forecast calls for only 6% growth in multifamily construction in 2017 and just 2% in 2018. Even though multifamily vacancy rates are still low, we expect a low point in the cycle as single-family construction remains relatively sustainable in the 4% to 7% growth range. With unemployment at or below “full employment” rates and wages beginning to improve, first-time homebuyers can begin to see homeownership as a good investment again. The result is that new home sales were up 6.1% in February. Seniors looking to downsize should have more luck selling their homes as prices improve and housing inventory is low. As a barometer for the economy, residential construction is subject to fluctuations, but, at this time, the construction climate is showing signs of continued growth.

SINGLE-FAMILY HOUSING

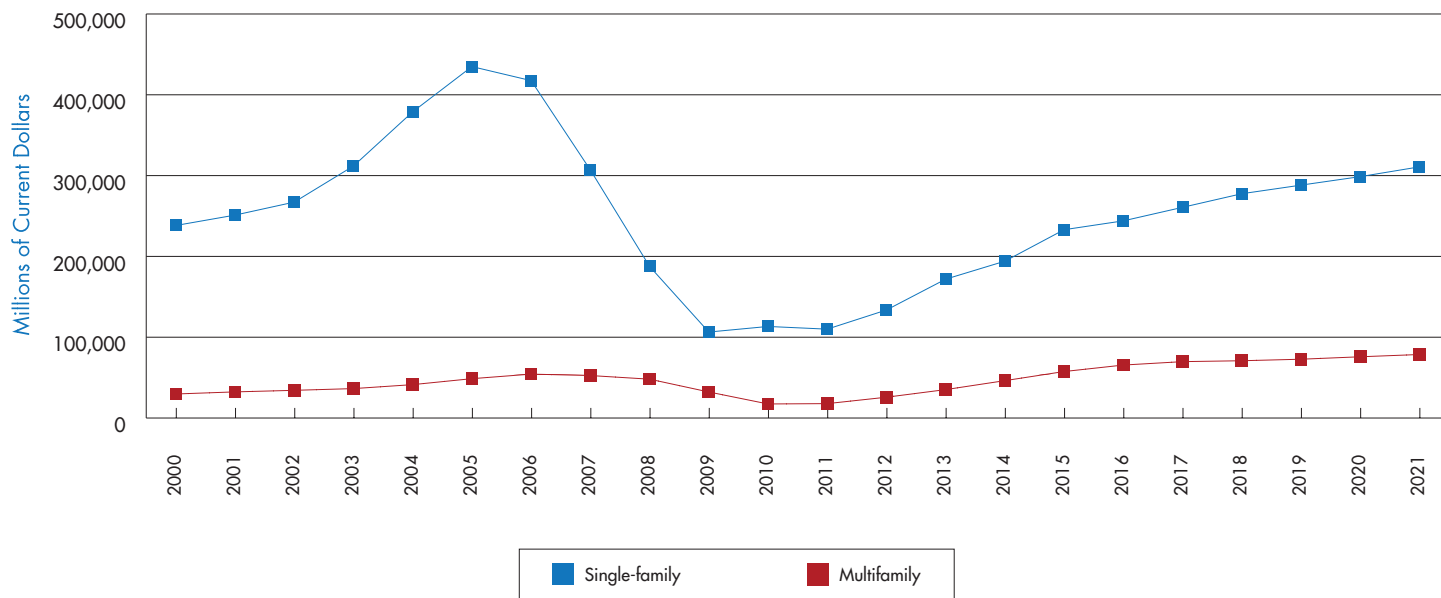
UP 6%
\$260.7 Billion

MULTIFAMILY HOUSING

UP 6%
\$69.8 Billion

RESIDENTIAL CONSTRUCTION PUT IN PLACE

Forecast as of Q1 2017

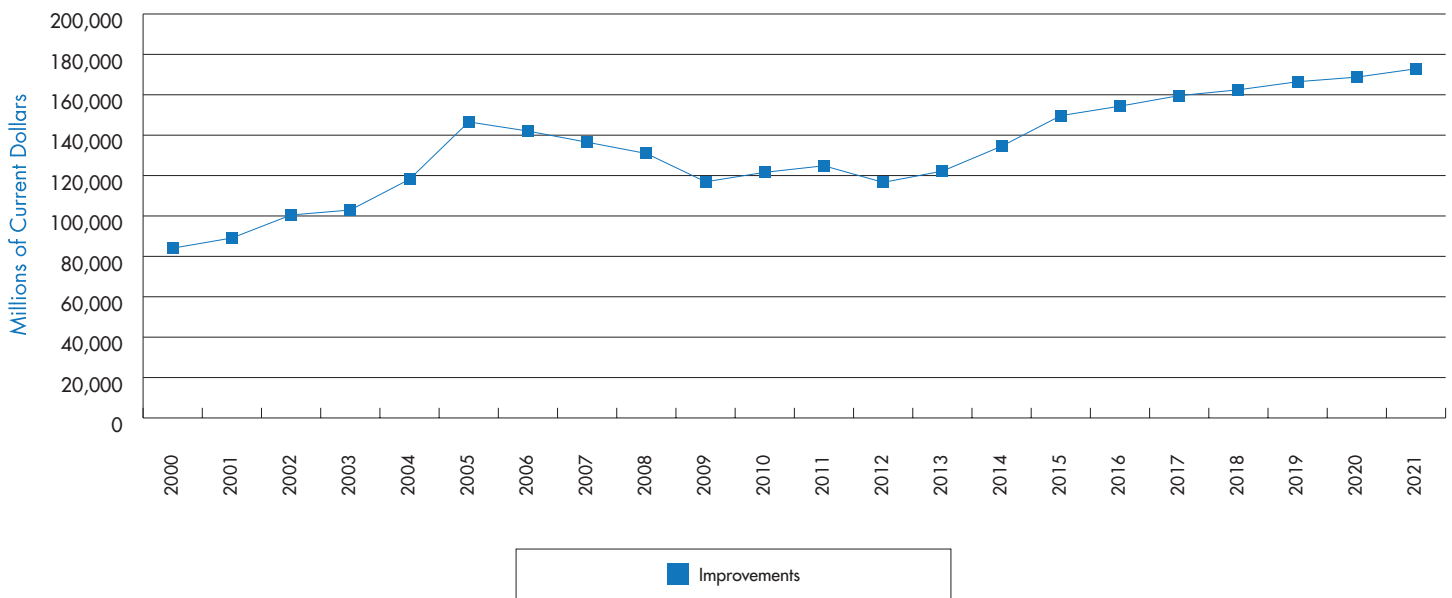


Source: FMI Research Services



RESIDENTIAL CONSTRUCTION IMPROVEMENTS PUT IN PLACE

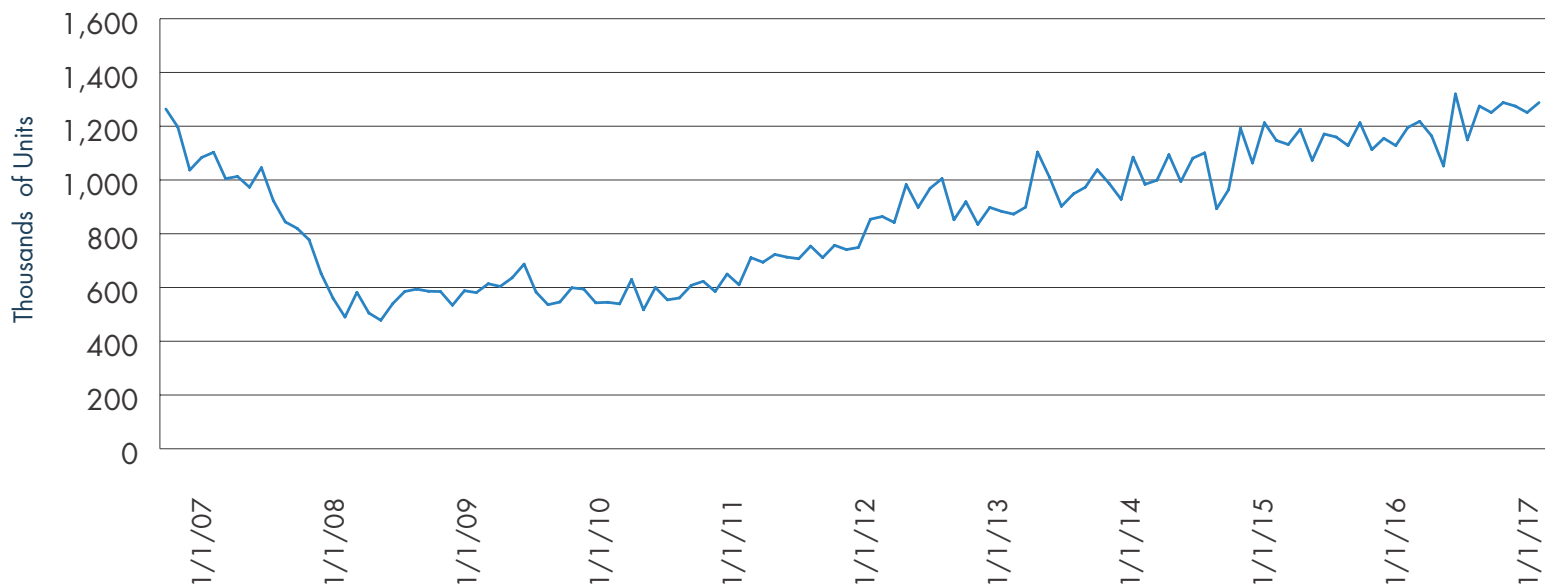
Forecast as of Q1 2017



Source: FMI Research Services

NEW PRIVATELY OWNED HOUSING UNITS STARTED

Seasonally Adjusted Annual Rate



Source: Federal Reserve Economic Data

TRENDS:

- “National vacancy rates in the fourth quarter 2016 were 6.9 percent for rental housing and 1.8 percent for homeowner housing. The rental vacancy rate of 6.9 percent was not statistically different from the rate in the fourth quarter 2015 (7.0 percent) or the rate in the third quarter 2016 (6.8 percent). The homeowner vacancy rate of 1.8 percent was not statistically different from the rate in the fourth quarter 2015 (1.9 percent) or the rate in the third quarter 2016 (1.8 percent).” (U.S. Census Bureau, January 31, 2017)
- “The S&P CoreLogic Case-Shiller U.S. National Home Price NSA Index, covering all nine U.S. census divisions, reported 5.8% annual gain in December, up from 5.6% last month and setting a 30-month high. The 10-City Composite posted a 4.9% annual increase, up from 4.4% the previous month. The 20-City Composite reported a year-over-year gain of 5.6%, up from 5.2% in November.” (S&P Dow Jones Indices, February 28, 2017)
- According to the U.S. Census Bureau, “Privately-owned housing units authorized by building permits in February were at a seasonally adjusted annual rate of 1,213,000. This is 6.2 percent (± 1.8 percent) below the revised January rate of 1,293,000, but is 4.4 percent (± 1.3 percent) above the February 2016 rate of 1,162,000.” (March 16, 2017)

DRIVERS:

- 📈 Unemployment rate
- 📈 Core CPI
- 📈 Income
- 📈 Mortgage rates
- 📈 Home prices
- 📈 Housing starts
- 📈 Housing permits

Lodging

At just 10% for 2017, lodging construction is expected to have its slowest year of growth since 2012 when it made a roaring comeback from negative 22% to a 19% improvement. New supply of rooms is beginning to surpass absorption, thus putting downward pressure on revenue per room and occupancy rates. The industry is also facing some new competition in the market with the rise of startups like Airbnb. Nonetheless, the hotel industry is showing solid performance as revenue per available room (RevPAR) continues a long streak of improvement. Renovation of key properties will continue to be active so that established properties can continue to attract guests looking for new services and amenities.

UP 10%
\$29.9 Billion

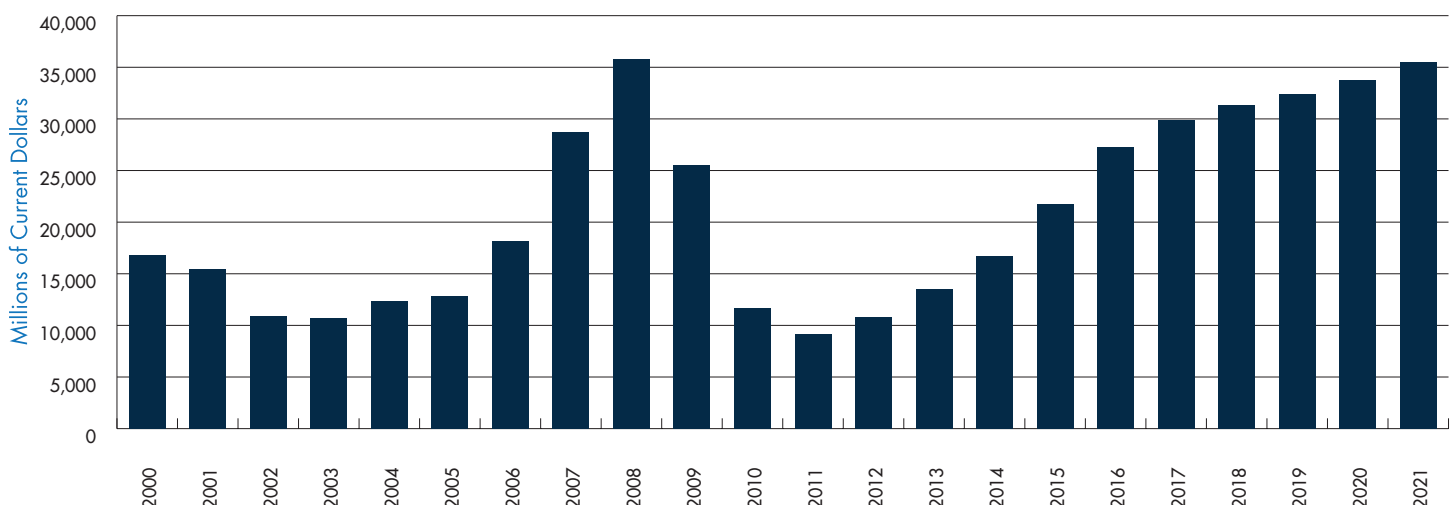
TRENDS:

- According to STR, “The 1.2% increase in RevPAR was the lowest for the industry since the last time we had a RevPAR decrease way back in February of 2010,” said Jan Freitag, STR’s senior VP of lodging insights. “That was due mainly to the lowest ADR increase since October 2010. Occupancy performance fell in line with expectations as supply growth outpaced demand, but that supply growth also looks to be placing added pressure on hotelier pricing power.” (Hotel News Now, March 21, 2017)
- STR’s October 2016 Pipeline Report shows “549,142 rooms in 4,510 projects Under Contract in the United States. The total represents a 24.4% increase in the number of rooms Under Contract compared with September 2015.” (Hospitality Net, October 12, 2016)
- “In 2016, RevPAR growth for the 60 markets covered by CBRE’s Hotel Horizons® forecast reports averaged 2.8 percent. This is below the aggregate 3.6 percent RevPAR growth achieved by hotels located outside of the 60 markets.” (CBRE Hotels’ Americas Research, reported in HospitalityNet, March 22, 2017)

DRIVERS:

- Occupancy rate
- ⬆ RevPar
- ⬆ Average daily rate
- ⬆ Room starts

LODGING CONSTRUCTION PUT IN PLACE Forecast as of Q1 2017



Office

Office construction will slow to 12% growth in 2017. That is much less than the 25% improvement enjoyed in 2016. After three high-growth years post-recession, it appears office construction is on the downward leg of its current cycle. Vacancy rates are increasing in major metros that have had a boom in office space in recent years. After several years of high-tech firm growth moving to the city, it is possible that there may be a growing interest in the suburbs again.

UP 12%
\$77.4 Billion

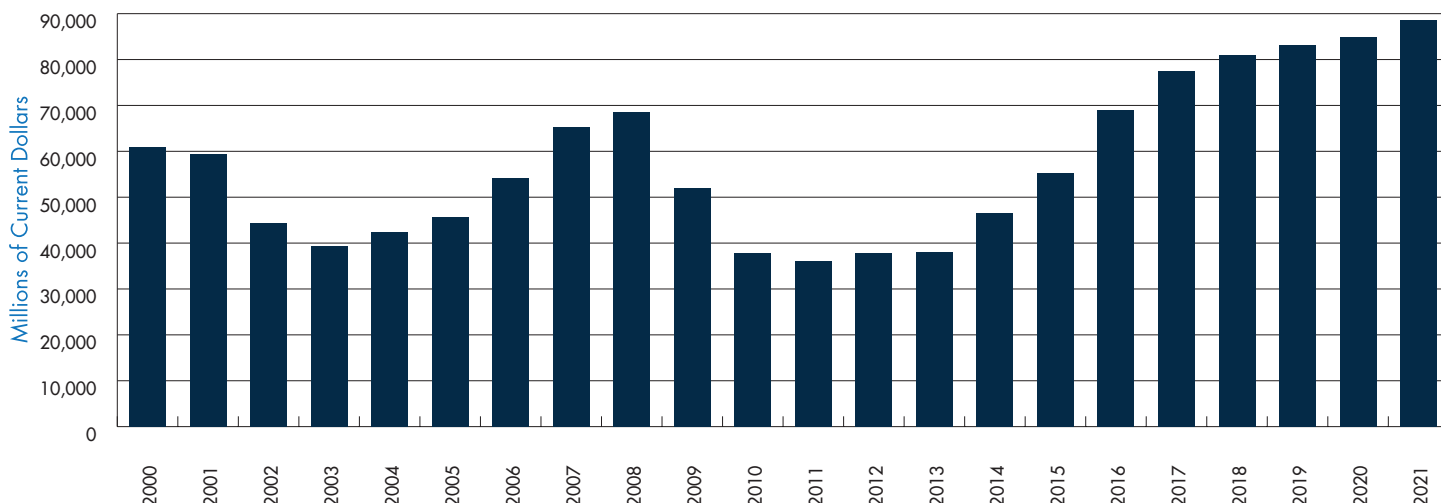
TRENDS:

- CBRE reports, "Job creation in the primary office-using employment sectors (professional and business services, financial activities and information services) accelerated to 169,000 in Q2 2016, above the previous quarter's total of 122,000 and on par with the quarterly average of 175,000 office-using jobs added since the end of 2010. (CBRE, Q3 2016 U.S. Office Occupier View) .

DRIVERS:

- 📈 Office vacancy rate
- 📉 Unemployment rate

OFFICE CONSTRUCTION PUT IN PLACE Forecast as of Q1 2017



Commercial

Given the rapidly evolving state of the retail environment, 11% growth in construction for 2016 and a forecast of an additional 9% in 2017 look quite promising. Perhaps the growth is partly a sign of the turmoil in the market as seen in the mass closings of traditional big-box chain stores like Sears, Macy's, Staples and J.C. Penney. Store closings reflect a couple of market trends, the move to shopping on the internet and the economic bifurcation that sends most shoppers to the lowest-price retail stores and the wealthier shoppers to upscale, multiuse centers.

The move from traditional shopping venues will likely result in a merging of online and brick-and-mortar shopping with brick and mortar becoming more of a destination or event-related atmosphere. Some of the fastest-growing areas in commercial retail construction have been drinking places and food services; however, building materials and garden supply stores are currently experiencing the highest growth rate.

UP 9%
\$81.5 Billion

TRENDS:

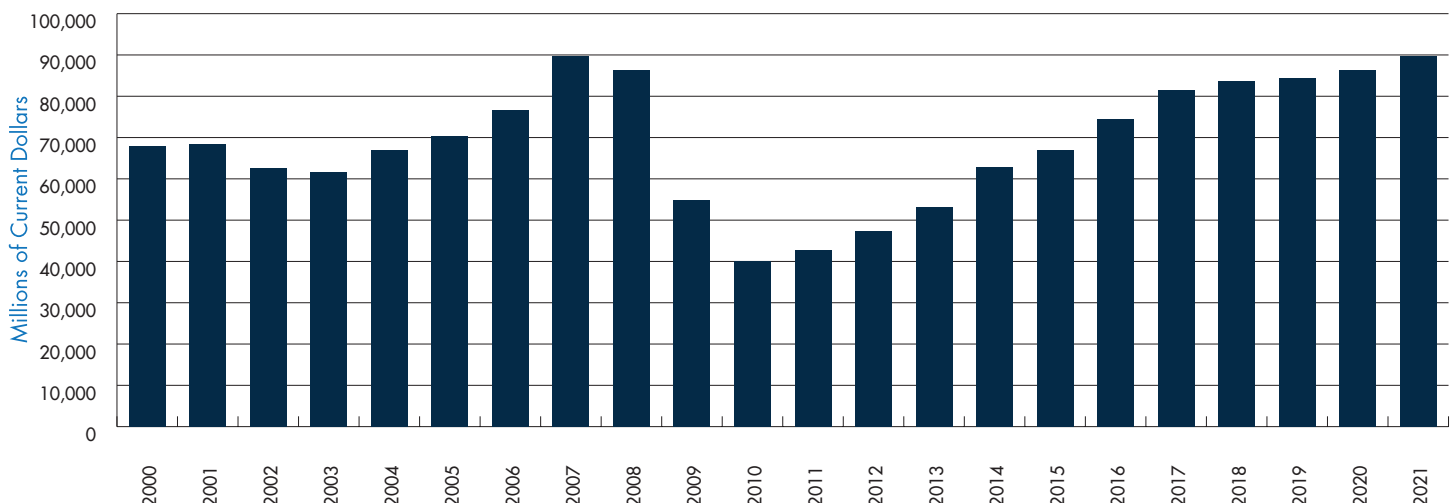
- The U.S. Census Bureau announced, "Retail trade sales were up 0.1 percent (± 0.5 percent)* from January 2017, and up 5.9 percent (± 0.7 percent) from last year. Gasoline Stations sales were up 19.6 percent (± 1.4 percent) from February 2016, while Nonstore Retailers were up 13.0 percent (± 1.8 percent) from last year." (U.S. Department of Commerce, March 15, 2017)
- The Conference Board Consumer Confidence Index reached 125.6 in March (1985=100), up from 116.1 in February. "Consumer confidence increased sharply in March to its highest level since December 2000 (Index, 128.6)," said Lynn Franco, director of economic indicators at The Conference Board. "Consumers' assessment of current business and labor market conditions improved considerably. Consumers also expressed much greater optimism regarding the short-term outlook for business, jobs and personal income prospects." (The Conference Board, March 28, 2017)

DRIVERS:

- 📈 Retail sales
- 📈 CPI
- 📈 Income
- 📈 Home prices
- 📈 Housing starts
- 📈 Housing permits

COMMERCIAL CONSTRUCTION PUT IN PLACE

Forecast as of Q1 2017



Health Care

FMI is forecasting \$42.5 billion in construction put in place for 2017 and 4% growth in 2018. Traditional large hospital projects are returning to the drawing boards with fewer large hospital projects in the works. The bulk of the work will be renovation and additions as well as outpatient care. New facility designs are upping the game for a patient-centered environment as well as reducing concerns for the spread of supergerms. Construction will continue to become more collaborative and integrated with the various communities involved. The uncertain future of government health care policy and challenges of updating to the latest technologies and security measures will be top challenges in the years ahead.

TRENDS:

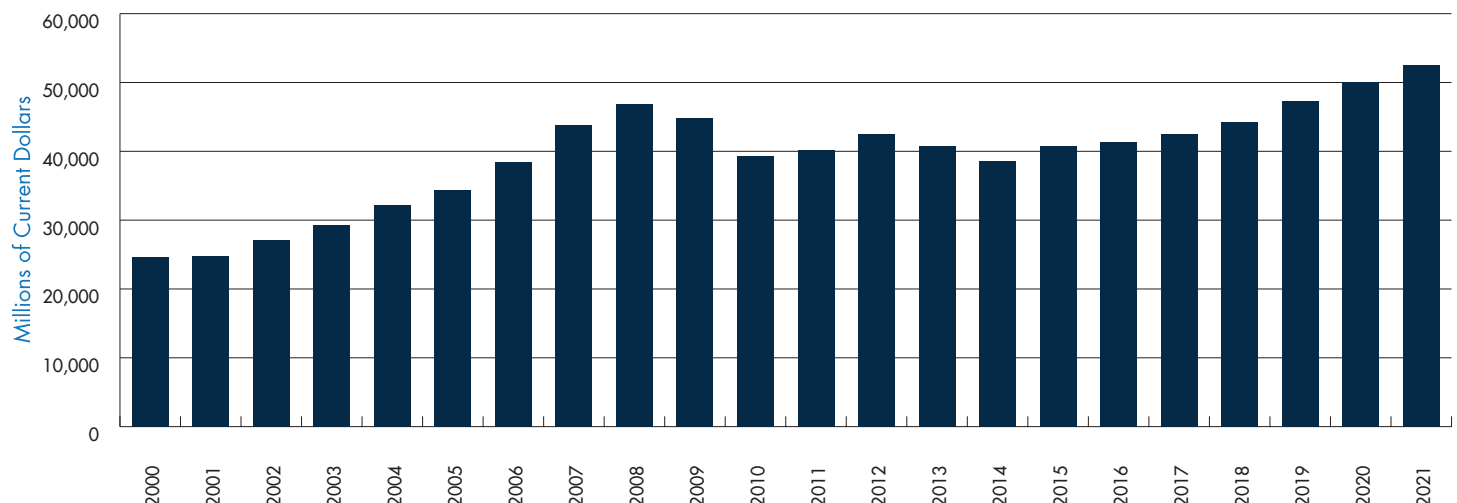
- The Bureau of Labor Statistics reports, "Employment of registered nurses is projected to grow 16 percent from 2014 to 2024, much faster than the average for all occupations."
- Health Facilities Management magazine says, the "industry is moving away from large-scale new construction, according to survey results. While 70 percent of respondents said they have projects currently under construction or planned in the next three years, a full three-fourths of those were expansions or renovations." (2016 Hospital Construction Survey, Health Facilities Management)
- The new model for hospitals is the medical center with a cluster of offices, including beds, which will deliver more of a patient's needs.
- The number of outpatient facilities will continue to grow, pressed by the need to lower health care costs and to improve health facility profits.

UP 3%
\$42.5 Billion

DRIVERS:

- Population change younger than age 18
- Population change ages 18-24
- Stock market
- Government spending
- Nonresidential structure investment

HEALTH CARE CONSTRUCTION PUT IN PLACE Forecast as of Q1 2017



Education

FMI forecasts education construction put in place for 2017 to grow 6% to \$94.1 billion. Growth for 2018 is expected to be 5% for a total of \$99.1 billion by year-end. Development will be driven by population growth and the increasing need to bring schools into compliance for safety and the health of the student populations. Higher education will either embrace distance learning or continue to compete with it, similar to retail stores versus online shopping.

Schools increasingly need to have security measures in place due to continued threats of terrorism and deranged people entering the school with weapons. There also need to be funding solutions to improve the deplorable conditions in inner-city schools in depressed areas like Detroit. To prepare students for future careers, all schools should include modern technology or be renovated and updated for modern computing and collaborative environments.

UP 6%
\$94.1 Billion

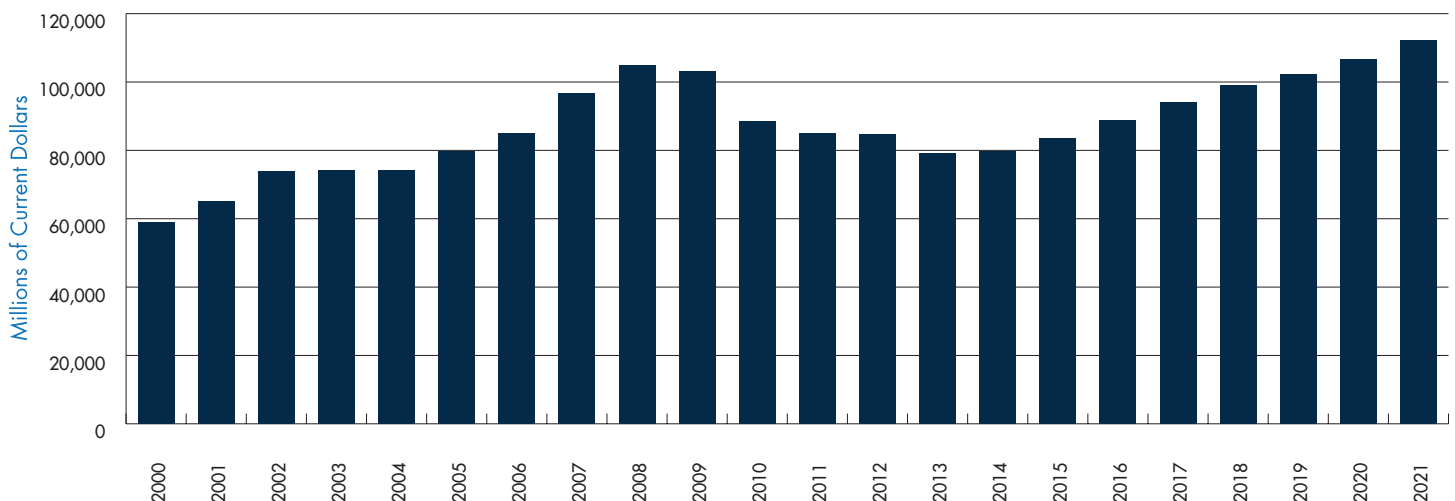
TRENDS:

- Significantly less funding from federal government and states for K-12 schools.
- Enrollment growth 2.5 million in the next four years.
- The National Center for Education Construction reports that, "Total public school enrollment in pre-K through grade 12 increased in 30 states and the District of Columbia from 2003–04 to 2013–14, with increases of 15 percent or more occurring in five states (Utah, Texas, Idaho, Nevada and Colorado). During this period, total enrollment declined in the other 20 states, with decreases of 10 percent or more occurring in four states (Michigan, Rhode Island, Vermont and New Hampshire)." (NCES, May 2016)
- New designs for schools will be more flexible for changing classrooms and greater use of natural light. Expect more use of prefabrication and modular building designs.

DRIVERS:

- 📈 Population change younger than age 18
- 📈 Population change ages 18-24
- 📈 Stock market
- 📈 Government spending
- 📈 Nonresidential structure investment

EDUCATION CONSTRUCTION PUT IN PLACE Forecast as of Q1 2017



Religious

We expect the growth rate for religious buildings to continue to slow to just 1% in 2017 to reach \$3.8 billion. With more people working, there is more money available to support religious building, in some cases involving larger building projects. Nonetheless, slow growth will return to this sector. Future uncertainty for growth is due to many changes in the religious landscape, including the mix of religious faiths in America and fewer people who consider themselves regular churchgoers, even if they still belong to a certain faith. Many new churches are small and established in existing buildings like those found in vacated shopping centers.

UP 1%
\$3.8 Billion

TRENDS:

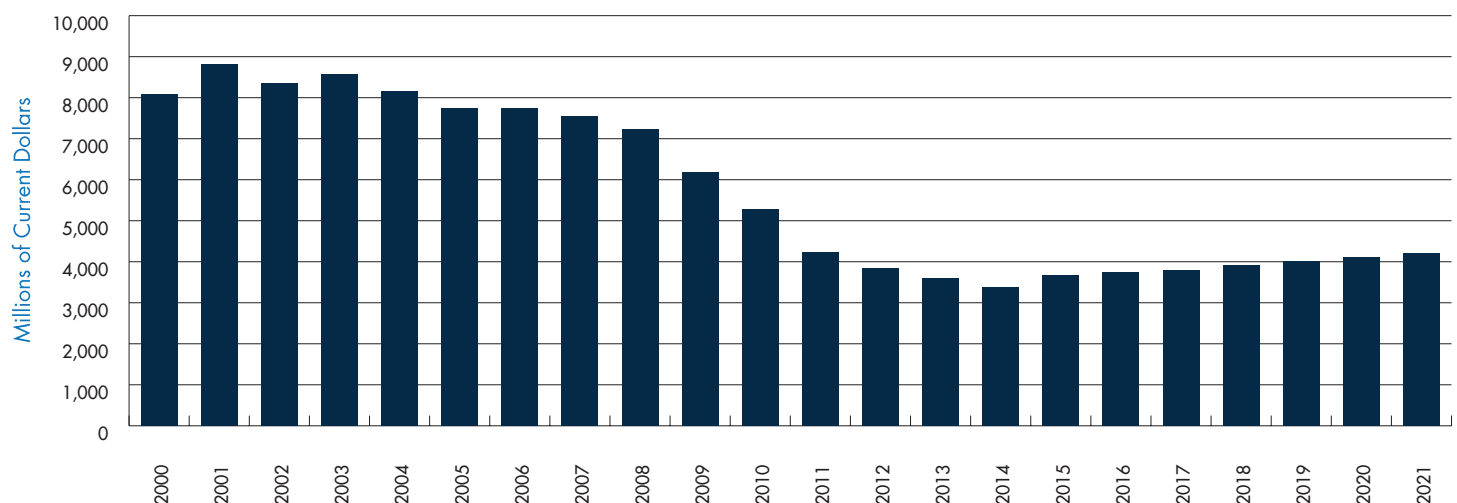
- The lending environment continues to be a challenge for many congregations.
- Establishing a capital campaign is becoming increasingly common.
- Many churches are seeing tremendous declines in contributions and tithes.

DRIVERS:

- GDP
- Population
- Income
- Personal savings rate

RELIGIOUS CONSTRUCTION PUT IN PLACE

Forecast as of Q1 2017



Public Safety

Spending for public safety construction declined 7% in 2016 and is expected to lose another 4% in 2017. Although the private prison sector took a serious blow when the federal government under President Obama announced the results of a long investigation and plans to phase out the use of private prisons, Attorney General Sessions has been directed by the president to overturn the phaseout and favors the greater use of private prisons.

DOWN 4%
\$7.8 Billion

TRENDS:

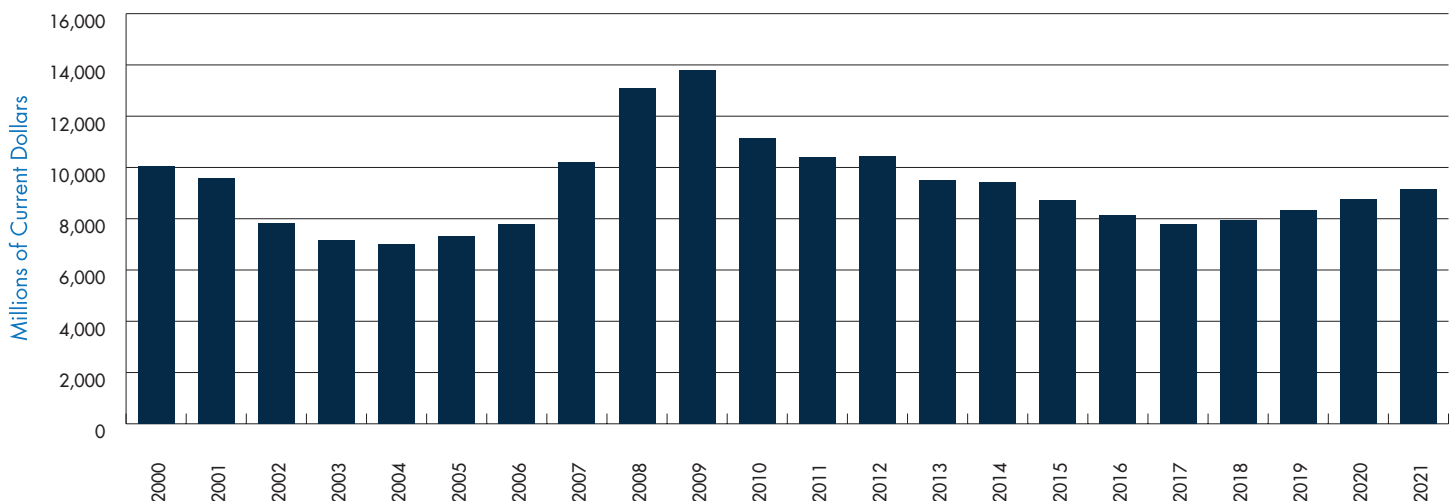
- “Six states (Hawaii, Mississippi, Montana, New Mexico, North Dakota and Oklahoma) housed at least 20% of their prison population in privately operated facilities at year-end 2015. Almost 7% of state prisoners (91,300 inmates) and 18% of federal prisoners (34,900) were held in private prison facilities in 2015. An additional 6% of state prisoners (80,400 inmates) were in the custody of local jails at year-end 2015.” (Bureau of Justice Statistics, Prisoners in 2015, December 2016)
- The rise in deportations and the roundup of illegal aliens may greatly increase the need for prison capacity.

DRIVERS:

- 📈 Population
- 📈 Government spending
- 📈 Incarceration rate
- 📈 Nonresidential structure investment

PUBLIC SAFETY CONSTRUCTION PUT IN PLACE

Forecast as of Q1 2017



Amusement and Recreation

Our forecast for amusement and recreation construction for 2017 predicts 6% growth. That is slower than the last few years but translates into \$23.1 billion in construction put in place as the highly competitive market for sports venues continues to shift. Nonetheless, we may be looking at the slower side of the cycle in the next few years as growth drops to around 2%. With the addition of domes and retracting roofs as well as bars, restaurants, shopping, luxury boxes and on and on, sports venues are creating the model for a future of climate-controlled cities.

UP 6%
\$23.1 Billion

TRENDS:

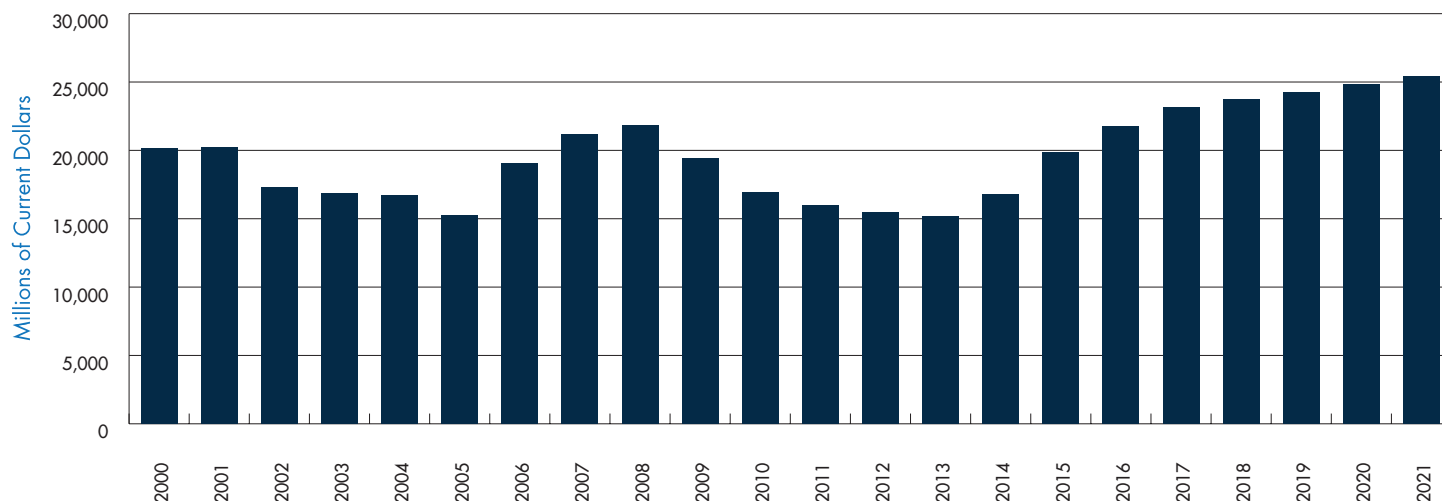
- The Rams' return to Los Angeles will mean a new home for the team. The recently announced 70,000-seat stadium for the Los Angeles Rams will be a mixed-use project in Inglewood, California. (prnewswire.com, July 14, 2016) The new stadium is set to open in 2019.
- The new stadium for the San Diego Chargers was turned down, so now the team is moving to Los Angeles. San Diego State will use the old Chargers stadium.
- The Oakland Raiders move to Las Vegas has been approved by the NFL owners.
- A dedicated soccer stadium is being built in Orlando for the Orlando City Soccer Club expansion franchise. The opening is planned for the 2016 season.
- The \$1.4 billion Mercedes-Benz stadium will host the Atlanta Falcons and the Atlanta United FC in 2017. The stadium will have a retractable roof.
- Competition in the gaming sector will draw business away from some existing gambling centers, such as Atlantic City and Las Vegas, as well as from other public arenas.

DRIVERS:

- ⬆ Income
- ⬆ Personal savings
- ⬇ Unemployment rate

AMUSEMENT AND RECREATION CONSTRUCTION PUT IN PLACE

Forecast as of Q1 2017



Transportation

Transportation construction growth slowed -6% in 2016, but our forecast calls for a recovery of 2% in 2017 to reach \$43.6 billion. Aviation transportation for cargo and passengers will continue to grow at around the same pace as GDP growth; however, airports will increasingly need to be able to accommodate larger, wide-bodied aircraft as airlines replace older fleets. Although many people in the industry do not expect the president's infrastructure plan to be taken up in Congress at least before the end of 2017, funding is in place from the Surface Transportation Reauthorization and Reform Act and other bills. Nonetheless, the president's current budget proposes to cut the Department of Transportation (DOT) by \$2.4 billion (13%). (The Hill, 3/16/17)

UP 2%
\$43.6 Billion

TRENDS:

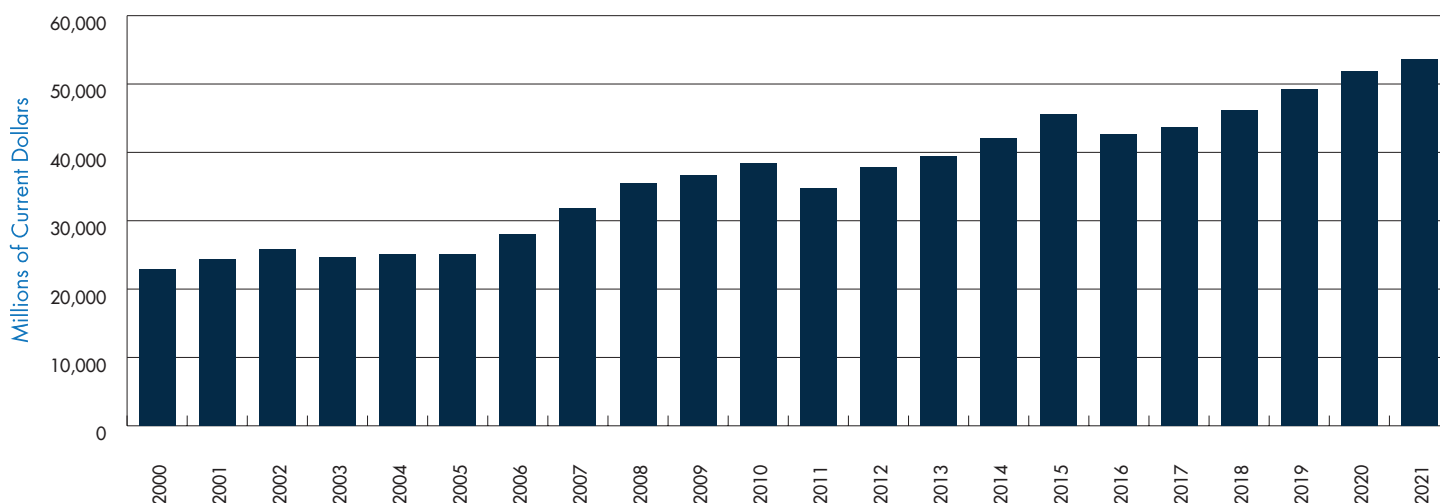
- According to the Association of American Railroads (AAR) report for March 22, 2017, "Total carloads for the week ending March 18 were 246,465 carloads, up 4.6 percent compared with the same week in 2016, while U.S. weekly intermodal volume was 248,816 containers and trailers, up 0.3 percent compared to 2016."
- The 2016-2036 FAA forecast indicates, "The number of aircraft in the U.S. commercial fleet is forecast to increase from 6,871 in 2015 to 8,414 in 2036, an average annual growth rate of 1.0 percent a year. Increased demand for air travel and growth in air cargo is expected to fuel increases in both the passenger and cargo fleets." (FAA Aerospace Forecast Fiscal Years 2016-2036)
- Congress passed the Water Infrastructure Improvements Act for the Nation, or WIIN Act, which includes the Water Resources Development Act (WRDA) of 2016. The WIIN Act "is comprehensive legislation to address the needs of America's harbors, locks, dams, flood protection and other water resources infrastructure critical to the nation's economic growth, health and competitiveness."

DRIVERS:

- 📈 Population
- 📈 Government spending
- 📈 Transportation funding

TRANSPORTATION CONSTRUCTION PUT IN PLACE

Forecast as of Q1 2017



Communication

Communication construction put in place dropped 4% in 2016, but is expected to recover to a 7% growth rate in 2017 to reach \$21.1 billion. The trend for communications is likely to be more integration and mergers in order to capture market share. The current trend is for building more data centers and beefing up security and privacy against potential interlopers and severe weather events. The increasing need for data storage is not driven just by corporate and government use. The trend continues to merge telecommunications for entertainment and data that will be offered by a few competing service providers. Add to this the growing Internet of Things (IoT) that will connect smartphones and computers to anything that has a chip and the ability to connect to the internet, such as automobiles, manufacturing equipment, personal monitoring devices and kitchen appliances.

UP 7%
\$21.1 Billion

TRENDS:

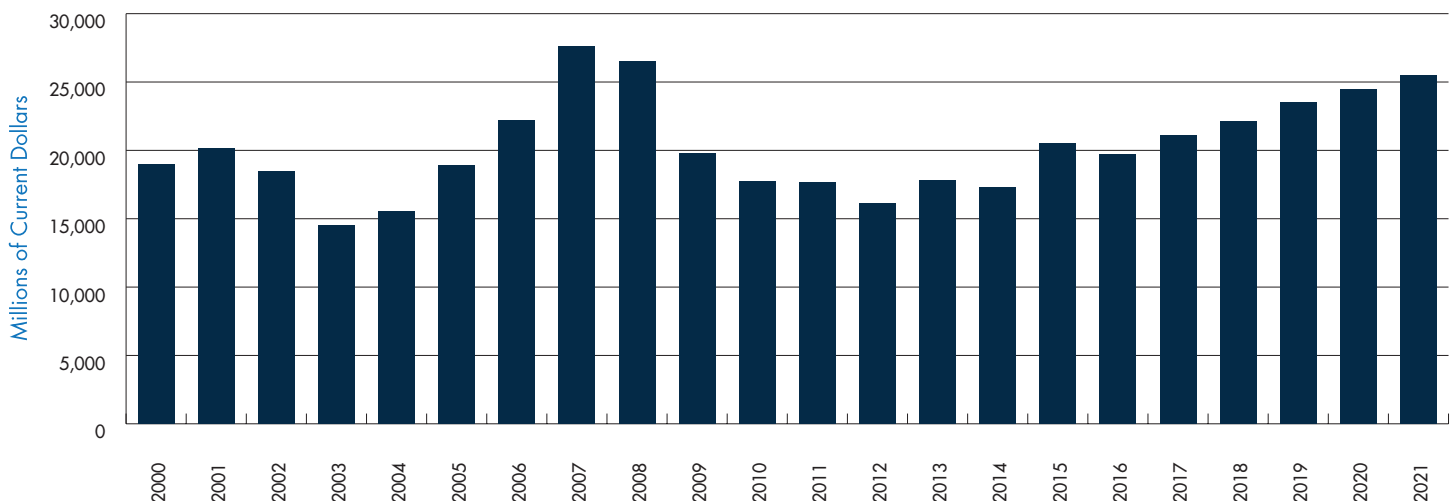
- Communications infrastructure will continue to be challenged with keeping up with the technology as 4G moves to 5G and 4K video is already moving to 5K, pushing bandwidth and storage capacity.
- "Mini towers" for increasing coverage and spectrum will proliferate rapidly in the next five years.
- Growth activity for Google's Google Fiber arm has been "paused," and layoffs are underway as Google reconsiders its plans for deploying high-speed gigabit connections in selected metro areas. Google is currently looking at more wireless solutions.
- Data security is critical for large businesses and governments in the face of potential disasters and threats from hackers and foreign enemies recently made more public by some high-profile hacks during the elections, including a billion Yahoo accounts.

DRIVERS:

- 📍 Innovation/technology
- 📍 Global mobility
- 📍 Population
- 📍 Security/regulatory standards
- 📍 Private investment

COMMUNICATION CONSTRUCTION PUT IN PLACE

Forecast as of Q1 2017



Manufacturing

Manufacturing construction growth has been subject to some sharp ups and downs in the last decade, but we expect growth to improve to 4% in 2017 to reach near \$78.2 billion and increase to 7% in 2018. Currently, at just 75.4 for February 2017, manufacturing capacity utilization slipped 0.6% over the previous month and was just 0.2 percent lower than the same time last year. Increasing energy prices may spur some capacity additions in the oil and gas sector, but price increases haven't been that stable at this point. The completion of the Panama Canal expansion project is expected to decrease costs and increase shipments from Gulf Coast ports between the U.S. and Asia.

UP 4%
\$78.2 Billion

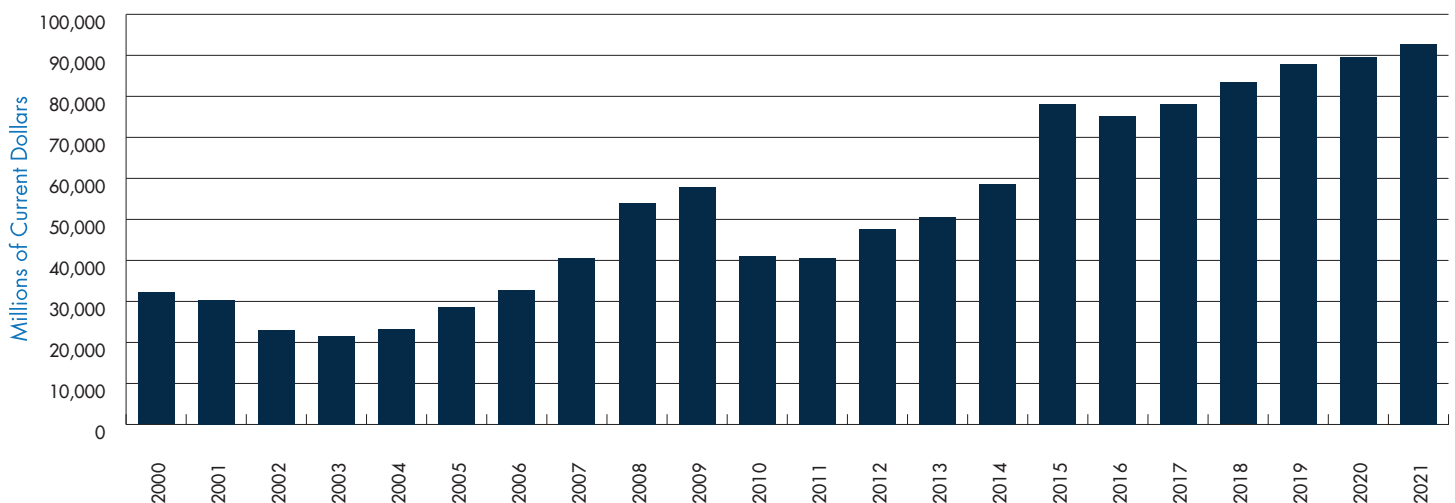
TRENDS:

- With little change since last quarter, manufacturing capacity utilization rates are at 75.4% of capacity in February 2017, which is well below the historical average of 78.5 (1972-2015).
- The U.S. Department of Commerce reports, "Shipments of manufactured durable goods in February, up three of the last four months, increased \$0.6 billion or 0.3 percent to \$239.2 billion. This followed a 0.1 percent January decrease. Machinery, also up three of the last four months, led the increase, \$0.3 billion or 0.9 percent to \$31.1 billion." (March 24, 2017)
- "New orders for manufactured durable goods in February increased \$3.9 billion or 1.7 percent to \$235.4 billion, the U.S. Census Bureau announced today. This increase, up two consecutive months, followed a 2.3 percent January increase. Excluding transportation, new orders increased 0.4 percent. Excluding defense, new orders increased 2.1 percent. Transportation equipment, also up two consecutive months, led the increase, \$3.3 billion or 4.3 percent to \$80.4 billion." (U.S. Census Bureau, March 24, 2017)
- "The March PMI® registered 57.2 percent, a decrease of 0.5 percentage point from the February reading of 57.7 percent. The New Orders Index registered 64.5 percent, a decrease of 0.6 percentage point from the February reading of 65.1 percent. The Production Index registered 57.6 percent, 5.3 percentage points lower than the February reading of 62.9 percent," according to The Manufacturing ISM® Report On Business®.

DRIVERS:

- 🔴 PMI
- 🔴 Industrial production
- 🔴 Capacity utilization
- 🟢 Durable goods orders
- 🟢 Manufacturing inventories

MANUFACTURING CONSTRUCTION PUT IN PLACE Forecast as of Q1 2017



Source: FMI Research Services

NONBUILDING STRUCTURES

Power

Construction for power-generating facilities grew 4% in 2016 to reach \$95.7 billion for construction put in place. We expect another 5% growth in 2017. New electrical capacity has been largely generated by solar and wind facilities from large facilities to rooftops in your local shopping mall. Traditional power plants must be updated to keep up with changing requirements as well as to manage distributed generation sources. President Trump overturned President Obama's order and has now given the go-ahead for the Keystone XL pipeline, which could increase construction by year's end. Trump also signed an executive order overturning Obama's energy regulations, particularly, as they concern coal mining.

UP 5%
\$100.2 Billion

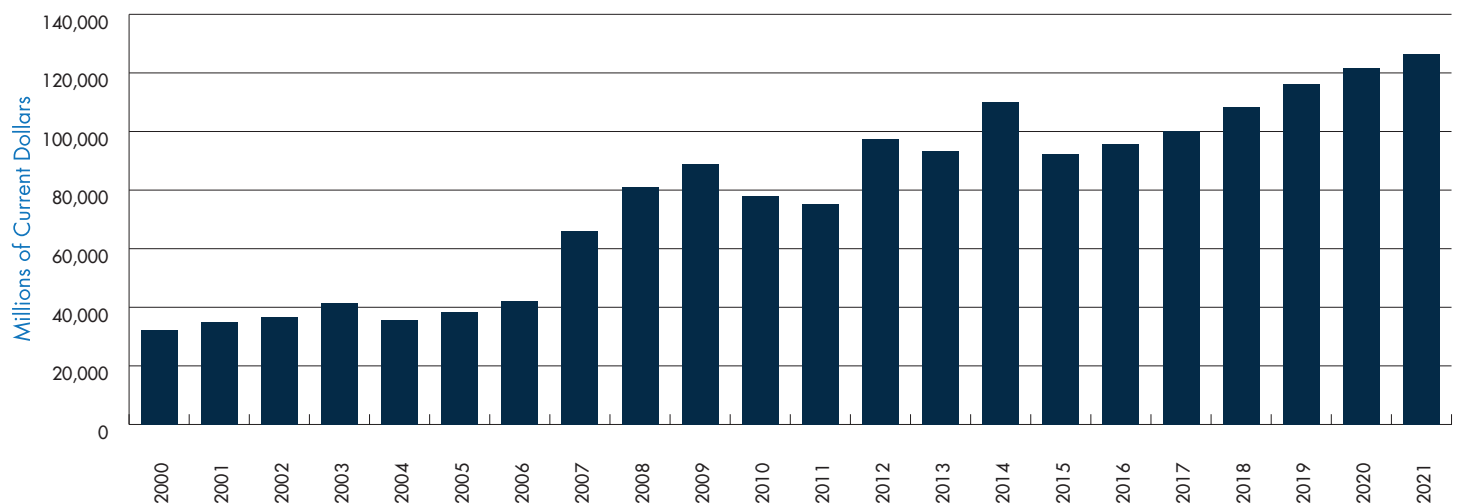
TRENDS:

- Power companies are placing greater emphasis on flexibility to respond to peak needs alongside hydropower, solar and wind-generating facilities.
- Electricity generated by gas, wind and solar power led the added capacity put in place in 2016. Coal represents 24.62% of annual capacity in the U.S., while natural gas is up to 43.14%. Solar power represents only 2.04% capacity and wind, 6.99%. (Office of Energy Projects, Energy Infrastructure Update, December 2016)

DRIVERS:

- Industrial production
- Population
- Nonresidential structure investment

POWER CONSTRUCTION PUT IN PLACE Forecast as of Q1 2017



Source: FMI Research Services

Highway and Street

Highway and street construction increased just 1% in 2016 to \$91.0 billion. FMI forecasts 3% growth for 2017 and another 4% in 2018. The Fixing America's Surface Transportation (FAST) Act for highway and transportation funding removed some uncertainty for highway funding; however, we do not expect a significant jump in spending over current levels. Although much political discussion is being generated around infrastructure with highways, streets and bridges being high on the list, no real plans are in place at the federal budget level. For future funding, expect that the sector will depend more on state budgets and public-private partnerships or some variation on that approach.

UP 3%
\$93.9 Billion

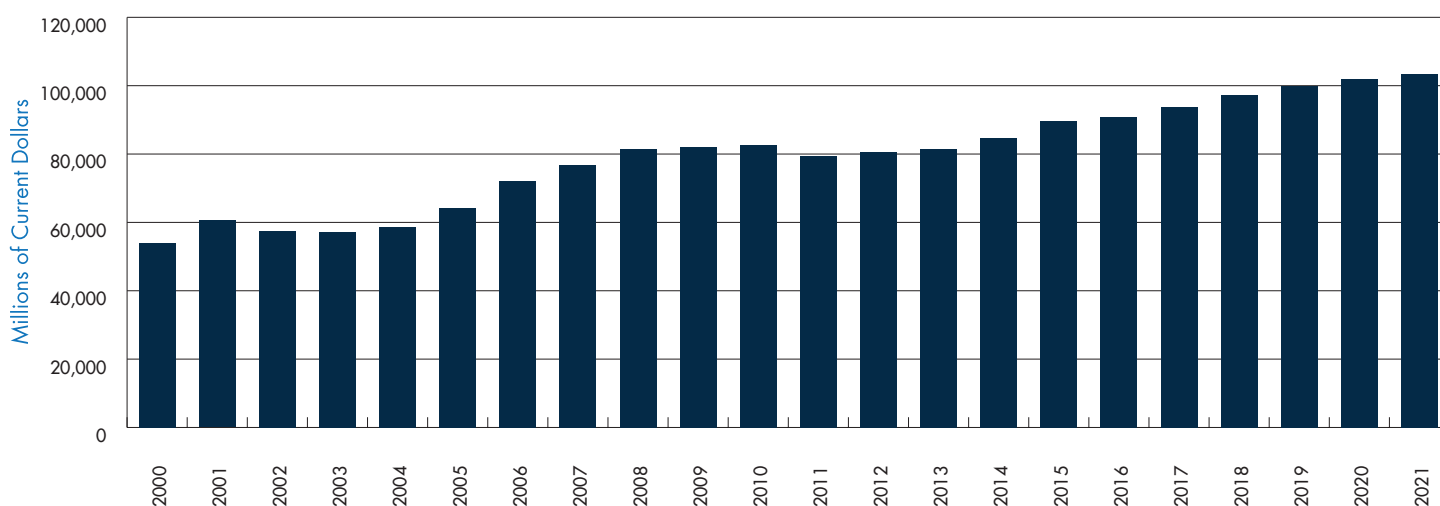
TRENDS:

- ARTBA reports, "The use of public-private partnerships (P3s) continues to be an important tool for funding highway and bridge construction projects. Five highway-related P3 projects came to financial close in 2016, totaling over \$3.3 billion in investment." (ARTBA U.S. Transportation Construction Market Forecast 2017)
- The Trump campaign pledged to spend \$1,000,000,000,000 on infrastructure spread out over 10 years. While there is a lot of bipartisan agreement that the country needs to invest in infrastructure, it is expected by many in the industry that action on this proposal won't begin until at least the end of 2017.

DRIVERS:

- 📍 Population
- 🏛️ Government spending
- 🏠 Nonresidential structure investment

HIGHWAY AND STREET CONSTRUCTION PUT IN PLACE Forecast as of Q1 2017



Source: FMI Research Services

Sewage and Waste Disposal

Construction put in place for sewage and waste disposal construction dropped 9% in 2016. FMI forecast calls for a gain of 2% in 2017. A significant percentage of the work to replace or build new metropolitan sewage and waste disposal is being done under court-ordered consent decrees. The EPA, in its recent "EPA National Enforcement Initiative: Keeping Raw Sewage and Contaminated Stormwater Out of Our Nation's Waters" report (March 2016), lists 38 cases going back to the earliest in 1978 up to today. The total "Estimated Cost to Bring CSS (SSS) into Compliance" is \$31,079,834,799, averaging \$839,995,535 per case. That figure does not include the costs to the EPA and municipal defendants for legal fees or fines, nor does it include cost overruns to complete the projects. Only four of the cases have met final obligations, and about a dozen won't be completed for more than a decade. With the new administration, there will be growing uncertainty as to the reach of the EPA as executive orders are overturned and staff is cut.

UP 2%
\$22.7 Billion

TRENDS:

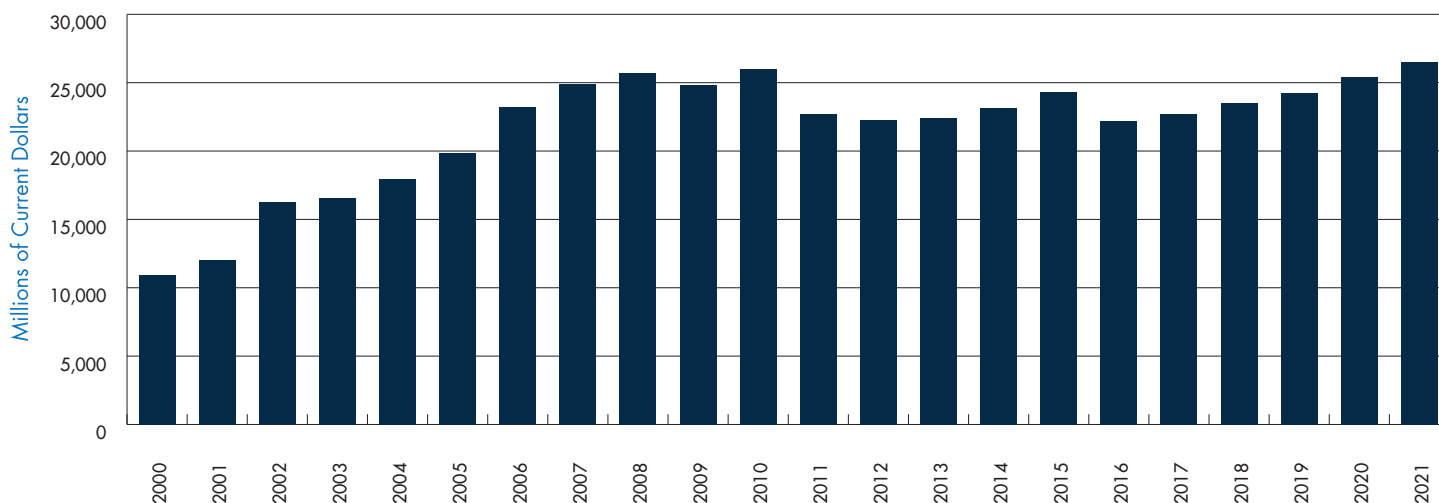
- Growth, driven by aging infrastructure and regulation, is on the horizon, but the length of the horizon is still unknown. Slow water infrastructure markets in the aftermath of the recession continue to build the backlog of necessary work as existing infrastructure ages.
- In need of replacement and upgrades, the 16,000 wastewater systems nationwide discharge more than 850 billion gallons of untreated sewage into surface waters each year.
- Combined sewer systems (stormwater and sewage) serve roughly 950 communities with about 40 million people. Most communities with CSOs are located in the Northeast and Great Lakes.

DRIVERS:

- 📈 Population
- 🏭 Industrial production
- 🏛️ Government spending

SEWAGE AND WASTE DISPOSAL CONSTRUCTION PUT IN PLACE

Forecast as of Q1 2017



Source: FMI Research Services

Water Supply

Water supply construction lost 9% in 2016, and we expect only 15% growth in 2017. In some regions of the nation, specifically California, water is the new oil. Like oil, one of the concerns for water besides scarcity is storage and conveyance to the right place according to need. More people will be asked to pay more for water as water becomes a scarcer commodity, considering increased population, agricultural and industrial needs. Whether one believes in global climate change or not, states will need to be strategic and proactive in both freshwater needs and sewage disposal and recycling.

UP 1%
\$12.0 Billion

TRENDS:

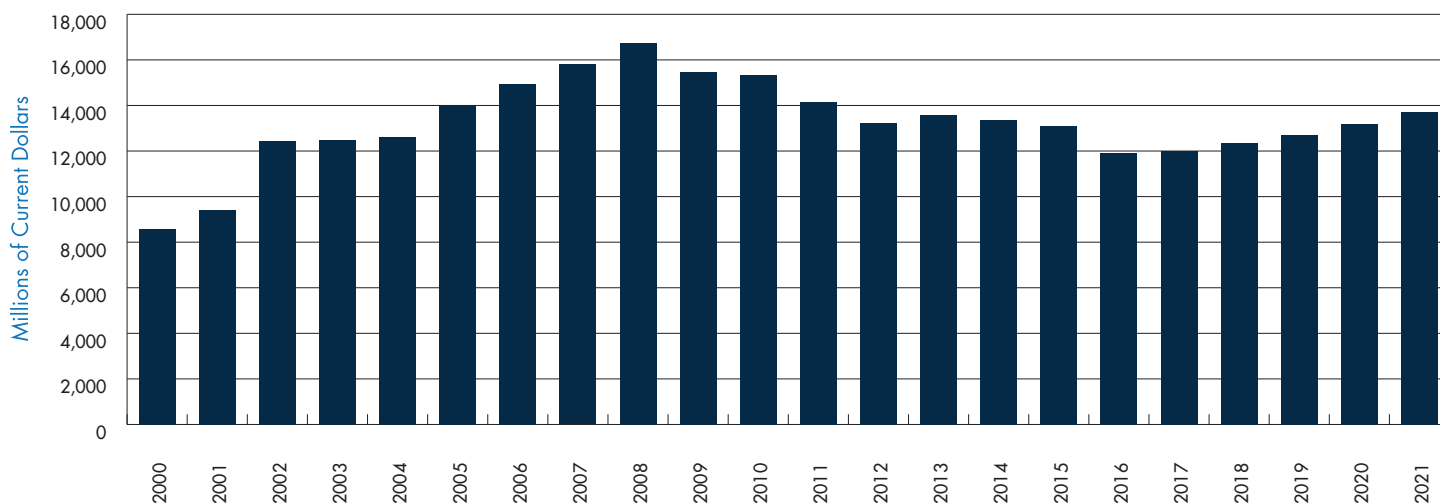
- “Local governments are stuck on an unsustainable financial treadmill when it comes to providing water and wastewater services; decisions made by Congress and the administration to eliminate or reduce financial assistance without reducing unwarranted and costly mandates have placed a severe financial burden on our nation’s cities and our citizens.” (Testimony Before the Senate Environment and Public Works Committee Subcommittee on Fisheries, Water and Wildlife, The United States Conference of Mayors, Mayor Rick Gray, Lancaster, Pennsylvania, March 27, 2017)
- “About 23 percent of U.S. water utilities are unsure if they have lead service lines, according to a survey by the engineering consultant Black & Veatch. One in 10 utilities is aware it has lead pipes, the survey found, but have no plans to replace them. Five percent have plans to partially replace lead pipes.” (E&E Publishing, July 7, 2016)

DRIVERS:

- 📈 Population
- 🏭 Industrial production
- 🏠 Government spending

WATER SUPPLY CONSTRUCTION PUT IN PLACE

Forecast as of Q1 2017



Source: FMI Research Services

Conservation and Development

Conservation and development construction lost 4% in 2016. We expect an increase of 5% in 2017 to reach \$8.0 billion. The future of federal spending for conservation and development is insecure as the current administration drastically cuts programs and employment in the EPA, rolling back orders from the previous administration.

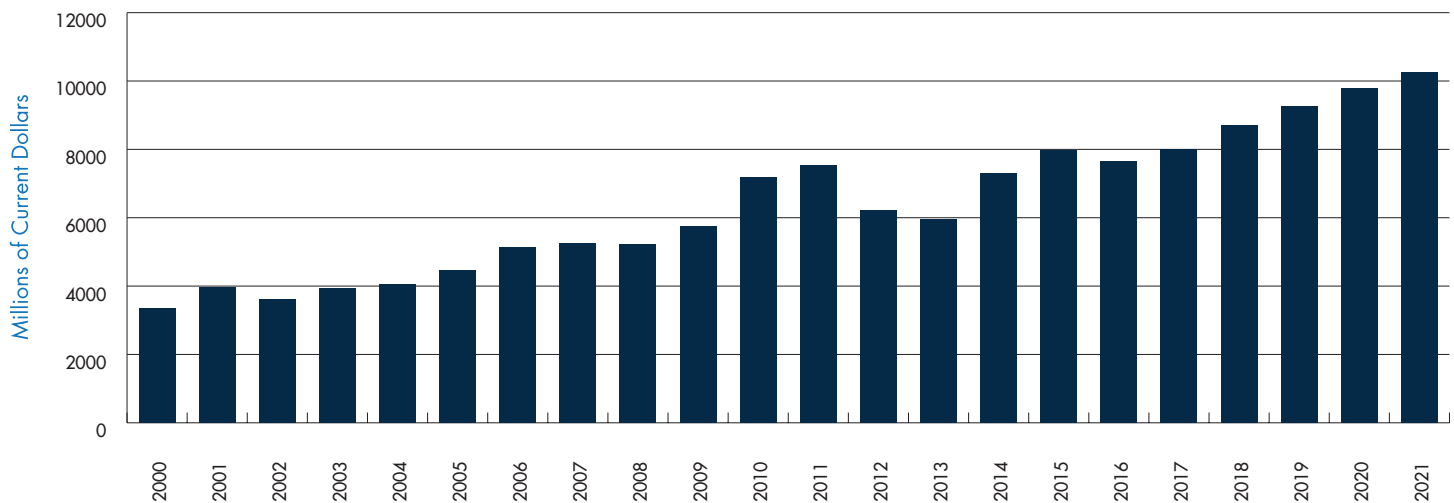
UP 5%
\$8.0 Billion

DRIVERS:

- Population
- Government spending

CONSERVATION AND DEVELOPMENT CONSTRUCTION PUT IN PLACE

Forecast as of Q1 2017



Source: FMI Research Services

Construction Put in Place Estimated for the United States

Millions of Current Dollars
1st Quarter 2017 Forecast (Based on Q4 2016 Actuals)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
RESIDENTIAL BUILDINGS										
Single-family	133,668	171,837	194,091	233,049	243,993	260,725	277,566	288,193	298,715	310,806
Multifamily	25,758	35,169	46,250	57,533	65,547	69,771	70,889	72,770	75,780	78,600
Improvements*	116,631	122,210	134,519	149,673	154,360	159,595	162,462	166,469	168,744	172,874
Total Residential Buildings	276,057	329,217	374,860	440,255	463,900	490,091	510,917	527,432	543,240	562,280
NONRESIDENTIAL BUILDINGS										
Lodging	10,836	13,484	16,738	21,728	27,249	29,879	31,372	32,370	33,800	35,478
Office	37,800	37,979	46,582	55,188	69,066	77,438	80,970	83,143	84,950	88,664
Commercial	47,335	53,159	62,841	66,924	74,465	81,464	83,766	84,488	86,208	89,684
Health Care	42,544	40,689	38,647	40,734	41,361	42,540	44,249	47,220	50,067	52,544
Education	84,672	79,060	79,681	83,517	88,819	94,088	99,129	102,258	106,586	112,216
Religious	3,846	3,590	3,386	3,667	3,747	3,788	3,914	4,009	4,101	4,217
Public Safety	10,431	9,506	9,437	8,729	8,145	7,799	7,920	8,342	8,767	9,139
Amusement and Recreation	15,480	15,207	16,773	19,878	21,763	23,144	23,751	24,264	24,854	25,424
Transportation	37,862	39,459	42,043	45,566	42,620	43,614	46,211	49,192	51,807	53,648
Communication	16,165	17,783	17,298	20,507	19,698	21,133	22,157	23,493	24,482	25,486
Manufacturing	47,741	50,548	58,648	78,178	75,178	78,217	83,371	87,927	89,606	92,828
Total Nonresidential Buildings	354,712	360,464	392,074	444,616	472,111	503,104	526,810	546,705	565,229	589,328
NONBUILDING STRUCTURES										
Power	97,434	93,317	110,089	92,435	95,675	100,162	108,230	116,276	121,815	126,575
Highway and Street	80,546	81,364	84,743	89,751	90,944	93,863	97,261	99,826	101,885	103,467
Sewage and Waste Disposal	22,261	22,425	23,173	24,285	22,183	22,683	23,531	24,240	25,405	26,532
Water Supply	13,218	13,597	13,380	13,107	11,895	12,009	12,351	12,695	13,191	13,710
Conservation and Development	6,228	5,967	7,310	7,985	7,647	8,009	8,718	9,262	9,787	10,269
Total Nonbuilding Structures	219,687	216,670	238,695	227,563	228,344	236,726	250,091	262,299	272,083	280,554
Total Put in Place	850,456	906,351	1,005,629	1,112,434	1,164,355	1,229,921	1,287,818	1,336,436	1,380,551	1,432,161

*Improvements includes additions, alterations and major replacements. It does not include maintenance and repairs.

Construction Put in Place Estimated for the United States

Change From Prior Year - Current Dollar Basis
1st Quarter 2017 Forecast (Based on Q4 2016 Actuals)

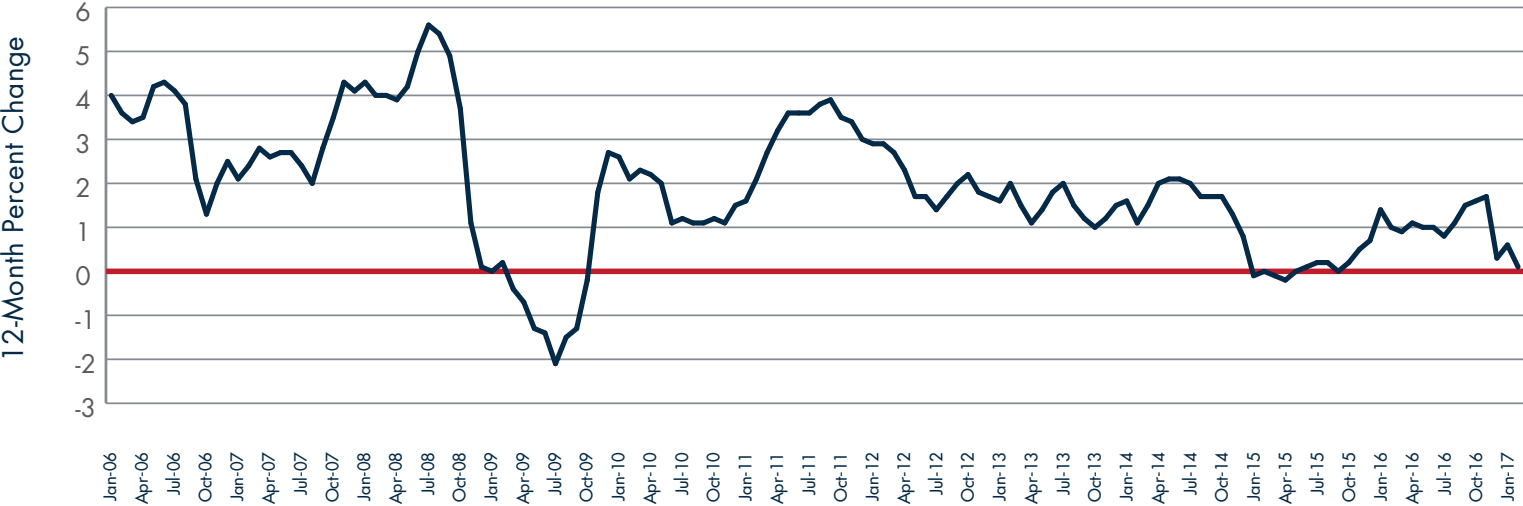
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
RESIDENTIAL BUILDINGS										
Single-family	22%	29%	13%	20%	5%	7%	6%	4%	4%	4%
Multifamily	45%	37%	32%	24%	14%	6%	2%	3%	4%	4%
Improvements*	-7%	5%	10%	11%	3%	3%	2%	2%	1%	2%
Total Residential Buildings	9%	19%	14%	17%	5%	6%	4%	3%	3%	4%
NONRESIDENTIAL BUILDINGS										
Lodging	19%	24%	24%	30%	25%	10%	5%	3%	4%	5%
Office	5%	0%	23%	18%	25%	12%	5%	3%	2%	4%
Commercial	11%	12%	18%	6%	11%	9%	3%	1%	2%	4%
Health Care	6%	-4%	-5%	5%	2%	3%	4%	7%	6%	5%
Education	0%	-7%	1%	5%	6%	6%	5%	3%	4%	5%
Religious	-9%	-7%	-6%	8%	2%	1%	3%	2%	2%	3%
Public Safety	0%	-9%	-1%	-8%	-7%	-4%	2%	5%	5%	4%
Amusement and Recreation	-3%	-2%	10%	19%	9%	6%	3%	2%	2%	2%
Transportation	9%	4%	7%	8%	-6%	2%	6%	6%	5%	4%
Communication	-9%	10%	-3%	19%	-4%	7%	5%	6%	4%	4%
Manufacturing	18%	6%	16%	33%	-4%	4%	7%	5%	2%	4%
Total Nonresidential Buildings	5%	2%	9%	13%	6%	7%	5%	4%	3%	4%
NONBUILDING STRUCTURES										
Power	30%	-4%	18%	-16%	4%	5%	8%	7%	5%	4%
Highway and Street	2%	1%	4%	6%	1%	3%	4%	3%	2%	2%
Sewage and Waste Disposal	-2%	1%	3%	5%	-9%	2%	4%	3%	5%	4%
Water Supply	-7%	3%	-2%	-2%	-9%	1%	3%	3%	4%	4%
Conservation and Development	-17%	-4%	23%	9%	-4%	5%	9%	6%	6%	5%
Total Nonbuilding Structures	10%	-1%	10%	-5%	0%	4%	6%	5%	4%	3%
Total Put in Place	8%	7%	11%	11%	5%	6%	5%	4%	3%	4%

*Improvements includes additions, alterations and major replacements. It does not include maintenance and repairs.

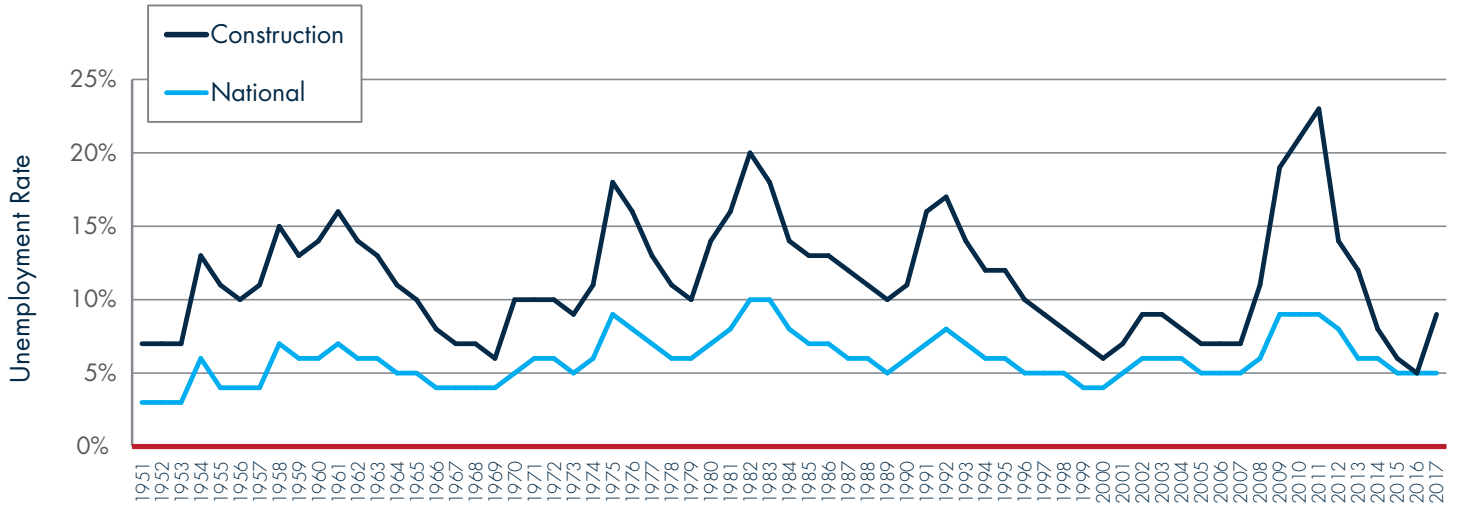
APPENDIX

CONSUMER PRICE INDEX

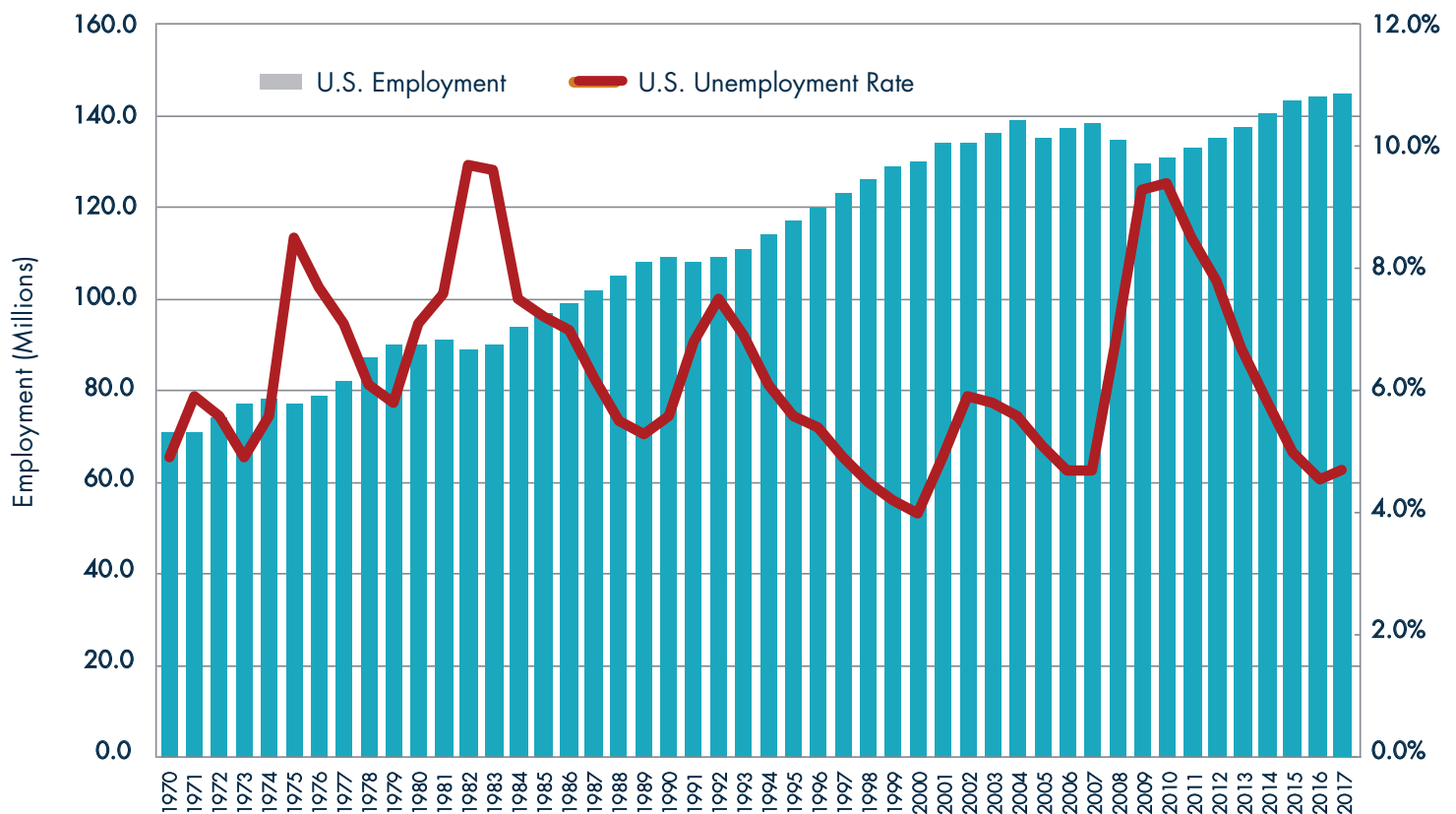
All Urban Consumers, 12-Month Percent Change



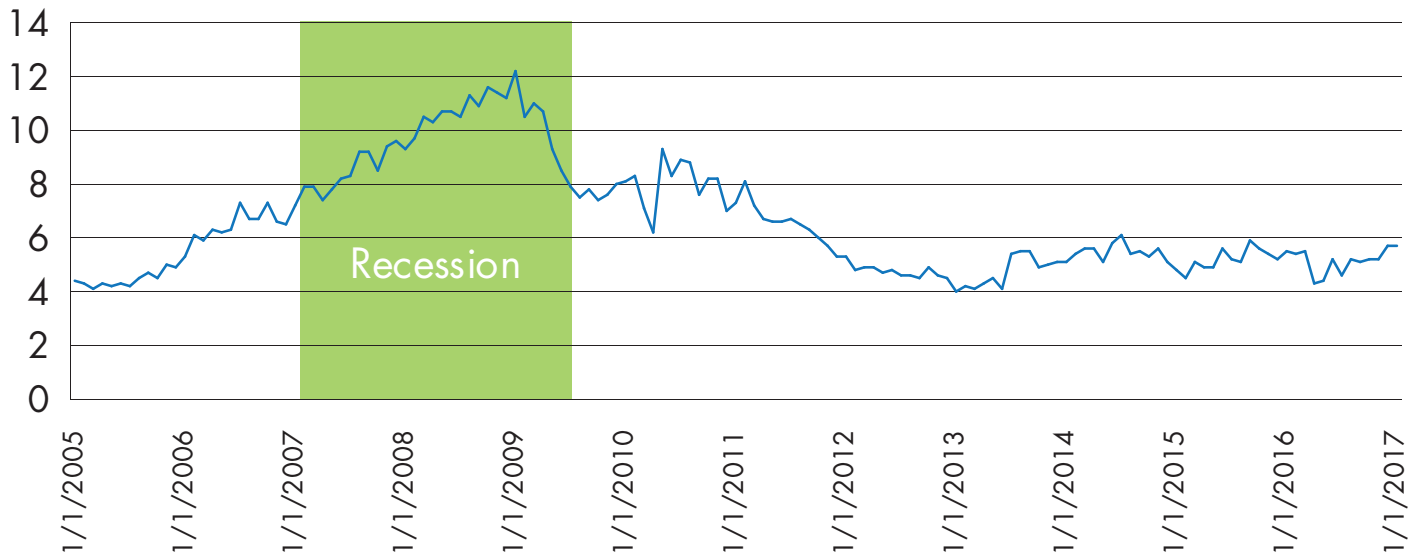
CONSTRUCTION UNEMPLOYMENT RATES



EMPLOYMENT AND UNEMPLOYMENT RATE COMPARISON

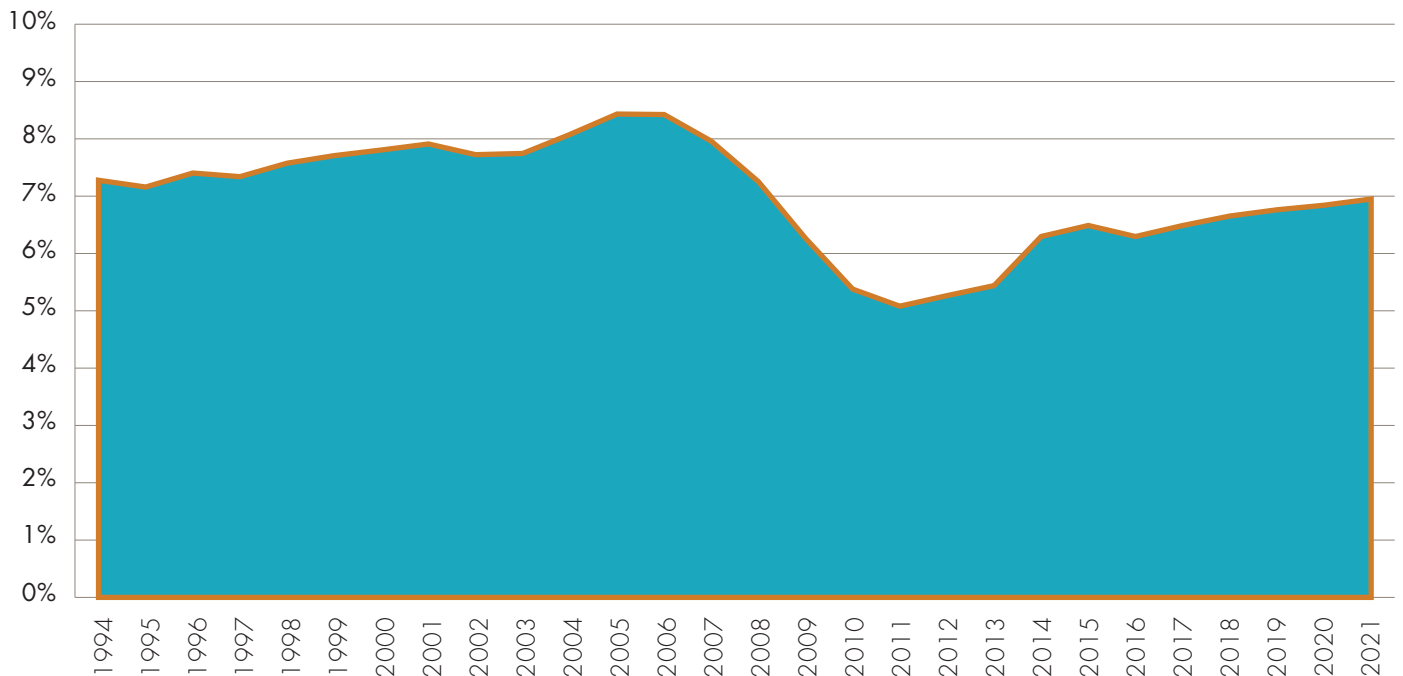


MONTHLY HOUSING SUPPLY

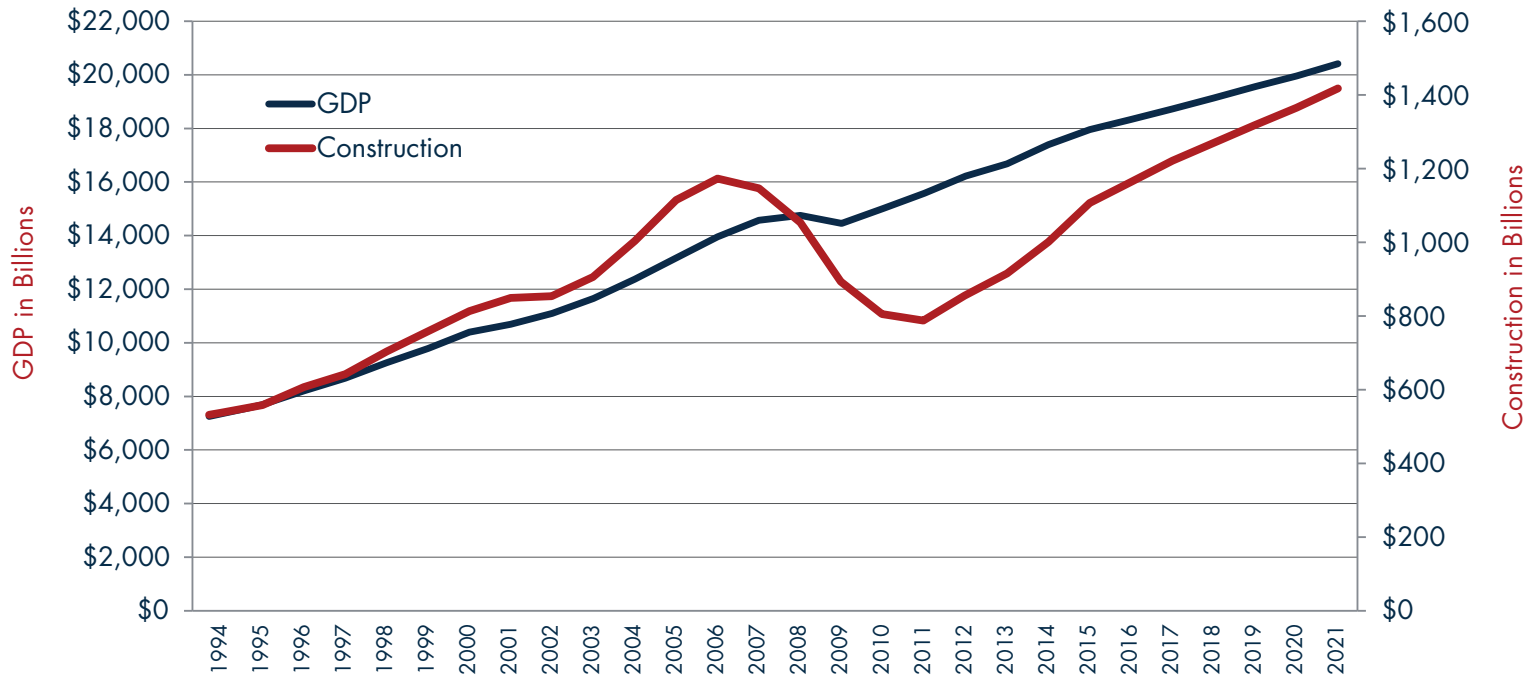


Federal Reserve Economic Data, <https://research.stlouisfed.org/fred2>

CONSTRUCTION AS A PERCENTAGE OF GDP



CONSTRUCTION SPENDING AND NOMINAL GDP



VALUE OF PUBLIC CONSTRUCTION PUT IN PLACE – SEASONALLY ADJUSTED RATE

(Millions of dollars, Details may not add to totals due to rounding.)

Value of Construction Put in Place – Seasonally Adjusted Annual Rate (Millions of Dollars)	Total Construction Put in Place (January 2016)	% of Total Construction Put in Place (January 2016)	Total Construction Put in Place (Q2 2017 Forecast)	% of Total Construction Put in Place (Q2 2017)
*Public Construction	295,186	25%	268,689	22%
*State and Local	272,530	24%	246,376	20%
*Federal	22,655	2%	22,313	2%
FMI Forecast: Private Construction Put in Place	\$864,426	75%	\$961,232	78%
FMI Forecast: Construction Put in Place	\$1,159,612	100%	\$1,229,921	100%

*from U.S. Census Bureau Construction Spending Report

CONFERENCE BOARD CONSUMER CONFIDENCE INDEX



NRCI COMPONENT INDEXES — COMPARISONS OF RESULTS: Q3 2016 TO Q2 2017

	NRCI components Q3 2016	NRCI components Q4 2016	NRCI components Q1 2017	NRCI components Q2 2017
The overall economy	58.1	58.5	73.8	74.6
The overall economy where panelists do business	60.4	60.2	72.0	74.8
Panelists' construction businesses	70.9	66.7	75.3	74.4
Nonresidential building construction market where panelists do business	67.3	64.6	73.7	73.2

Cost of construction materials	22.3	26.4	20.1	15.4
Cost of labor	12.0	16.2	15.3	13.7
Productivity	46.5	48.1	50.0	49.6

Expected change in backlog	58.9	61.3	65.1	68.4
Approximate current signed backlog in months	10.0	12.0	12.0	12.0

Note: NRCI scores and component scores are based on a diffusion index where scores above 50 represent improving or expanding, a score of 50 represents remaining the same, and a score below 50 represents worse than last quarter or contraction.

NRCI COMPONENTS — BUSINESS OUTLOOK SUMMARY BY MARKET SECTOR

SECTOR	Results Q2 2017		
	3 Months	1 Year	3 Years
Commercial	61.6	62.5	37.5
Education	62.9	70.3	61.1
Health care	68.8	76.0	66.5
Lodging	59.6	56.7	39.7
Manufacturing	67.7	71.2	59.5
Office	57.7	57.6	47.8
Other	69.0	77.3	59.5



About FMI

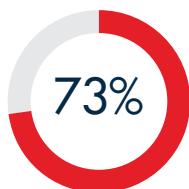
For over 60 years, FMI has been the leading **management consulting and investment banking** firm dedicated exclusively to **engineering and construction, infrastructure and the built environment**.

FMI serves all sectors of the industry as a trusted advisor. More than six decades of context, connections and insights lead to transformational outcomes for clients and the industry.

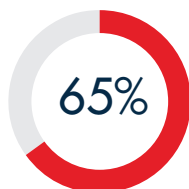
Sector Expertise

- A/E and Environmental
- General Contractors/CM
- Heavy Civil
- Industrial
- Specialty Trades
- Utility T&D
- Cleantech and Energy Services
- Construction Materials
- Building Products
- Oil and Gas
- Private Equity
- Owners

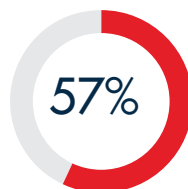
FMI Client Highlights



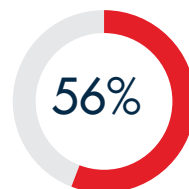
of the ENR
Top-400
Largest
Contractors



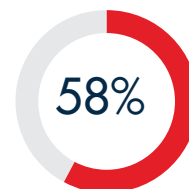
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Specialty
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602.381.8108

Raleigh (headquarters)

5171 Glenwood Avenue
Suite 200
Raleigh, NC 27612
919.787.8400

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