1

CONSTRUCTION PUT-IN-PLACE

1.1 Overview

Monthly, the U.S. Department of Commerce (DOC, www.commerce.gov) assesses the value of construction put-in-place. The survey, authorized by United States Code Title 13, covers construction work done on new structures and improvements to existing structures for private and public sectors.

1.2 Total Construction

The U.S. Department of Commerce assessed total construction put-in-place as follows:

- 2012: $ 854.4 billion
- 2013: $ 914.6 billion
- 2014: $1.015 trillion
- 2015: $1.132 trillion
- 2016: $1.213 trillion
- 2017: $1.279 trillion
- 2018: $1.333 trillion
- 2019: $1.391 trillion
- 2020: $1.469 trillion
- 2021: $1.589 trillion
- 2022: $1.849 trillion
- 2023: $1.979 trillion

The distribution of private and public construction in 2023 was as follows:

- Private: $1.541 trillion
- Public: $ 437.7 billion

The distribution by type of construction in 2023 was as follows:

- Residential: $875.27 billion
- Manufacturing: $195.59 billion
- Commercial: $131.61 billion
- Power: $122.37 billion
- Highway and street: $134.53 billion
- Educational: $115.79 billion

- Office: $ 98.79 billion
- Healthcare: $ 62.89 billion
- Transportation facilities: $ 63.81 billion
- Sewage and waste disposal: $ 41.43 billion
- Amusement and recreation: $ 32.47 billion
- Communication: $ 24.86 billion
- Water supply: $ 27.38 billion
- Lodging: $ 23.56 billion
- Public safety: $ 13.24 billion
- Conservation and development: $ 11.78 billion
- Religious: $ 3.42 billion

1.3 Private Construction

Private construction put-in-place in 2023 was as follows:

- Residential: $864.95 billion
- Manufacturing: $195.11 billion
- Commercial: $126.97 billion
- Power: $106.92 billion
- Office: $ 84.02 billion
- Healthcare: $ 50.10 billion
- Communication: $ 24.48 billion
- Lodging: $ 23.21 billion
- Educational: $ 22.78 billion
- Transportation facilities: $ 19.34 billion
- Amusement and recreation: $ 15.78 billion
- Religious: $ 3.42 billion
- Sewage and waste disposal: $ 1.63 billion
- Water supply: $ 1.21 billion
- Public safety: $ 205 million

1.4 Public Construction

Public construction put-in-place in 2023 was as follows:

- Highway and street: $133.62 billion
- Educational: $ 93.00 billion
- Transportation facilities: $ 44.42 billion
- Sewage and waste disposal: $ 39.86 billion
- Water supply: $ 26.33 billion
- Amusement and recreation: $ 16.69 billion
- Power: $ 15.45 billion
- Office: $ 14.77 billion
- Healthcare: $ 13.00 billion

- Public safety: $ 13.00 billion
- Conservation and development: $ 11.64 billion
- Residential: $ 10.32 billion
- Commercial: $ 4.63 billion

1.5 Construction By State

In 2023, private non-residential construction put in place, by state, was as follows:

- Alabama: $ 6.43 billion
- Alaska: $ 618 million
- Arizona: $ 44.44 billion
- Arkansas: $ 5.83 billion
- California: $ 33.64 billion
- Colorado: $ 8.09 billion
- Connecticut: $ 2.77 billion
- Delaware: $ 1.23 billion
- District of Columbia: $ 1.42 billion
- Florida: $ 34.11 billion
- Georgia: $ 27.55 billion
- Hawaii: $ 697 million
- Idaho: $ 5.60 billion
- Illinois: $ 11.52 billion
- Indiana: $ 11.47 billion
- Iowa: $ 5.48 billion
- Kansas: $ 7.99 billion
- Kentucky: $ 8.70 billion
- Louisiana: $ 8.77 billion
- Maine: $ 927 million
- Maryland: $ 5.28 billion
- Massachusetts: $ 13.75 billion
- Michigan: $ 11.51 billion
- Minnesota: $ 5.79 billion
- Mississippi: $ 1.53 billion
- Missouri: $ 7.09 billion
- Montana: $ 1.27 billion
- Nebraska: $ 4.28 billion
- Nevada: $ 7.88 billion
- New Hampshire: $ 1.24 billion
- New York: $ 30.26 billion
- New Jersey: $ 7.65 billion
- New Mexico: $ 3.39 billion
- North Dakota: $ 2.42 billion
- North Carolina: $ 18.18 billion

• Ohio:	$ 30.42 billion
• Oklahoma:	$ 4.89 billion
• Oregon:	$ 4.09 billion
• Pennsylvania:	$ 10.95 billion
• Rhode Island:	$ 945 million
• South Carolina:	$ 5.06 billion
• South Dakota:	$ 1.78 billion
• Tennessee:	$ 14.06 billion
• Texas:	$ 89.70 billion
• Utah:	$ 4.02 billion
• Vermont:	$ 444 million
• Virginia:	$ 13.48 billion
• Washington:	$ 11.00 billion
• West Virginia:	$ 1.26 billion
• Wisconsin:	$ 6.81 billion
• Wyoming:	$ 761 million
• Total:	$548.67 billion

1.6 Resources

Construction Spending, U.S. Department of Commerce. www.census.gov/construction/c30/c30index.html

Total Construction Spending: Total Construction in the United States, Federal Reserve Bank of St. Louis. (https://fred.stlouisfed.org/series/TTLCONS)

2

CONSTRUCTION STARTS

2.1 Market Assessment

Annually, Dodge Construction Network (www.construction.com) assesses construction starts in the United States. The assessment is published in *Engineering News-Record*.

This chapter provides a summary of construction starts in 2023 and a forecast for 2024.

2.2 Total Construction

Dodge Construction Network assessed total construction starts in the U.S. as follows (change from previous year in parenthesis):

- 2022 (actual): $1.12 trillion
- 2023 (preliminary): $1.12 trillion (1%)
- 2024 (forecast): $1.21 trillion (7%)

2.3 Assessment By Segment

By segment, Dodge Construction Network assessed construction starts as follows (change from previous year in parenthesis):

	2023	2024
• Non-residential:	$441 billion (-1%)	$458 billion (4%)
• Residential:	$364 billion (-13%)	$406 billion (11%)
• Non-building construction:	$318 billion (25%)	$342 billion (7%)

Non-residential building construction contract awards were assessed as follows (change from previous year in parenthesis):

	2023	2024
• Manufacturing:	$97 billion (-5%)	$112 billion (16%)
• Educational buildings:	$82 billion (11%)	$ 86 billion (4%)
• Office buildings:	$56 billion (5%)	$ 55 billion (-2%)
• Warehouses:	$50 billion (-18%)	$ 44 billion (-11%)
• Healthcare facilities:	$37 billion (-1%)	$ 39 billion (5%)
• Stores and shopping centers:	$20 billion (1%)	$ 21 billion (9%)
• Hotels:	$12 billion (-6%)	$ 14 billion (17%)
• Other non-residential:	$87 billion (3%)	$ 87 billion (no change)

Residential construction contract awards were assessed as follows (change from previous year in parenthesis):

	2023	2024
• Single-family housing:	$224 billion (-16%)	$244 billion (9%)
• Multi-family housing:	$141 billion (-8%)	$161 billion (14%)

Non-building construction contract awards were assessed as follows (change from previous year in parenthesis):

	2023	2024
• Highways and bridges:	$119 billion (14%)	$147 billion (23%)
• Environmental public works:	$ 75 billion (16%)	$ 83 billion (10%)
• Electric utilities:	$ 87 billion (56%)	$ 72 billion (-17%)
• Other public works:	$ 37 billion (27%)	$ 40 billion (8%)

17

HEALTHCARE FACILITIES

17.1 Sector Overview

According to The Centers for Medicare & Medicaid Services (CMS, www.cms.gov), national healthcare expenditures in 2024 were $5.05 trillion, a 5.2% increase from the prior year. This represented 17.7% of gross domestic product (GDP) and $15,074 per capita.

Capital spending for construction (structures) and equipment were $153.0 billion, a 3.1% increase from the prior year.

17.2 Market Assessment

The U.S. Department of Commerce (DOC, www.commerce.gov) assessed the value of healthcare construction put-in-place as follows:

- 2020: $48.1 billion
- 2021: $48.9 billion
- 2022: $54.8 billion
- 2023: $62.9 billion

Dodge Construction Network (www.construction.com) and *Engineering News-Record* assessed healthcare construction starts as follows:

- 2022: $37.4 billion
- 2023: $37.0 billion
- 2024: $39.0 billion

17.3 Market Leaders

Ranked by 2023 healthcare project revenue, the largest engineering firms in the segment are as follows (source: *Engineering News-Record*):

Design

- Jacobs: $437 million
- HKS: $286 million
- HDR: $256 million
- CannonDesign: $232 million
- Stantec Inc.: $146 million
- SmithGroup: $138 million

- IMEG Corp.: $120 million
- Page: $117 million
- WSP USA: $112 million
- AECOM: $105 million

General Contractors

- Turner Construction Co.: $2.67 billion
- McCarthy Holdings Inc.: $1.88 billion
- Brasfield & Gorrie: $1.77 billion
- Robins & Morton: $1.76 billion
- JE Dunn Construction Co.: $1.73 billion
- The Whiting-Turner Contracting Co.: $1.59 billion
- DPR Construction: $1.57 billion
- STO Building Group: $1.34 billion
- PCL Construction Enterprises: $1.09 billion
- AECOM: $ 955 million

17.4 Construction and Design Survey

Since 1980, *Modern Healthcare* has conducted an annual survey of construction and design firms that do business within the healthcare industry. Companies provide data for projects where they are the architect, construction manager, general contractor, design/build firm, or developer of record. Companies that participate must have completed construction for healthcare projects of at least 100,000 sq. ft.

The survey classifies healthcare construction projects by three phases: design, groundbreaking, and completed. The 2024 survey reported healthcare construction in 2023 as follows:

	# Projects	# Beds	Cost
• Design:	2,452	49,856	$82.68 billion
• Groundbreaking:	1,398	35,584	$57.42 billion
• Completed:	2,166	23,502	$33.02 billion

In 2023, construction by type of project was as follows:

Design	# Projects	# Beds	Cost
• Inpatient hospitals:	992	23,248	$44.15 billion
• Rehabilitation hospitals:	113	3,012	$ 2.15 billion
• Psychiatric centers/hospitals:	170	7,382	$ 6.73 billion
• Stand-alone emergency departments:	48	238	$ 801 million
• Long-term care facilities:	51	2,476	$ 2.04 billion
• Urgent care clinics:	30	306	$ 996 million
• Other:	1,048	13,194	$25.81 billion
• Total:	2,452	49,856	$82.68 billion

Groundbreaking	**# Projects**	**# Beds**	**Cost**
• Inpatient hospitals:	636	19,977	$34.66 billion
• Rehabilitation hospitals	32	1,716	$ 891 million
• Psychiatric centers:	67	4,143	$ 2.38 billion
• Stand-alone emergency departments:	14	12	$ 141 million
• Long-term care facilities:	39	2,314	$ 1.47 billion
• Urgent care clinics:	17	206	$ 570 million
• Other:	593	7,189	$17.30 billion
• Total:	1,398	35,584	$57.42 billion

Completion	**# Projects**	**# Beds**	**Cost**
• Inpatient hospitals:	853	14,682	$17.27 billion
• Rehabilitation hospitals	76	1,884	$ 2.35 billion
• Psychiatric centers:	80	2,320	$ 1.20 billion
• Stand-alone emergency departments:	38	3	$ 149 million
• Long-term care facilities:	50	2,617	$ 1.09 billion
• Urgent care clinics:	54	245	$ 354 million
• Other:	1,015	1,751	$10.60 billion
• Total:	2,166	23,502	$33.02 billion

17.5 Megaprojects

The following are the largest current engineering and construction projects in the healthcare segment:

- Mayo Clinic Expansion (Rochester, MN): $5.0 billion
- UT Southwestern Pediatric Hospital (Dallas, TX): $4.5 billion
- IU Health Expansion (Indianapolis, IN): $4.3 billion
- UC Davis (Davis, CA): $3.5 billion
- UC San Diego Hillcrest Medical Campus Expansion (San Diego, CA): $3.0 billion
- Sharp HealthCare Building Program (San Diego, CA): $2.6 billion
- Lyndon B. Johnson Hospital Expansion (Houston, TX): $1.6 billion
- UPMC Presbyterian Hospital Expansion (Pittsburgh, PA): $1.5 billion
- Rady Children's Hospital Expansion (San Diego, CA): $1.4 billion
- Allegheny General Hospital Expansion (Pittsburgh, PA): $1.0 billion

17.6 Resources

Agency for Healthcare Research and Quality (www.ahrq.gov)

Becker's Healthcare (www.beckershealthcare.com)

Modern Healthcare (www.modernhealthcare.com)

National Center for Health Statistics (www.cdc.gov/nchs)

National Health Expenditures, Centers for Medicare & Medicaid Services. (www.cms.hhs.gov/NationalHealthExpendData)

Total Construction Spending: Health Care in the United States, Federal Reserve Bank of St. Louis. (https://fred.stlouisfed.org/series/TLHLTHCONS)

18

HIGH-SPEED RAIL

18.1 Sector Overview

Rail systems with speeds over 110 mph and dedicated rail lines are generally considered in the U.S. as high-speed rail. International definitions of high-speed rail consider speeds above 155 mph on newly built lines and speeds above 125 mph on upgraded lines.

Plans for high-speed rail in the U.S. date to the High-Speed Ground Transportation Act of 1965. Service on Amtrak's Metroliner, with speeds up to 125 mph, launched in 1969 and ran until 2006. Acela, launched by Amtrak in 2000, reaches 150 mph on tracks along the Northeast Corridor.

Brightline (www.gobrightline.com), the first privately operated intercity passenger train to launch operations in the U.S. in more than 100 years, began Miami-to-Orlando service in 2023. Two high-speed rail projects broke ground in 2023: Brightline West (www.brightlinewest.com) and the California High-Speed Rail (www.hsr.ca.gov). A Texas Central high-speed rail line linking Houston and Dallas is also being considered. The cities haven't had any form of passenger rail between them since Amtrak shuttered a Dallas-Houston route in 1995.

18.2 Brightline

Brightline began construction in 2014, and passenger service between Miami, Fort Lauderdale, and West Palm Beach began in 2018. Service to Orlando opened in 2023. The Brightline construction cost was $5 billion, backed by Fortress Investment Group (www.fortress.com). Brightline's maximum operating speed is 125 mph. Trains cover the 235 mile Miami-Orlando route in 3 hours and 25 minutes, about 30 minutes to one hour less than it would take by automobile.

As of January 2024, Brightline had served more than 5 million passengers.

18.3 Brightline West

Brightline West, a 200 mph all-electric rail service now under construction, will cover the 218-mile Las Vegas, Nevada, to Rancho Cucamonga, California, route in about two hours, twice as fast as the normal drive time.

Brightline West broke ground in April 2024 and is expected to take approximately four years to build. Operation is anticipated ahead of the 2028 Summer Olympics.

Brightline West will build the project as a mostly single-track route with passing sidings. Total construction cost is estimated at $12 billion.

The trains will be manufactured and provided by Siemens Mobility (www.mobility.siemens.com).

Recognized as one of the greenest forms of transportation in the world, Brightline West will run with zero emissions. The system expects to serve more than 9 million one-way passengers annually.

18.4 California High-Speed Rail

In 2008, California voters approved a $9.95 billion plan to build a high-speed rail network across the state. California High-Speed Rail (CHSR) was spawned with this mandate.

Under construction since 2015, CHSR will connect the Anaheim Regional Transportation Intermodal Center in Anaheim and Union Station in Downtown Los Angeles with the Salesforce Transit Center in San Francisco via the Central Valley, providing travel between Union Station and San Francisco in 2 hours and 40 minutes covering a distance of 380 miles.

An Initial Operating Segment, a 171-mile Central Valley (Merced to Bakersfield) section within the Phase 1 route, is considered the backbone of the entire CHSP system. Construction began in the Central Valley in 2015. The Central Valley section alone could cost $23 billion and won't open before 2029.

The fully-extended system would comprise 800 miles linking Sacramento and San Diego. The cost will likely reach $113 billion. Completion of the of high speed rail route between San Francisco and Los Angeles and Anaheim is projected for 2033.

CHSR will run only on renewable energy. It will help California meet its climate goals by reducing transportation emissions and becoming part of a sustainable transportation network. CHSR is projected to reduce greenhouse emissions by 12.5 billion pounds (or one million cars) and gasoline use by 12.7 million barrels.

18.5 Texas High-Speed Rail

A Texas Central high-speed rail line linking Houston and Dallas has long been considered. The cities haven't had any form of passenger rail between them since Amtrak shuttered a Dallas-Houston route in 1995.

Texas Central Railway (www.texascentral.com) was founded in 2009 to own the proposed Texas Central high-speed rail line. Texas Central Partners LLC (TCP), an affiliated company, was founded in 2013 to build and operate the service. Amtrak (www.amtrak.gov) joined the project in April 2024, taking the lead among federal agencies involved in the project.

Amtrak officials consider the route ideal for high-speed rail. Connecting two of the country's largest metropolitan regions, it would run through relatively flat land, allowing the train to reach top speeds and travelers to bypass congestion on Interstate

45. The line would shorten the 3½ hour drive between Dallas and Houston to a 90-minute train ride.

The high-speed rail project could see trains running between Dallas and Houston as early as 2030. The project is expected to cost at least $33.6 billion, but private investors had not yet raised the funds as of December 2024.

The project will use technology developed for Japan's Shinkansen bullet trains, adapted to Texas specifications.

The North Central Texas Council of Governments (NCTCOG; www.nctcog.org), representing the Cities of Dallas and Houston, is leading the project.

18.6 Resources

High-Speed Rail, U.S. Department of Transportation. (www.transportation.gov/tags/high-speed-rail-0)

High-Speed Rail Resources, American Public Transportation Association. (www.apta.com/research-technical-resources/high-speed-passenger-rail/resources/)

The State Of High-Speed Rail Projects In The U.S., *Forbes*, April 2024. (www.forbes.com/sites/katharinabuchholz/2024/04/29/the-state-of-high-speed-rail-projects-in-the-us-infographic/)

U.S. High-Speed Rail Association. (www.ushsr.com)