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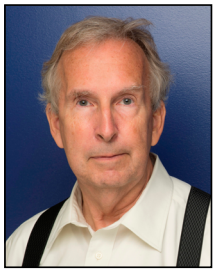
Winter 2022-2023 (Published: December 2022)

U.S. Put-in-Place Construction Forecasts

Prepared by Alex Carrick, ConstructConnect® Chief Economist



Alex Carrick

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Quarterly U.S. Put-in-Place Forecast Report Winter 2022-2023

The U.S. near-term construction outlook is about to be negatively impacted by the economic slowdown being orchestrated by the Federal Reserve. The Fed is being aggressive in raising interest rates to slow the economy and fight inflation. First to be affected is the residential component of total construction. New or resale home affordability is taking a hit from a more than doubling in mortgage rates. Housing starts have recently set out on a downward path.

Additionally, many owners in nonresidential market segments are in a quandary about whether they should proceed with construction projects at this time, or rather delay until there is a better consensus about economic prospects overall. But 2022 has seen an extraordinary development. Never before has there been a year filled with such a large dollar

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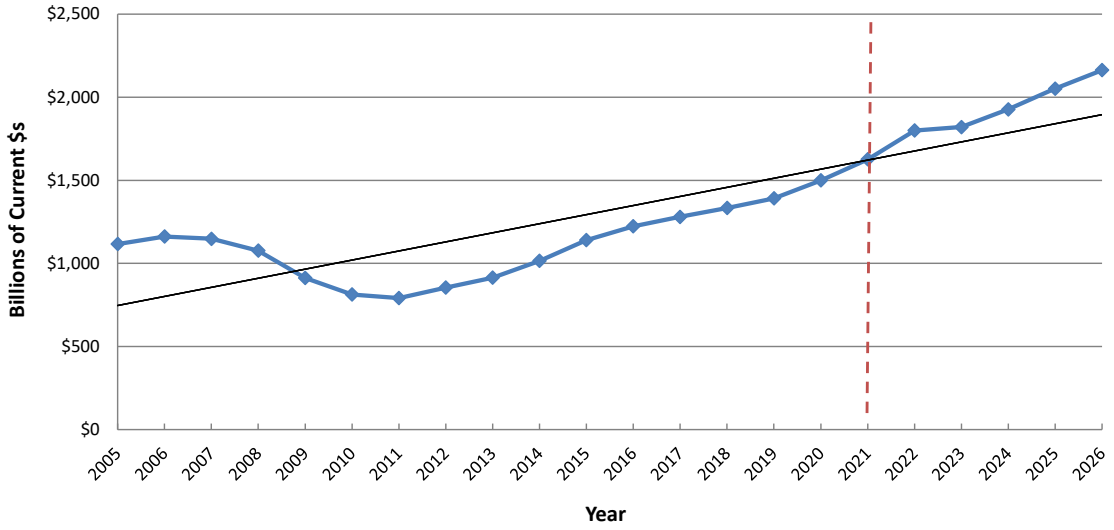
Graph 1: U.S. Grand Total Construction Spending Put-in-place (PIP) Investment



Graph includes a 'best fit' linear trend line.

Source of actuals: U.S. Census Bureau/Forecasts: Oxford Economics and ConstructConnect.
Chart: ConstructConnect.

'Starts' versus Put-in-place (PIP) Statistics

'Starts' compile the total estimated dollar value of all projects on which ground is broken in any given month. By way of contrast, put-in-place capital spending statistics are analogous to work-in-progress payments as the building of structures proceeds to completion.

Consider a $60 million office tower for which ground is broken in June 2022. For the 'starts' series, the entire estimated value ($60 million) will be entered in June 2022. In PIP numbers, it will be captured as spending of approximately $15 million in 2022; $25 million in 2023; and the final $20 million in 2024.

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volume of mega project initiations. A mega project carries an estimated value of a billion dollars or more.

The kinds of mega projects that have received go-aheads this year have included new electric vehicle and battery manufacturing plants, semiconductor chipmaking facilities, and LNG exporting terminals. These are huge undertakings with work on them to proceed over several years. The companies behind these projects have long-term goals to be achieved, plus they have financing options other than a simple reliance on commercial bank loans.

Many of the largest upcoming capital spending projects will be in response to the worldwide goal of reaching NZE (net zero carbon emissions) by mid-century. The IIJA (Infrastructure Investment and Jobs Act), IRA (Inflation Reduction Act) and the Chips Bill all include incentive tax measures and/or massive amounts of spending earmarked for environmentally friendly investments, particularly in renewable electric power. Recent legislation out of Washington has also incorporated a strategic bent, with an eye to bringing home jobs from abroad in key industrial sectors, such as computer hardware and electric battery manufacturing.

ConstructConnect's grand total construction starts are expected to be +10-to-+12% in dollar volume in 2022 versus 2021. Much of that gain, though, will be due to building material cost increases that were rampant earlier this year, but are moderating as 2023 approaches. The close-to-flatlining of the grand total starts volume in 2023 will be due to an easing in input costs, more so for materials than labor, which continues to be in scarce supply, and because of a natural pull-back in the number of outsized industrial projects that will go ahead versus the pattern in 2022.

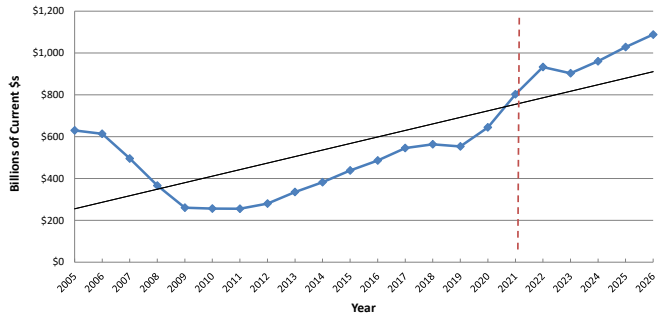
Table 1: U.S. Construction Spending (put-in-place investment)
(billions of "current" $s)

	Actuals		Forecasts				
Type of Construction:	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Grand Total	1,499.6	1,626.5	1,799.9	1,820.5	1,927.0	2,051.9	2,162.7
(year vs previous year)	7.8%	8.5%	10.7%	1.1%	5.9%	6.5%	5.4%
Total Residential	644.3	802.9	933.1	903.0	960.6	1,028.3	1,088.5
	16.4%	24.6%	16.2%	-3.2%	6.4%	7.1%	5.9%
Total Non-residential	855.3	823.5	866.8	917.5	966.5	1,023.6	1,074.2
	2.1%	-3.7%	5.3%	5.9%	5.3%	5.9%	4.9%
Total Commercial/for Lease	211.0	199.4	214.2	218.6	229.6	246.1	260.4
	2.2%	-5.5%	7.4%	2.1%	5.0%	7.2%	5.8%
Lodging	28.5	18.2	17.6	19.3	21.7	25.7	29.5
	-14.9%	-36.0%	-3.5%	9.4%	12.8%	18.1%	14.9%
Office	92.8	86.6	85.6	85.2	88.3	93.6	98.3
	4.6%	-6.7%	-1.2%	-0.5%	3.7%	6.0%	5.1%
Commercial (retail/warehouse)	89.7	94.6	111.0	114.2	119.6	126.8	132.5
	6.4%	5.4%	17.4%	2.9%	4.8%	6.0%	4.5%
Total Institutional	208.7	187.2	188.6	189.2	197.1	207.8	217.6
	3.7%	-10.3%	0.7%	0.4%	4.2%	5.4%	4.7%
Health Care	48.6	48.5	51.6	51.9	53.5	57.4	61.9
	5.1%	-0.3%	6.6%	0.5%	3.2%	7.3%	7.7%
Educational	110.7	98.4	96.8	96.8	101.4	106.2	109.8
	1.6%	-11.1%	-1.7%	0.1%	4.7%	4.8%	3.4%
Religious	3.5	2.9	2.9	2.9	3.1	3.3	3.4
	-6.9%	-15.8%	0.2%	0.2%	5.3%	5.4%	4.4%
Public Safety	17.7	12.2	11.1	11.2	11.6	12.2	12.4
	47.1%	-31.2%	-8.3%	0.1%	4.2%	4.6%	2.2%
Amusement and Recreation	28.3	25.3	26.1	26.4	27.5	28.7	30.0
	-7.0%	-10.7%	3.3%	1.2%	4.1%	4.4%	4.5%
Total Engineering/Civil	360.2	358.0	360.2	382.5	411.8	439.3	461.7
(year vs previous year)	3.3%	-0.6%	0.6%	6.2%	7.7%	6.7%	5.1%
Transportation	60.7	56.7	55.3	57.2	61.4	65.7	69.0
	5.7%	-6.7%	-2.5%	3.6%	7.3%	6.9%	5.0%
Communication	23.9	24.7	24.3	25.6	26.3	27.0	28.1
	7.6%	3.4%	-1.5%	5.2%	2.7%	2.7%	4.1%
Power	118.2	120.8	112.1	123.9	138.6	151.7	163.3
	0.2%	2.3%	-7.2%	10.5%	11.8%	9.5%	7.6%
Highway and Street	102.3	100.7	105.4	111.0	118.8	126.2	131.2
	2.9%	-1.6%	4.7%	5.3%	7.0%	6.3%	3.9%
Water Supply & Waste Disposal	46.1	47.2	54.2	55.7	57.2	58.7	59.9
	8.5%	2.3%	15.0%	2.8%	2.6%	2.6%	2.1%
Conservation and Development	8.9	7.9	8.9	9.0	9.5	10.0	10.2
	-3.3%	-11.4%	12.4%	1.3%	5.9%	4.6%	2.9%
Total Industrial/Manufacturing	75.4	78.9	103.8	127.1	127.9	130.5	134.5
	-6.9%	4.6%	31.6%	22.5%	0.6%	2.0%	3.1%

"Current" means not adjusted for inflation.

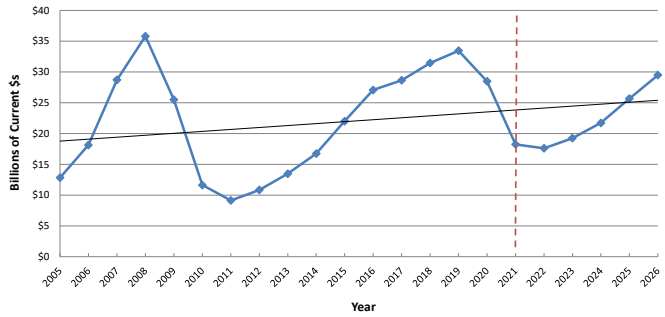
Source of actuals: U.S. Census Bureau/Forecasts: Oxford Economics and ConstructConnect/Table: ConstructConnect.

Graph 2: U.S. Construction Spending: Residential Put-in-place (PIP) Investment



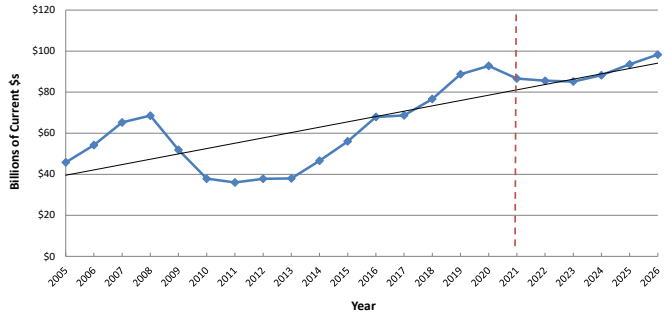
Higher mortgage rates and worsening affordability are currently dampening the residential construction outlook, although single-family work is being impacted more than the multi-unit market. Units in the latter generally carry lower price tags. Over the longer term, fewer births, less immigration, and, therefore, slowing population growth will be negative influences on home building. A counterweight, though, will come from intensifying migration within the U.S. (e.g., from the West Coast to the interior) and from a trending increase in the number of family formations due to an uptick in the number of individuals, young adults and older people, who are living on their own. The shift towards smaller cheaper multi-unit structures will accelerate.

Graph 3: U.S. Construction Spending: Lodging Put-in-place (PIP) Investment



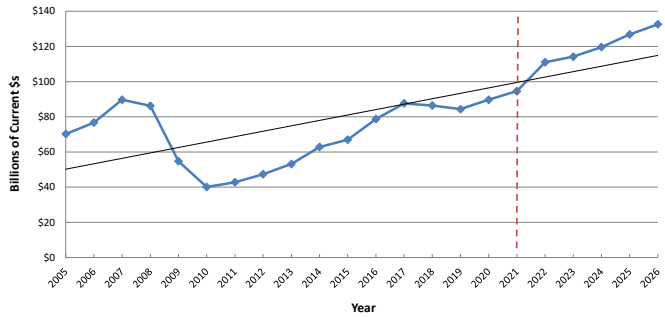
Hotel and motel construction activity, when plotted as either 'starts' or put-in-place figures, is the most clearly cyclical of all the type-of-structure sub-categories. The 'starts' figures touched bottom in 2021 and have revived slightly in 2022. ('Starts' lead the PIP investment numbers.) With a turnaround in 'starts' underway, climbing PIP statistics are likely to continue for some time. In the general population, there's a tremendous appetite for travel, which was artificially suppressed by restrictions imposed to stop the spread of the coronavirus. Inoculations and a degree of 'herd immunity' (i.e., with so many having already been COVID afflicted) have now allowed a revival in short and long-distance outings, with accompanying overnight stays.

Graph 4: U.S. Construction Spending: Office Buildings Put-in-place (PIP) Investment



The 'restocking' of existing office buildings with workers appears to be gaining momentum. The most famous example of how some employers feel on the subject is Elon Musk's directive to his newly acquired Twitter personnel that they must show up onsite. Nevertheless, many companies are staying fluid with their workplace rules. Widespread retirements among older workers have led to an acute staffing problem. Is there an instance when rapid inflation can be a 'friend' to employers? Yes, when it scares veteran employees out of thoughts of escaping into their leisure years. But what is often most hated by those older employees is the traditional commute. Many of them love working from home. A stretched-out cap on new office construction is inevitable.

Graph 5: U.S. Construction Spending: Retail, Warehouse, Restaurant Put-in-place (PIP) Investment

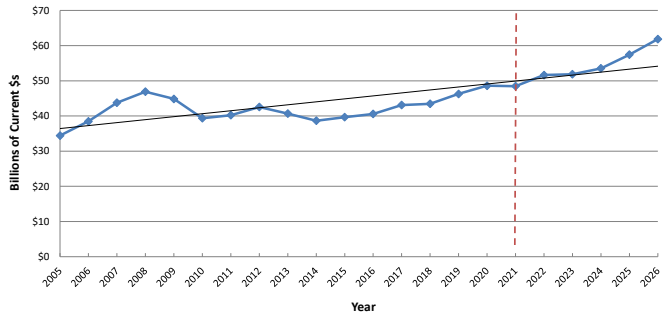


The dollar volumes of retail sales, made through both Internet selling sites and at walk-through store locations, have been quite strong this year. Much of the gain, though, has been due to inflation and accompanying pumped up prices for merchandise. That observation aside, shoppers freed of mask mandates, and comfortable with their employment prospects, are resuming their old patterns of frequenting local malls, seeking to browse, buy, and intermingle. The half-decade plunge in bricks and mortar construction starts came to a halt in 2020. In 2021, they increased slightly, and they'll do so again in 2022. The surge in warehouse construction activity that was prominent in the early days of the pandemic, however, has quieted down for the moment.

Graphs include a 'best fit' linear trend line.

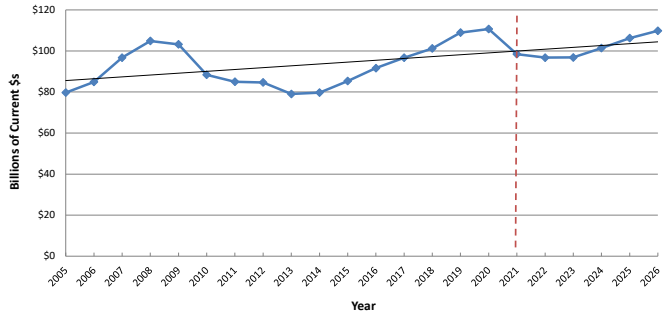
Source of actuals: U.S. Census Bureau/Forecasts: Oxford Economics and ConstructConnect/Charts: ConstructConnect.

Graph 6: U.S. Construction Spending: Health Care Put-in-place (PIP) Investment



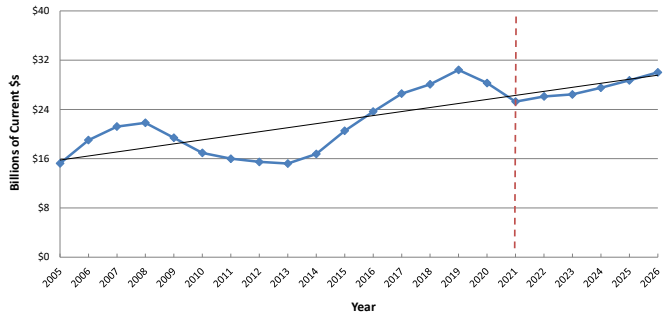
Health care, moving on from the pandemic, is coming under the influence of two extraordinary trends. First is the increasing acceptance of telehealth with remote monitoring as an alternative to time spent in waiting rooms. This is promoting the establishment of medical clinics founded by specialists acting in partnership. Second, there is the undeniable aging of the population, which implies an acceleration in the demand for minor and major medical procedures. Giant multi-bed hospitals, often on college campuses and designated as teaching establishments, are prominent on upcoming large projects lists. Plus, the need for seniors' care homes can only keep climbing.

Graph 7: U.S. Construction Spending: Educational Put-in-place (PIP) Investment



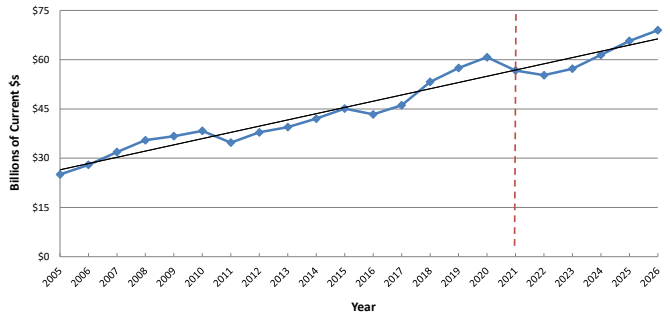
In the last several years, there have been developments taking away from the prospects for educational facility construction. The negatives at the K-12 level have included fewer births in the U.S. and less immigration of families with young children. In higher education, foreign student enrolments have been way down, and there's been a gravitation of virtual lecture hall teaching to the Internet. But going forward there are so many remarkable changes taking place in the labor marketplace, with lucrative job opportunities in multiple new areas (e.g., the metaverse, AI, climate disaster mitigation, biotech, etc.), beefed up academic accessibility will be a must.

Graph 8: U.S. Construction Spending: Amusement and Recreation Put-in-place (PIP) Investment



At the height of the pandemic, digital supplies of viewing material, through streaming and downloading, rose to supremacy versus other sources of entertainment. Access became so intense that some individuals and families eventually ran out of untapped material to watch when production in studios and at movie locations was shut down for health reasons. Now, those jobs have come roaring back. The entertainment industry worldwide was in take-off mode pre-COVID; look for it to soar even more. Investors gripping megaphones and clapper boards want to build more sound stages. Also, there continue to be professional sports teams with aspirations to build state of the art new stadiums (e.g., the Tennessee Titans and Buffalo Bills of the NFL).

Graph 9: U.S. Construction Spending: Transportation Put-in-place (PIP) Investment

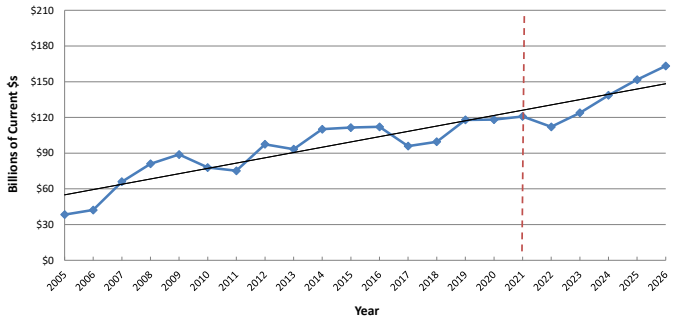


Prior to the Spring of 2020, when COVID infections reared up, there were multitudinous ultra-large rapid transit, railroad, and airport projects at various stages along the construction pipeline. As commuting and personal and business travel came to hard stops, almost all of those undertakings were put on hold. Would there ever be a rebound? It seems that question is being answered in the affirmative. Government funding for infrastructure works is helping with the decision-making. With respect to airport capital spending, baby boomers (aged 60 and older) have bucket lists and there are places around the globe they want to see. And who isn't looking forward to riding on a hyperloop, once one or two of them moves beyond the pilot stage?

Graphs include a 'best fit' linear trend line.

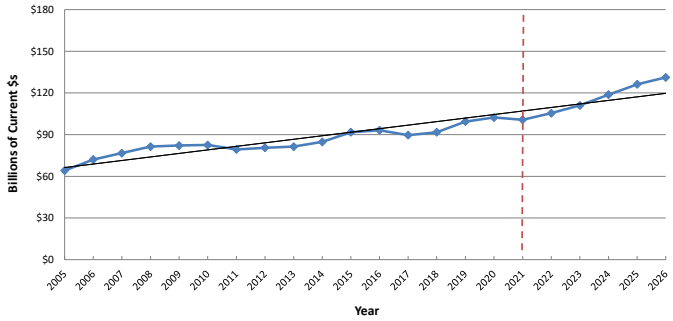
Source of actuals: U.S. Census Bureau/Forecasts: Oxford Economics and ConstructConnect/Charts: ConstructConnect.

Graph 10: U.S. Construction Spending: Power Put-in-place (PIP) Investment



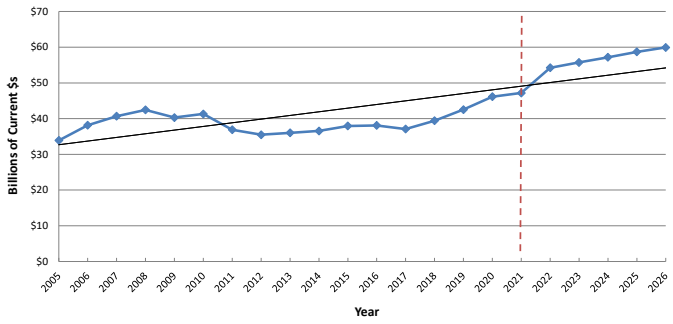
Over the past decade plus, investment in electric power generation and distribution has been on an inching upwards incline. It must become more assertive if carbon NZE goals are to be achieved. Supported by financial incentives in the IIJA and IRA, coming years will see a major push towards more renewable electric power output from solar, wind and geothermal sources. The benefits of small nuclear reactors (SNRs) will enter the discussion. The transition to an electric vehicle base won't be viable without a vast network of recharging stations. Existing and new homes will be converted to or will be equipped with all-electric features. Demand will heat up for copper, nickel, lithium, and the alloys that make steel and aluminum stronger and lighter.

Graph 11: U.S. Construction Spending: Highways and Streets Put-in-place (PIP) Investment



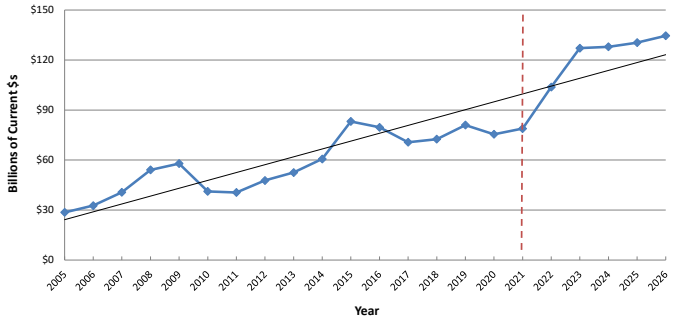
Highway and street work is one of the staples of engineering construction. Along with water treatment and sewer construction, it forms a grouping that is often referred to as 'hard' infrastructure. Motorways, bridges, and tunnels are front line players in the nation's logistics system that is crucially important in moving people, industrial supplies, and finished goods to where they need to be. The recent stimulus and relief packages emanating from Washington have included financial aid packages to promote roadway improvements. The five-year annual average increase for PIP construction of highways and streets from 2022 to 2026 is presently being forecast at +5.4%, well up from the +1.6% for the previous five years, 2017 to 2021.

Graph 12: U.S. Construction Spending: Water Supply, plus Sewage & Waste Disposal Put-in-place (PIP) Investment



Water treatment and sewage and other waste removal facilities serve key functions in determining the quality of life to be enjoyed by a nation's citizens. No longer are their construction outlooks determined simply by the number of residential suburbs being built, however. They've taken on a wider mandate; to be built in such a way as to quickly mitigate the harm from disasters tied to climate change. The dollar volume of 2022's 'sewer/water' sub-category of starts is ahead by more than a quarter year to date versus the same January-October period in 2021. Public and private money, sometimes coming together in novel P3 arrangements, is moving spending in this water supply and sanitation area to a higher plane.

Graph 13: U.S. Construction Spending: Manufacturing Put-in-place (PIP) Investment



The biggest 2022 year-to-date percentage-change increase among the put-in-place construction sub-categories has been in manufacturing, +12.0%. Providing reinforcement, the 'starts' dollar volume of industrial work so far this year has been more than double what it was last year. These gains are so emphatic due to the abundance of mega projects that have recently been initiated, with particular uplift coming from the motor vehicle, computer hardware and petrochemical sectors. It's in the nature of starts that today's billions of dollars-worth of groundbreakings will be spread over the next several years in terms of the work proceeding onsite. After a decade-plus of manufacturing jobs being sent offshore, the prevailing trend is for them to be repatriated.

Graphs include a 'best fit' linear trend line.

Source of actuals: U.S. Census Bureau/Forecasts: Oxford Economics and ConstructConnect/Charts: ConstructConnect.

FLIP-SIDE CRUCIAL ASPECTS TO COMMODITY PRICE CHANGES

A factor warranting attention in the outlook will be the performance of commodity markets. For the construction industry, there are counter-balancing aspects to commodity price changes. Commodities are the base components going into every construction building material. An increase in a commodity's price will lift the cost of construction. On the flip side, though, it's also true that an increase in a commodity's price is an incentive for a resource owner to spend on an extraction capacity increase, and this is where the mega resource projects enter the picture.

CURRENT VS CONSTANT DOLLARS

After not being much of an issue for many years, the 'constant' versus 'current' dollar value of construction question has become important once again. The reason is because there have been large spikes in the costs of many building material inputs; plus, wages have been ascending rapidly as well. There are indications from Producer Price Index (PPI) readings that the worst of the material price advances are over, especially in forestry and steel products. Nevertheless, it's important to understand how the 'real' or inflation-adjusted value of construction is derived.

A price index or deflator is used to convert current dollars to constant dollars. A base period is chosen for a certain price level, and it is assigned the value of 100.0. Then if prices increase by +5% over the next year, the index in year two moves to 1.05 x 100.0 = 105.0.

If prices rise by +4% in the third year, the index will shift up to 1.04 x 105.0 = 109.2. If prices change by -4% instead, the index value in the third year will become 0.96 x 105.0 = 100.8.

Market volumes divided by an appropriate price index or deflator will yield dollars that are termed 'constant' (i.e., in the sense that they've had inflation removed) relative to the chosen base period. (In the next paragraph, the price index adopted by Oxford Economics uses 2012 equal to 100.0)

The PIP construction dollar volumes set out in this report, as calculated by Oxford Economics and ConstructConnect, are in 'current' dollars. The estimates of the year-over-previous-year pricing impacts, as provided by Oxford Economics, are +2.4% in 2020; +8.5% in 2021; and a stunning +14.3% in 2022. In 2023 and 2024, the increments retreat to +1.8% and +1.3% respectively. 2025 and 2026 will see still modest, but slightly speedier advances, +3.0% and +2.4% respectively.

What this means is that the 'real' performance of Grand Total put-in-place construction activity was +5.2% in 2020; -0.1% in 2021; and it will be -3.2% when 2022 comes to an end. 2023 will be flat in 'constant' dollar terms, -0.6%, but 2024 will see a nice pickup to +4.5%. Year-over-previous-year 2025 will be +3.4%, and 2026, +2.9%.