

National Highway Construction Cost Index 2022 Q4 June 2, 2023

NHCCI Outlook

The Federal Highway Administration's (FHWA) Office of Transportation Policy Studies calculated that the National Highway Construction Cost Index ([NHCCI](#)) decreased 1.1 percent during the fourth quarter of 2022 (2022 Q4). This is significant because it deviates from the consistent inflation trends observed over the past two years. While future inflation trends are uncertain, the NHCCI's recent decrease, along with a considerable decline in asphalt and oil prices and other index changes since 2019, suggest that the inflation seen in 2021 and 2022 may have been influenced by material shortages and oil price hikes. As supply chains and oil prices return to normal, the NHCCI may return to its historic average trend. The change in NHCCI, when viewed alongside changes in other construction-related indexes including a sustained decline in Producer Price Index (PPI) and slowdown in Consumer Price Index (CPI) during the first two quarters of 2023, suggest an easing of inflation and may provide stakeholders with useful context for understanding their potential repercussions on infrastructure projects.

NHCCI Component Contributions

The varying trends in construction-related PPIs provide insight into the reasons for the 1.1 percent decline in the NHCCI. The NHCCI includes not only the material input prices but the cost of labor, shipping, overhead, and profit. (See Table 1) Most components changed less than 0.1 percent in 2022 Q4, however asphalt decreased 3.1 percent during 2022 Q4, while grading/excavation increased by 2.4 percent.

Table 1. Component Contributions to Changes in NHCCI from Previous Quarter (2022 Q4)

NHCCI Component	Percent Change
Asphalt	-3.11%
Base stone	0.03%
Bridge	-0.35%
Concrete	0.00%
Drainage	-0.19%
Electrical	-0.01%
Grading/excavation	2.36%
Traffic control	-0.06%
Utilities, erosion control, clearing, painting, and equipment	0.26%

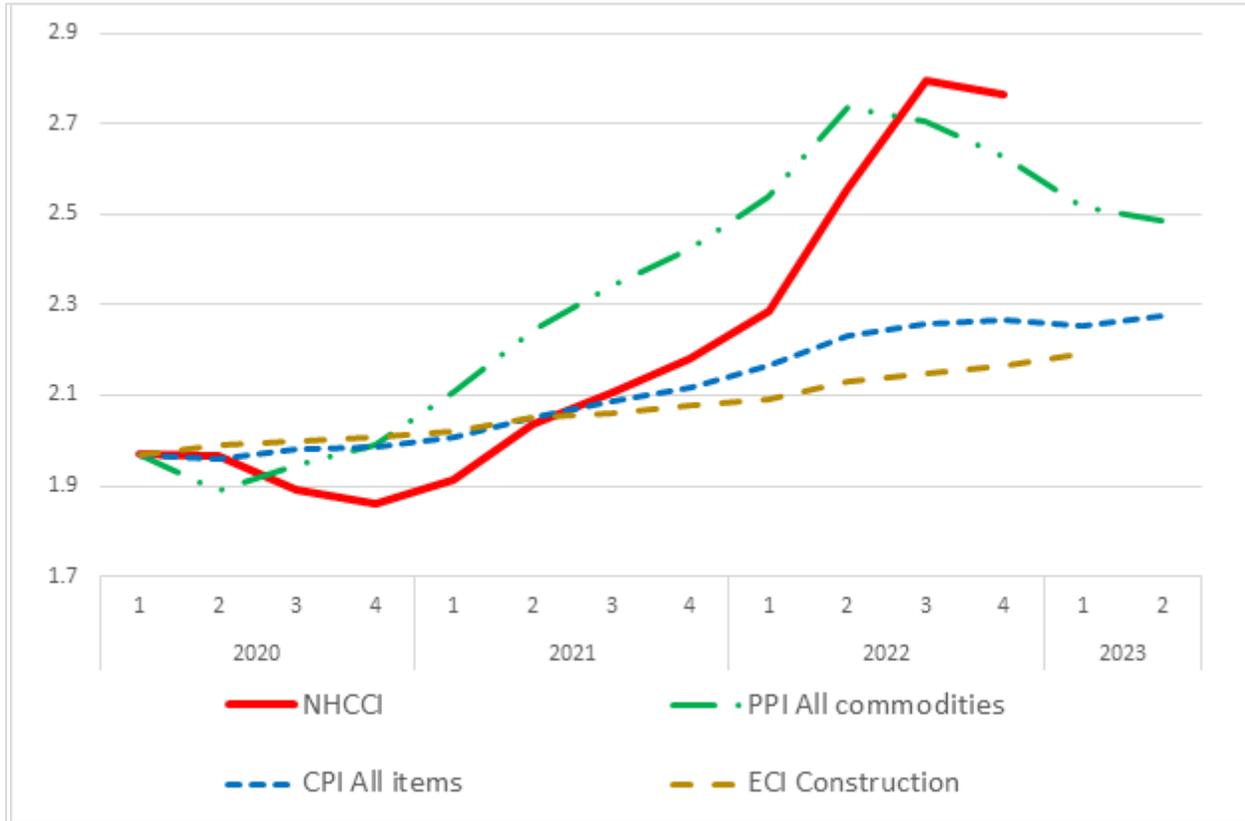
Source: FHWA

NHCCI Performance and Related Economic Indices

The 2022 Q4 1.1 percent decline in the NHCCI, in addition to changes in other construction-related indexes, provide context for understanding the potential repercussions on infrastructure projects. The NHCCI's decline was accompanied by a 2.9 percent decrease in the PPI, a 0.4 percent increase in CPI, and a 0.8 percent growth in the Employment Cost Index (ECI) for construction.

To better understand the broader context of 2022 Q4's change in NHCCI, it is important to examine yearly changes and long-term trends. The NHCCI saw a substantial year-over-year increase of 26.4 percent from 2021 Q4 to 2022 Q4. During the same time, the PPI increased by 8.4 percent, the CPI by 7.1 percent, and the ECI for construction by 4.3 percent. However, the CPI and ECI for construction outpaced the NHCCI during 2020, and the PPI outpaced the NHCCI in both 2020 and 2021.

(See Figure 1) These disparities underline how each index’s sensitivity varies to broader events, including the COVID-19 pandemic, supply chain disruptions, material shortages, and oil price swings. The PPI decline and CPI slowdown during the first two quarters of 2023 further suggest a potential easing of inflation.



Source: FHWA and BLS Data

Figure 1. Comparison of NHCCI with PPI, CPI, and ECI (Rebased to NHCCI 2020 Q1).

Exceeding Historical Rates and Expectations

From 2019 Q4 to 2022 Q4, the NHCCI significantly grew by 43.7 percent. If we applied the average quarterly growth rate from 2003 (the NHCCI’s inception) to 2019 over the same 3-year timeframe we’d have expected a 13.2 percent increase. The actual 43.7 percent growth of NHCCI represents a significant deviation of 30.5 percent from the historical NHCCI average and anticipated inflation.

Analysis of Construction-Related PPI

The PPI data reveal mixed trends across different materials. (See Table 2) For instance, asphalt and domestic crude oil experienced substantial decreases of 30.0 and 9.9 percent, respectively, from 2022 Q3 to 2022 Q4. In contrast, related PPIs, such as construction materials, fabricated structural metal, and paving mixtures and blocks, showed more modest declines of 3.4, 3.1, and 1.6 percent, respectively. Other related PPIs increased during this period, including fabricated structural metal for bridges, concrete products, and concrete pavers, which recorded increases of 3.7, 2.3, and 1.3 percent, respectively.

Table 2. Quarter to Quarter Growth Rate in Percent

Indexes	Quarter to Quarter Growth Rate in Percent											
	2020				2021				2022			
	1	2	3	4	1	2	3	4	1	2	3	4
NHCCI	2.4%	-0.2%	-3.8%	-1.6%	2.7%	6.5%	3.5%	3.5%	4.7%	11.9%	9.3%	-1.1%
PPI All Commodities	-1.3%	-4.0%	3.1%	2.1%	5.9%	6.6%	4.4%	3.4%	4.7%	7.9%	-1.1%	-2.9%
PPI Construction Materials	0.8%	-0.3%	3.2%	1.9%	8.0%	14.5%	3.3%	4.5%	5.0%	1.1%	-2.0%	-3.4%
PPI Paving Mixtures and Blocks	5.8%	-7.4%	-1.4%	-0.2%	9.9%	-5.8%	2.3%	1.1%	11.3%	1.8%	6.7%	-1.6%
PPI Concrete Products	1.4%	0.8%	0.0%	-0.2%	1.4%	2.3%	2.3%	1.7%	3.5%	3.8%	4.2%	2.3%
PPI Fabricated Structural Metal	0.5%	-0.8%	0.5%	-1.0%	5.5%	14.8%	14.2%	5.1%	7.7%	7.4%	-1.2%	-3.1%
PPI Asphalt	-0.4%	-28.2%	16.3%	-9.8%	29.9%	21.1%	8.3%	1.9%	6.9%	39.5%	4.8%	-30.0%
PPI Concrete Pavers	0.3%	0.9%	0.2%	0.7%	1.0%	3.0%	0.7%	1.6%	6.0%	5.1%	2.0%	1.3%
PPI Fabr.Struct.Metal for Bridges	-4.1%	1.9%	-1.8%	-4.0%	19.4%	8.6%	7.6%	3.2%	14.2%	3.1%	-2.9%	3.7%
PPI Crude petroleum (domestic)	-17.3%	-47.3%	50.6%	8.7%	39.3%	15.9%	8.1%	10.5%	19.1%	17.7%	-13.7%	-9.9%

Source: FHWA and BLS Data

NHCCI Point of Contact:
 Dr. Thor Dodson, nhcci@dot.gov
 Economist
 Policy and Strategy Analysis Team
 Office of Transportation Policy Studies
 Federal Highway Administration