

National Highway Construction Cost Index 2023 Q2
November 13, 2023

NHCCI Outlook

For the second quarter of calendar year 2023 (2023 Q2), the Office of Transportation Policy Studies at the Federal Highway Administration (FHWA) calculated a 3.8 percent increase in the National Highway Construction Cost Index (NHCCI), largely continuing the trend observed in 2023 Q1. Compared to the historical quarterly average of 1.4 percent growth, this is still higher than average inflation but less than the high inflation observed during 2021 and 2022, where average quarterly growth was 5.2 percent. This suggests that the elevated inflation in 2021 and 2022 may have been driven by supply chain disruptions and fluctuating oil prices. Current trends in the index indicate that as these factors stabilize, the NHCCI may revert to its long-term average. The change in NHCCI and changes in other construction-related indexes, including a sustained decline in Producer Price Index (PPI) for All Commodities and slowdown in Consumer Price Index (CPI) growth during the first three quarters of 2023, suggests an easing of inflation on material prices. However, the continued divergence in PPI and NHCCI during 2023 suggests factors other than material input prices may be contributing to inflation in the NHCCI this quarter. Notably, the PPI for Asphalt showed a 20.5 percent increase during 2023 Q2 after showing a 22.2 percent decrease during 2023 Q1, while other construction related PPI such as construction materials, concrete products, and fabricated structural metal showed modest inflation between 0-2 percent during 2023 Q2. The asphalt price volatility combined with relatively stable prices for other material inputs may partially explain why the NHCCI continues to outpace the PPI for All Commodities.

NHCCI Seasonally Adjusted Series

This quarter FHWA is releasing the Seasonally Adjusted NHCCI in addition to the unadjusted NHCCI. This index accounts for seasonal variations in prices due to weather and other factors. Typically, the NHCCI shows a downward effect in Q4 and Q1, and an upward effect in Q2 and Q3, which the seasonally adjusted series counteracts. The series can be viewed at <https://www.fhwa.dot.gov/policy/otps/nhcci/>. Unless specified otherwise, references to the NHCCI here refer to the unadjusted series.

NHCCI Component Contributions

Analyzing the component contributions to the change in NHCCI from the previous quarter reveals that all components contributed to an increase, with asphalt contributing the most at 1.27 percent followed by traffic control and grading/excavation at 0.74 percent and 0.45 percent, respectively, as indicated in Table 1. The NHCCI components include not only the material input prices but also the cost of labor, shipping, overhead, and profit.

Table 1. Component Contributions to Changes in NHCCI from Previous Quarter (2023 Q2)

NHCCI Component	Percent Change
Asphalt	1.27%
Base stone	0.17%
Bridge	0.31%
Concrete	0.07%
Drainage	0.07%
Electrical	0.38%
Grading/excavation	0.45%
Traffic control	0.74%
Utilities, erosion control, clearing, painting, and equipment	0.36%

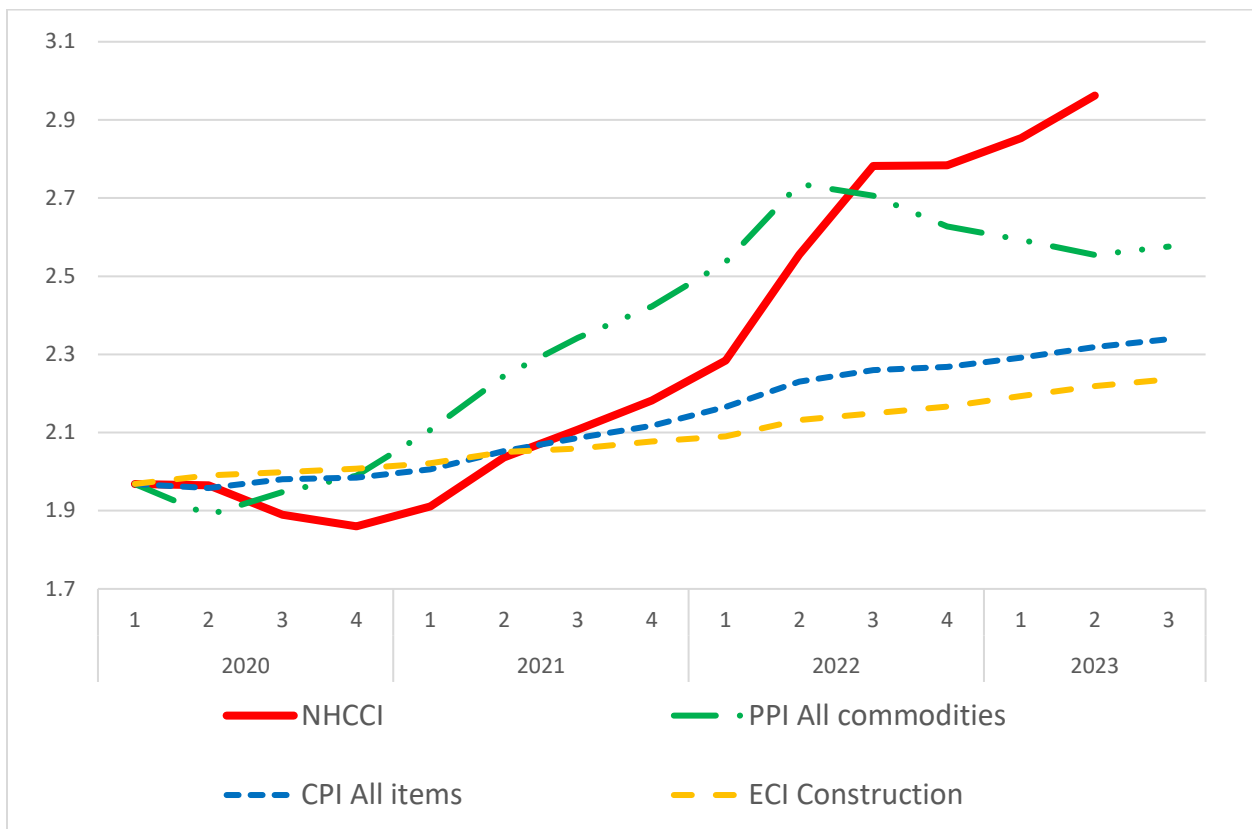
Source: FHWA

NHCCI Performance and Related Economic Indices

The 2023 Q2 increase in the NHCCI, in addition to changes in other construction-related indexes, provide context for understanding the potential impact on the project delivery and the purchasing power of spending. The NHCCI increased by 3.8 percent, while the PPI decreased by 1.5 percent, the CPI increased by 1.2 percent, and the Employment Cost Index (ECI) for construction increased by 1.2 percent.

To better understand the broader context of 2023 Q2's change in NHCCI, it is important to examine annual changes and long-term trends. The recent PPI decline, coupled with sustained inflation in NHCCI and ECI for construction, suggest factors other than input material prices may be driving the increase in NHCCI. Specifically, the NHCCI saw a substantial year-over-year increase of 15.9 percent from 2022 Q2 to 2023 Q2. During the same time, the PPI decreased by 6.6 percent, the CPI increased by 4.0 percent, and the ECI for construction increased by 4.1 percent. However, the CPI and ECI for construction outpaced the NHCCI during 2020, and although the PPI outpaced the NHCCI in both 2020 and 2021, it has declined since mid-2022 as shown in Figure 1. While the differences in the NHCCI and PPI may seem to suggest that labor costs are a driving factor in NHCCI inflation, the relatively low and stable inflation in the ECI for construction is inconsistent with this assessment. The disparities in growth among the indices underline that each index's sensitivity to broader events varies, including the COVID-19 pandemic, supply chain disruptions, material shortages, and oil price swings.

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



Source: FHWA and BLS Data

Exceeding Historical Rates and Expectations

From 2020 Q2 to 2023 Q2, the NHCCI grew by 50.8 percent. If we applied the average quarterly growth rate from 2003 (the NHCCI's inception) to 2019 over the same 3-year timeframe we would have expected a 13.2 percent increase. The actual 50.8 percent growth of NHCCI represents a significant deviation of 37.6 percent from the historical NHCCI average and anticipated inflation, reflecting how the NHCCI continues to outpace the historical average growth. From 2020 Q2 to 2023 Q2 the PPI increased by 35.2 percent, the CPI increased by 18.4 percent and the ECI for construction increased by 11.5 percent, which makes the NHCCI growth seem large, but over that same period the PPI for Asphalt increased by 89.6 percent and the PPI for Crude Petroleum Domestic increased by 201.7 percent.

Analysis of Construction-Related PPI

The PPI data in Table 2 reveal mixed trends across different materials. For instance, asphalt experienced a substantial increase of 20.5 percent from 2023 Q1 to 2023 Q2. In contrast, related PPIs exhibited relatively mild movements, generally increasing between 0-2 percent.

Table 2. Quarter to Quarter Growth Rate in Percent

Indexes	2020			2021				2022				2023	
	2	3	4	1	2	3	4	1	2	3	4	1	2
NHCCI	-0.2%	-3.8%	-1.6%	2.7%	6.5%	3.5%	3.5%	4.7%	11.9%	9.3%	-1.1%	2.5%	3.8%
PPI All Commodities	-4.0%	3.1%	2.1%	5.9%	6.6%	4.4%	3.4%	4.7%	7.9%	-1.1%	-2.9%	-1.3%	-1.5%
PPI Construction Materials	-0.3%	3.2%	1.9%	8.0%	14.5%	3.3%	4.5%	5.0%	1.1%	-2.0%	-3.4%	-0.1%	1.9%
PPI Paving Mixtures and Blocks	-7.4%	-1.4%	-0.2%	9.9%	-5.8%	2.3%	1.1%	11.3%	1.8%	6.7%	-1.6%	6.7%	-5.8%
PPI Concrete Products	0.8%	0.0%	-0.2%	1.4%	2.3%	2.3%	1.7%	3.5%	3.8%	4.2%	2.3%	3.4%	1.8%
PPI Fabricated Structural Metal	-0.8%	0.5%	-1.0%	5.5%	14.8%	14.2%	5.1%	7.7%	7.4%	-1.2%	-3.1%	0.7%	0.1%
PPI Asphalt	-28.2%	16.3%	-9.8%	29.9%	21.1%	8.3%	1.9%	6.9%	39.5%	4.8%	-30.0%	-22.2%	20.5%
PPI Concrete Pavers	0.9%	0.2%	0.7%	1.0%	3.0%	0.7%	1.6%	6.0%	5.1%	2.0%	1.3%	4.7%	1.3%
PPI Fabricated Structural Metal for Bridges	1.9%	-1.8%	-4.0%	19.4%	8.6%	7.6%	3.2%	14.2%	3.1%	-2.9%	3.7%	-2.7%	0.4%
PPI Crude petroleum (domestic)	-47.3%	50.6%	8.7%	39.3%	15.9%	8.1%	10.5%	19.1%	17.7%	-13.7%	-9.9%	-11.2%	-1.4%

Source: FHWA and BLS Data

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