

National Highway Construction Cost Index 2023 Q3 March 21, 2024

NHCCI Outlook

For the third quarter of calendar year 2023 (2023 Q3), the Office of Transportation Policy Studies at the Federal Highway Administration (FHWA) calculated a 6.0 percent increase in the National Highway Construction Cost Index (NHCCI) compared to 2023 Q2. While the inflation rate of 2023 Q3 is higher than the quarterly average of 1.4 percent, it is significantly lower than the inflation of 2022 Q3 of 8.9 percent. There is a historically positive seasonal effect during Q2 and Q3 that may be contributing to the increased inflation observed this quarter. While previous trends suggested highway construction cost inflation may be slowing, the NHCCI continues to grow. Notably, the NHCCI in 2023 Q3 continues to show some divergence from the Producer Price Index (PPI) for All Commodities and Consumer Price Index (CPI), which showed more modest growth of 0.8 percent and 0.9 percent, respectively, which is more in line with historical trends. The PPI for Asphalt showed a 2.7 percent increase during 2023 Q3 after showing a 20.5 percent increase during 2023 Q2, while other construction related PPI such as construction materials, concrete products, and fabricated structural metal showed modest change between negative 1 and positive 2 percent during 2023 Q3. Additionally, the PPI for crude petroleum (a major input for gasoline and other oil products) showed a large increase of 10.9 percent. While the NHCCI is showing higher inflation than the CPI and PPI for all commodities, this can largely be explained by the combination of higher asphalt and oil prices, an increase in demand and employment in highway construction, and a steady decline in the number of bids on highway projects (see figure 2).

NHCCI Component Contributions

Analyzing the component contributions to the change in NHCCI from the previous quarter reveals a mix of positive and negative contributions to growth from different components (see table 1). Asphalt and grading/excavation contributed to substantial growth, with 3.36 of the 6.0 percent increase in NHCCI coming from asphalt and 1.64 percent from grading/excavation. Traffic control, ‘utilities, erosion control, clearing, painting, and equipment’ also contributed large positive increases of 0.70 percent and 0.78 percent, while categories such as bridge, concrete, and electrical contributed negatively. It’s notable that while the PPI for asphalt showed relatively mild growth this quarter, the asphalt component of the NHCCI contributed to relatively high growth, which may reflect some of the industry’s response to the extreme volatility observed since 2020. 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	3.36%
Base stone	0.33%
Bridge	-0.81%
Concrete	-0.18%
Drainage	0.32%
Electrical	-0.17%
Grading/excavation	1.64%
Traffic control	0.70%
Utilities, erosion control, clearing, painting, and equipment	0.78%

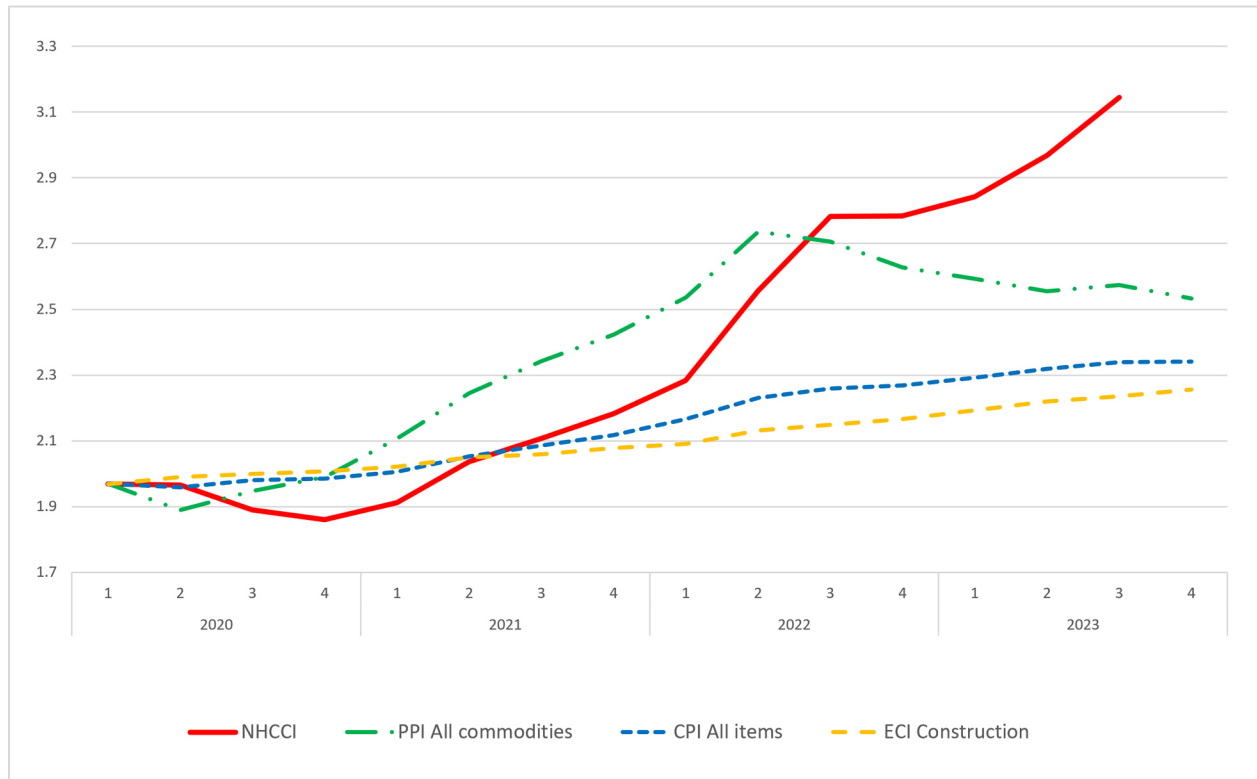
Source: FHWA

NHCCI Performance and Related Economic Indices

The 2023 Q3 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 6.0 percent, while the PPI increased by 0.8 percent, the CPI increased by 0.9 percent, and the Employment Cost Index (ECI) for construction increased by 0.8 percent.

As shown in figure 1, the changes in NHCCI, PPI, CPI, and ECI continue the divergence observed in 2023 Q2. 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 year-over-year increase of 13.1 percent from 2022 Q3 to 2023 Q3. During the same time, the PPI decreased by 4.9 percent, the CPI increased by 3.5 percent, and the ECI for construction increased by 4.1 percent. Although the CPI and ECI for construction outpaced the NHCCI during 2020, and the PPI outpaced the NHCCI in both 2020 and 2021, the NHCCI’s sustained growth in 2022 and 2023 has caused it to significantly diverge, which may be reflective of unique factors influencing the NHCCI such as labor, shipping, overhead, and profit. 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. While inconclusive, one interpretation of the data is that the disparities in growth among the indices underline each index’s sensitivity to broader events varies, including the COVID-19 pandemic, supply chain disruptions, material shortages, oil price swings, and the selectivity of bidders.

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

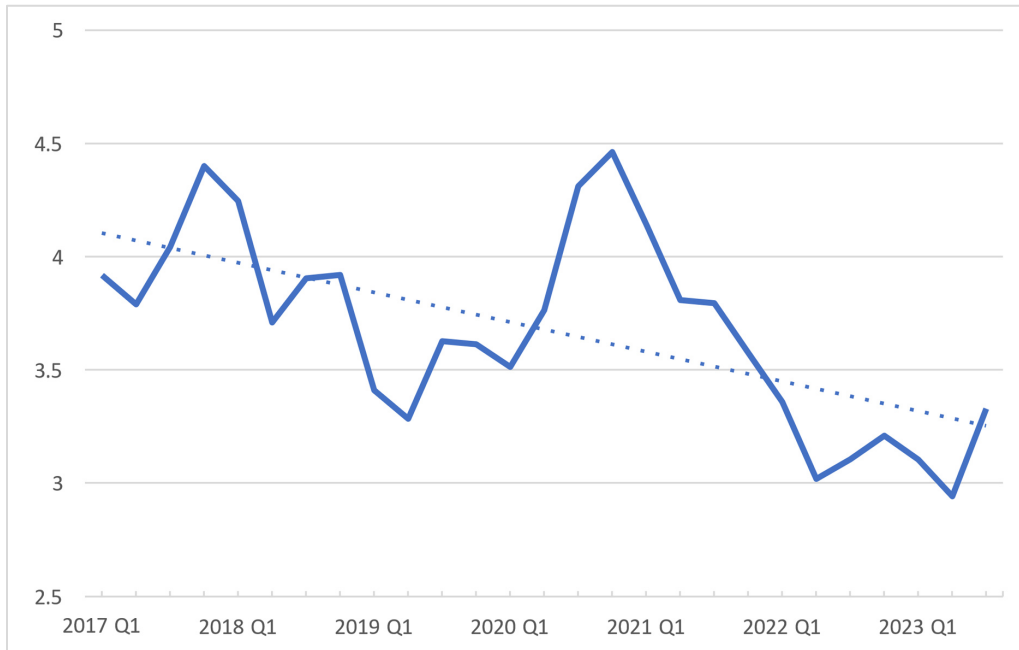


Source: FHWA and BLS Data

Number of Bidders on Highway Construction Projects

From 2017 through 2023 we have observed a steady decline in the average number of bidders on highway construction projects, as shown by the dotted trend line in figure 2.

Figure 2. Average Number of Bids on Highway Projects



Source: FHWA

Exceeding Historical Rates and Expectations

From 2020 Q3 to 2023 Q3, the NHCCI grew by 66.5 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 66.5 percent growth of NHCCI represents a significant deviation of 52.3 percent from the historical NHCCI average and anticipated inflation, reflecting how the NHCCI continues to outpace the historical average growth. From 2020 Q3 to 2023 Q3 the PPI increased by 32.2 percent, the CPI increased by 18.1 percent and the ECI for construction increased by 11.9 percent, which makes the NHCCI growth seem large by comparison, but over that same period the PPI for Asphalt increased by 65.1 percent and the PPI for Crude Petroleum Domestic increased by 122.1 percent.

Analysis of Construction-Related PPI

The PPI data in table 2 reveal mixed trends across different materials. For instance, asphalt experienced a relatively modest increase of 2.7 percent from 2023 Q2 to 2023 Q3. In contrast, related PPIs exhibited relatively mild movements, generally increasing between negative 1 and positive 2 percent.

Table 2. Quarter to Quarter Growth Rate in Percent

Indexes	2020		2021				2022				2023		
	3	4	1	2	3	4	1	2	3	4	1	2	3
NHCCI	-3.8%	-1.6%	2.7%	6.5%	3.5%	3.5%	4.7%	11.9%	8.9%	0.1%	2.1%	4.4%	6.0%
PPI All Commodities	3.1%	2.1%	5.9%	6.6%	4.4%	3.4%	4.7%	7.9%	-1.1%	-2.9%	-1.3%	-1.5%	0.8%
PPI Construction Materials	3.2%	1.9%	8.0%	14.5%	3.3%	4.5%	5.0%	1.1%	-2.0%	-3.4%	-0.1%	1.9%	-0.8%
PPI Paving Mixtures and Blocks	-1.4%	-0.2%	9.9%	-5.8%	2.3%	1.1%	11.3%	1.8%	6.7%	-1.6%	6.7%	-5.8%	-0.4%
PPI Concrete Products	0.0%	-0.2%	1.4%	2.3%	2.3%	1.7%	3.5%	3.8%	4.2%	2.3%	3.4%	1.8%	1.6%
PPI Fabricated Structural Metal	0.5%	-1.0%	5.5%	14.8%	14.2%	5.1%	7.7%	7.4%	-1.2%	-3.1%	0.7%	0.1%	-0.3%
PPI Asphalt	16.3%	-9.8%	29.9%	21.1%	8.3%	1.9%	6.9%	39.5%	4.8%	-30.0%	-22.2%	20.5%	2.7%
PPI Concrete Pavers	0.2%	0.7%	1.0%	3.0%	0.7%	1.6%	6.0%	5.1%	2.0%	1.3%	4.7%	1.3%	0.0%
PPI Fabricated Structural Metal for Bridges	-1.8%	-4.0%	19.4%	8.6%	7.6%	3.2%	14.2%	3.1%	-2.9%	3.7%	-2.7%	0.4%	-3.1%
PPI Crude petroleum (domestic)	50.6%	8.7%	39.3%	15.9%	8.1%	10.5%	19.1%	17.7%	-13.7%	-9.9%	-11.2%	-1.4%	10.9%

Source: FHWA and BLS Data

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