

National Highway Construction Cost Index 2023 Q1
September 12, 2023

NHCCI Outlook

For the first quarter of calendar year 2023 (2023 Q1), the Office of Transportation Policy Studies at the Federal Highway Administration (FHWA) calculated a 2.7 percent increase in the National Highway Construction Cost Index (NHCCI). 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) 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 divergence in PPI and NHCCI during 2023 Q1 suggests factors other than material input prices may be contributing to inflation in the NHCCI this quarter. Notably, the “Asphalt” component of the NHCCI contributed to an increase while the PPI for Asphalt showed a stark decline, suggesting factors involved in asphalt construction, such as labor, transportation, or price markup, may be driving that portion of the cost increase as opposed to the cost of the material itself.

NHCCI Revisions

In addition to publishing the new quarterly index each quarter, FHWA revises the previous two quarters’ index values based on updated input data due to the timing of States releasing additional bid award data. As part of this regular procedure, the NHCCI for 2022 Q4 was revised from 2.76 to 2.78—meaning what initially appeared to be a 1.1 percent decrease from 2022 Q3 to 2022 Q4 has been revised to a 0.1 percent increase. This revision is largely due to two components—*asphalt* and *grading/excavation*, which previously contributed to a 3.11 percent decline and 2.36 percent increase, respectively, but after the revision only contributed to a 0.77 percent decline and a 0.96 percent increase, respectively.

NHCCI Component Contributions

Analyzing the component contributions to the change in NHCCI from the previous quarter reveals that almost all components contributed to an increase except for “Traffic control” with “Concrete” and “Grading/excavation” contributing most to the increase 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 Q1)

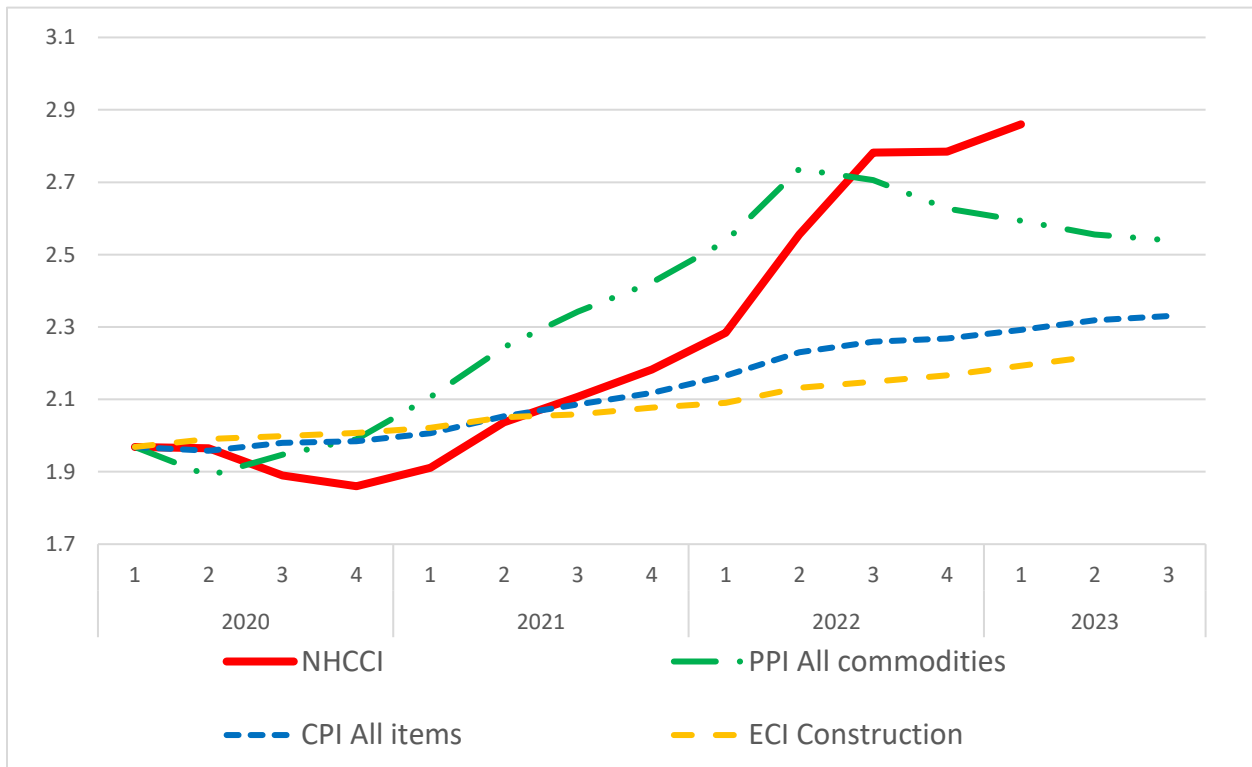
NHCCI Component	Percent Change
Asphalt	0.32%
Base stone	0.12%
Bridge	0.17%
Concrete	0.94%
Drainage	0.21%
Electrical	0.07%
Grading/excavation	0.80%
Traffic control	-0.21%
Utilities, erosion control, clearing, painting, and equipment	0.29%

Source: FHWA

NHCCI Performance and Related Economic Indices

The 2023 Q1 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 2.7 percent, while the PPI decreased by 1.3 percent, the CPI increased by 1.0 percent, and the Employment Cost Index (ECI) for construction increased by 1.3 percent growth.

To better understand the broader context of 2023 Q1'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 25.2 percent from 2022 Q1 to 2023 Q1. During the same time, the PPI increased by 2.2 percent, the CPI by 5.8 percent, and the ECI for construction by 4.9 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. These disparities in growth among the indices underline how each index's sensitivity varies to broader events, including the COVID-19 pandemic, supply chain disruptions, material shortages, and oil price swings.



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

Reflective of the index's sensitivity broader events, from 2020 Q1 to 2023 Q1, the NHCCI grew by 45.3 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 45.3 percent growth of NHCCI represents a significant deviation of 32.1 percent from the historical NHCCI average and anticipated inflation.

Analysis of Construction-Related PPI

The PPI data in Table 2 reveal mixed trends across different materials. For instance, asphalt and domestic crude oil experienced substantial decreases of 22.2 and 11.2 percent, respectively, from 2022 Q4 to 2023 Q1. In contrast, related PPIs exhibited a wide variety of movements, such as construction materials declining 0.1 percent, paving mixtures and blocks increasing 6.7 percent, concrete products increasing 3.4 percent, fabricated structural metal increasing 0.7 percent, and concrete pavers increasing 4.7 percent. These related PPIs share some of the movements seen in the NHCCI components, such as “Concrete” and “Grading/excavation” and may partially explain the divergence in PPI for All Commodities and NHCCI this quarter. Notably, the “Asphalt” component of NHCCI contributed to an increase while the PPI for Asphalt showed a stark decline, suggesting other factors involved in asphalt construction, such as labor, transportation, or markup, may be driving that portion of the cost increase as opposed to the cost of the material itself.

Table 2. Quarter to Quarter Growth Rate in Percent

Indexes	2020				2021				2022				2023
	1	2	3	4	1	2	3	4	1	2	3	4	1
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%	2.7%
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%	-1.3%
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%	-0.1%
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%	6.7%
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%	3.4%
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%	0.7%
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%	-22.2%
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%	4.7%
PPI Fab. 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%	-2.7%
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%	-11.2%

Source: FHWA and BLS Data

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