

National Highway Construction Cost Index 2024 Q2 December 6, 2024

NHCCI Outlook

For the second quarter of calendar year 2024 (2024 Q2), the Office of Transportation Policy Studies at the Federal Highway Administration (FHWA) calculated a decrease in the National Highway Construction Cost Index (NHCCI) compared to 2024 Q1. The 0.9 percent decline in construction costs is in stark contrast to the recent inflation, but is in line with the slowdown in the rate of inflation since 2022. There is an historically positive seasonal effect on highway construction prices during Q2 and Q3, so the decrease is even more striking. This brings the NHCCI closer to other indicators of general inflation such as the Consumer Price Index (CPI) and Producer Price Index (PPI), which respectively showed a 1.2 percent increase and 0.9 percent increase during 2024 Q2. The PPIs for Asphalt and Crude petroleum (domestic) showed a 13.9 and 6.1 percent increase during 2024 Q2, respectively, reversing the downward changes seen in 2023 Q4 and 2024 Q1. Some other construction related PPI showed similar changes to the NHCCI this quarter, with paving mixtures and blocks showing 5.3 percent decrease, construction materials showing a 1.5 percent decrease, fabricated structural metal showing a 7.8 percent decrease. Others differed, such as fabricated structural metal for bridges showing a 1.2 percent increase, concrete products showing a 0.5 percent increase, and concrete pavers showing a 1.4 percent increase. While many construction material cost indexes are showing a slowdown in inflation since 2022, the recent high volatility in highway related cost indexes makes it unclear if this trend will continue (see Table 3).

NHCCI Component Contributions

Comparing the component contributions to the change in the NHCCI from the previous quarter reveals the decrease in the NHCCI was mostly driven by asphalt and concrete, which contributed to a 0.98 and 0.81 percentage point decrease, respectively (see Table 1). Base stone and utilities also had considerable contributions of 0.34 and 0.27 percentage point decreases, respectively. Conversely, grading/excavation and bridge contributed to a 0.87 and 0.22 percentage point increase, respectively. The component contribution decline from asphalt contrasts with the increase in the PPI for asphalt and may reflect other aspects of asphalt provision beyond just the material input price. All 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 (2024 Q2)

NHCCI Component	Percentage Points Contribution
Asphalt	-0.98%
Base stone	-0.34%
Bridge	0.22%
Concrete	-0.81%
Drainage	-0.00%
Electrical	-0.11%
Grading/excavation	0.87%
Traffic control	-0.04%
Utilities, erosion control, clearing, painting, and equipment	0.27%

Source: FHWA, Office of Transportation Policy Studies, National Highway Construction Cost Index (NHCCI) 2024 Q2 Estimates.

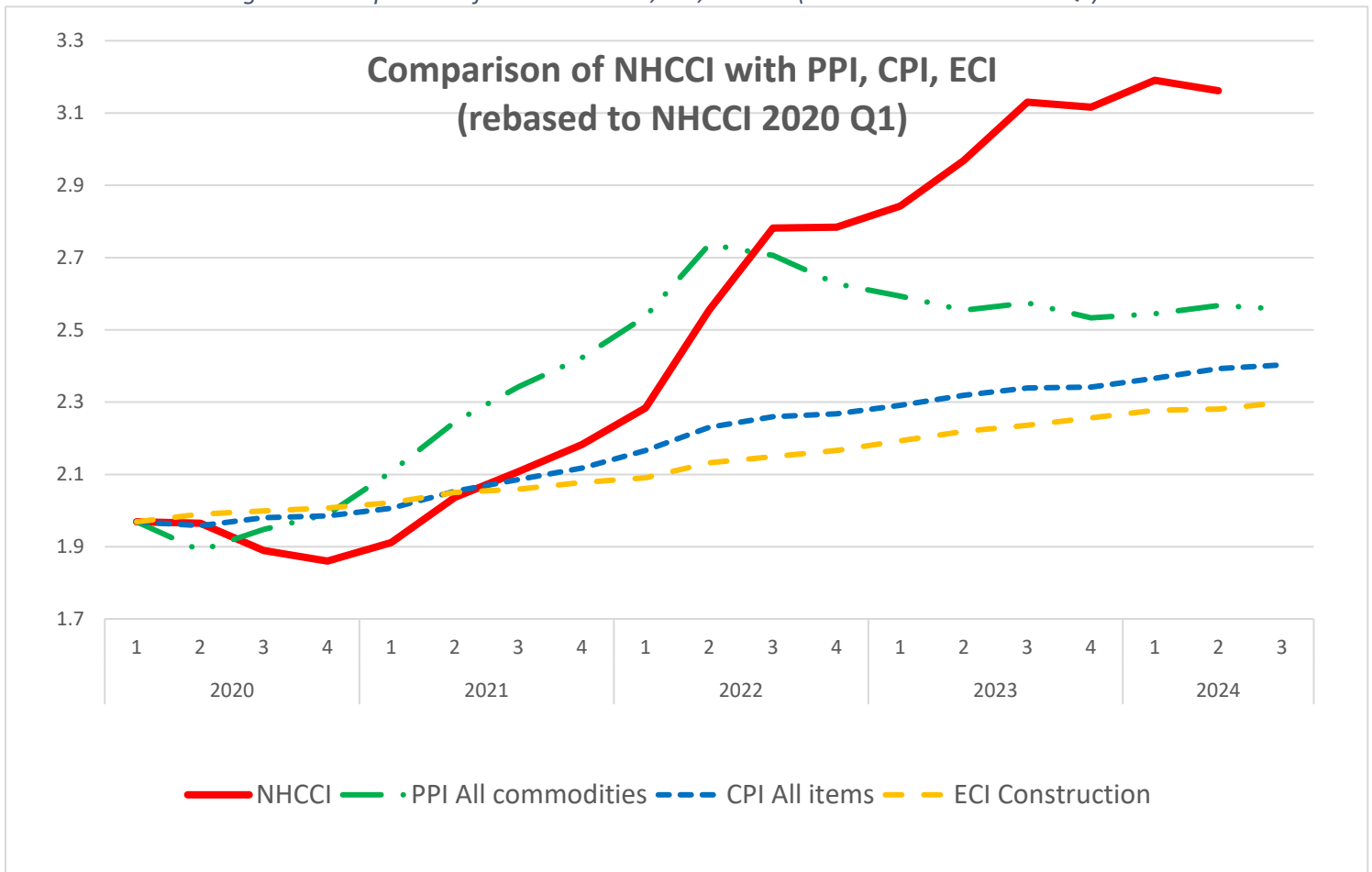
Note: The component contributions add up to the quarterly change in the NHCCI.

NHCCI Performance and Related Economic Indices

The 2024 Q2 decrease in the NHCCI, in addition to changes in other construction-related indexes, provide context for understanding the potential impact on the purchasing power of highway investments. The NHCCI decreased by 0.9 percent, while the PPI increased by 0.9 percent, the CPI increased by 1.2 percent, and the Employment Cost Index (ECI) for construction increased by 0.1 percent. The decrease in NHCCI represents an increase in purchasing power, meaning that what a dollar would have purchased in highway construction industry in 2024 Q1, purchases about 0.9 percent more in 2024 Q2. In other words, it costs 0.9 cents less in Q2 2024 to purchase the same amount of highway construction goods and services covered by the NHCCI that one dollar of investment would have purchased in Q1 2024.

As shown in Figure 1, the 2024 Q2 changes move the NHCCI closer to the other inflation indexes. However, it remains to be seen if the trends in each index will converge or continue the divergence observed since mid-2022. Compared to 2023 Q2, the NHCCI saw a year-over-year increase of 6.5 percent, while during the same time the PPI increased by 0.5 percent, the CPI increased by 3.2 percent, and the ECI for construction increased by 2.8 percent.

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



Sources: NHCCI: FHWA, Office of Transportation Policy Studies, National Highway Construction Cost Index (NHCCI) 2024 Q2 Estimates. CPI and PPI Indexes: BLS, Consumer Price Index, and Producer Price Indexes, available at <https://www.bls.gov>.

Adjusting to Inflation Expectations

Examining the year-over-year (YoY) growth trends in the NHCCI and related indices, as shown in Table 2, reveals that inflation appears to be declining, although it is still higher than historical levels. The 12.2 percent YoY increase in the NHCCI for 2024 Q1 is slightly higher than what was observed in 2019 Q1, and this is still higher than the all-time average of 6.0 percent. Notably, the YoY for NHCCI appears to have peaked in 2022 Q3, while related indices peak at similar or slightly earlier times, with the PPI for all commodities peaking around 2022 Q1, CPI in 2022 Q2, PPI for Asphalt in 2021 Q4, PPI for Fabricated Structural Metal in 2022 Q1, and PPI for Paving Mixtures and Blocks in 2022 Q3. Notably, the YoY for PPI Asphalt is 10.7 percent higher than it was in 2023 Q1, as the deflation in the second half of 2023 did not offset the initial inflation. Periods of sustained inflation can contribute to expectations that inflation will remain to persistent across all sectors, so it remains to be seen what the new “normal inflation” will be.

Table 2. Year-Over-Year Growth Rate in Percent

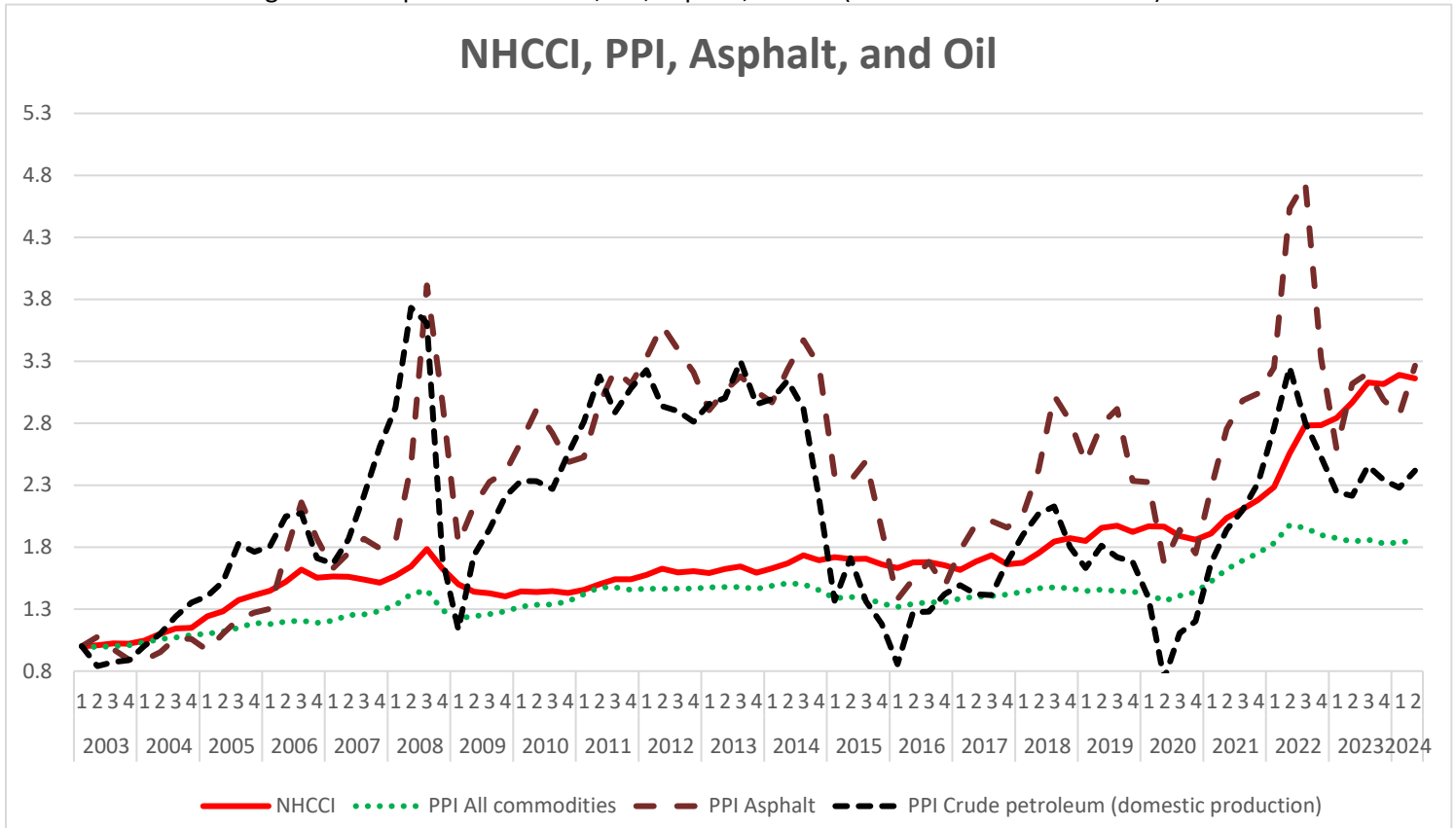
Year	Qtr	NHCCI	PPI All commodities	CPI All items	PPI Asphalt	PPI Fabricated structural metal	PPI Paving mixtures and blocks
2018	1	3.6%	4.0%	2.2%	16.3%	5.9%	3.5%
	2	4.0%	4.9%	2.7%	22.1%	11.0%	4.7%
	3	6.4%	5.0%	2.6%	50.4%	13.4%	8.7%
	4	12.7%	3.5%	2.2%	43.9%	13.0%	10.4%
2019	1	10.4%	0.4%	1.6%	20.3%	9.8%	5.7%
	2	11.6%	-0.6%	1.8%	14.9%	1.6%	5.4%
	3	6.9%	-2.1%	1.8%	-3.6%	1.1%	1.9%
	4	2.6%	-1.9%	2.0%	-17.1%	-2.3%	-1.1%
2020	1	6.5%	-1.7%	2.1%	-6.3%	-2.8%	1.0%
	2	0.5%	-6.4%	0.4%	-40.1%	-2.9%	-3.7%
	3	-4.2%	-2.6%	1.2%	-33.4%	-2.5%	-5.7%
	4	-3.3%	-0.2%	1.2%	-25.0%	-0.9%	-3.7%
2021	1	-2.9%	7.0%	1.9%	-2.2%	4.0%	0.1%
	2	3.6%	18.8%	4.8%	65.0%	20.5%	1.8%
	3	11.5%	20.3%	5.3%	53.7%	37.0%	5.7%
	4	17.3%	21.8%	6.7%	73.8%	45.4%	7.2%
2022	1	19.5%	20.4%	8.0%	42.9%	48.4%	8.5%
	2	25.5%	21.9%	8.6%	64.6%	38.9%	17.3%
	3	32.0%	15.5%	8.3%	59.2%	20.1%	22.3%
	4	27.6%	8.4%	7.1%	9.4%	10.8%	18.9%
2023	1	24.5%	2.2%	5.8%	-20.3%	3.5%	14.0%
	2	16.2%	-6.6%	4.0%	-31.2%	-3.5%	5.5%
	3	12.5%	-4.8%	3.5%	-32.5%	-2.6%	-1.5%
	4	11.9%	-3.6%	3.2%	-10.1%	1.0%	0.9%
2024	1	12.2%	-1.9%	3.2%	10.7%	-1.8%	2.1%
	2	6.5%	0.5%	3.2%	4.6%	-9.6%	2.6%

Sources: NHCCI: FHWA, Office of Transportation Policy Studies, National Highway Construction Cost Index (NHCCI) 2024 Q2 Estimates. CPI and PPI Indexes: BLS, Consumer Price Index, and Producer Price Indexes, available at <https://www.bls.gov>.

NHCCI, Asphalt, and Oil

While the timing of YoY increases and decreases of the PPI for Asphalt roughly align with the increases and decrease of the PPI for All Commodities, Figure 2 shows how the quarterly changes in the PPI for Asphalt show high volatility. The volatility in Asphalt prices reflect the volatility in petroleum prices as shown in Figure 2. This volatility, in addition to the actual increase in price, creates uncertainty which can heavily impact the price of long-term construction projects, and may partially explain some of the divergence in the NHCCI and PPI for All Commodities. Of note, the divergence in the NHCCI and PPI for All Commodities began around 2022 Q2, while the PPI for Asphalt was peaking during 2022 Q2 and Q3 amidst a period of extreme volatility. Also shown in Figure 2 is the PPI for Crude Petroleum (domestic production), which largely aligns with movements in the PPI for Asphalt going back to 2003. While the NHCCI is showing some indications of inflation slowdown, the 2024 Q2 large increase in PPI for Asphalt and PPI for Crude Petroleum alongside their recent volatility, makes the future impact on NHCCI unclear.

Figure 2. Comparison of NHCCI, PPI, Asphalt, and Oil (rebased to NHCCI 2003 Q1)

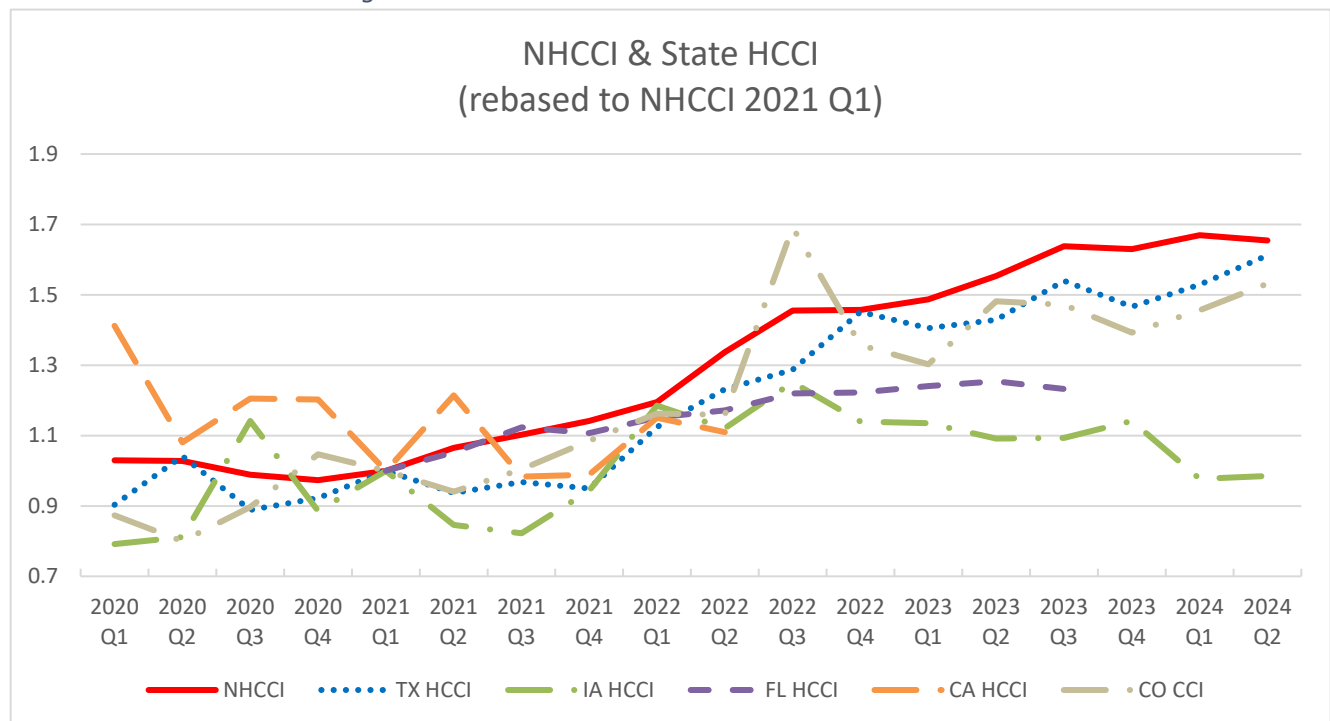


Sources: NHCCI: FHWA, Office of Transportation Policy Studies, National Highway Construction Cost Index (NHCCI) 2024 Q2 Estimates. CPI and PPI Indexes: BLS, Consumer Price Index, and Producer Price Indexes, available at <https://www.bls.gov>.

Analysis of State HCCI

Many States estimate their own Highway Construction Cost indexes, which can shed light on regional differences in cost trends and potentially national cost trends as well. Figure 3 shows the NHCCI alongside a handful of State HCCI rebased to the NHCCI 2021 Q1 value for comparison. Since 2021 Q1, the HCCI for Texas and Colorado have moved similarly to the NHCCI, while the HCCI for Florida and Iowa show notably low inflation. The data series for California was not complete enough to make a full comparison and the high volatility in each series makes a forecast unclear. To the extent the NHCCI uses the same source data and similar methodology, it is expected that the NHCCI is smoother overall compared to the regional variations.

Figure 3. Quarter to Quarter Growth Rate in Percent



Sources: NHCCI: FHWA, Office of Transportation Policy Studies, National Highway Construction Cost Index (NHCCI) 2024 Q2 Estimates. State HCCI's obtained from: TX-- <https://ftp.dot.state.tx.us/pub/txdot-info/cst/hci-binder.pdf>, IA-- <https://www.iowadot.gov/contracts/lettings/PriceTrendIndex.pdf>, FL-- https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/programmanagement/estimates/reports/construction-cost-indicator-reports/2023-09-cci-report.pdf?sfvrsn=52e8ff59_1, CA-- <https://ppmoe.dot.ca.gov/des/oe/contractor-info.html>, CO-- <https://www.codot.gov/business/eema/constructioncostindex>

Analysis of Construction-Related PPI

The PPI data in Table 3 reveal mixed trends across different materials. For instance, asphalt and crude petroleum experienced increases of 13.9 and 6.1 percent, respectively, from 2024 Q1 to 2024 Q2. Prices for paving mixtures and blocks, construction materials, and fabricated structural metal decreased during the same period, while concrete products, concrete pavers, and fabricated structural metal for bridges increased.

Table 3. Quarter to Quarter Growth Rate in Percent

Indexes	Quarter to quarter growth rate in percent												
	2021			2022				2023				2024	
	2	3	4	1	2	3	4	1	2	3	4	1	2
NHCCI	6.5%	3.5%	3.5%	4.7%	11.9%	8.9%	0.1%	2.1%	4.4%	5.8%	-0.5%	2.4%	-0.9%
PPI All Commodities	6.6%	4.4%	3.4%	4.7%	7.9%	-1.1%	-2.9%	-1.3%	-1.5%	0.8%	-1.6%	0.4%	0.9%
PPI Construction Materials	14.5%	3.3%	4.5%	5.0%	1.1%	-2.0%	-3.4%	-0.1%	1.9%	-0.8%	-1.7%	2.0%	-1.5%
PPI Paving Mixtures and Blocks	-5.8%	2.3%	1.1%	11.3%	1.8%	6.7%	-1.6%	6.7%	-5.8%	-0.4%	0.7%	8.0%	-5.3%
PPI Concrete Products	2.3%	2.3%	1.7%	3.5%	3.8%	4.2%	2.3%	3.4%	1.8%	1.6%	1.1%	2.4%	0.5%
PPI Fabricated Structural Metal	14.8%	14.2%	5.1%	7.7%	7.4%	-1.2%	-3.1%	0.7%	0.1%	-0.3%	0.6%	-2.2%	-7.8%
PPI Asphalt	21.1%	8.3%	1.9%	6.9%	39.5%	4.8%	-30.0%	-22.2%	20.5%	2.7%	-6.7%	-4.1%	13.9%
PPI Concrete Pavers	3.0%	0.7%	1.6%	6.0%	5.1%	2.0%	1.3%	4.7%	1.3%	0.0%	1.1%	2.4%	1.4%
PPI Fabricated Structural Metal for Bridges	8.6%	7.6%	3.2%	14.2%	3.1%	-2.9%	3.7%	-2.7%	0.4%	-3.1%	3.4%	-3.8%	1.2%
PPI Crude petroleum (domestic)	15.9%	8.1%	10.5%	19.1%	17.7%	-13.7%	-9.9%	-11.2%	-1.4%	10.9%	-4.6%	-2.8%	6.1%

Sources: NHCCI: FHWA, Office of Transportation Policy Studies, National Highway Construction Cost Index (NHCCI) 2024 Q2 Estimates. CPI and PPI Indexes: BLS, Consumer Price Index, and Producer Price Indexes, available at <https://www.bls.gov>.

Future Exploratory Research and Welcome Reader Input

Given the recent period of high inflation shown by the NHCCI, FHWA is interested in exploring research to better understand the sources of the cost increases and potential interactions with factors such as supply chain challenges, demand for highway construction, and highway financing considerations. Please reach out to nhcci@dot.gov to provide any feedback on the NHCCI, related data points and insights, or specific material cost changes.

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