



Freight & Logistics

NCDOT is a part of your supply chain.

Cost of Congestion & Key Freight Bottlenecks — January 2023 Recap

Delay and congestion cost commercial industry millions of dollars each year. This cost eventually becomes a burden on the sustainability of the freight transportation sector, and the cost of goods and services for the end-consumer. This can be as straightforward as friction between volume and capacity, but freight congestion can also represent the challenge of reconciling network functionality with economic behavior.

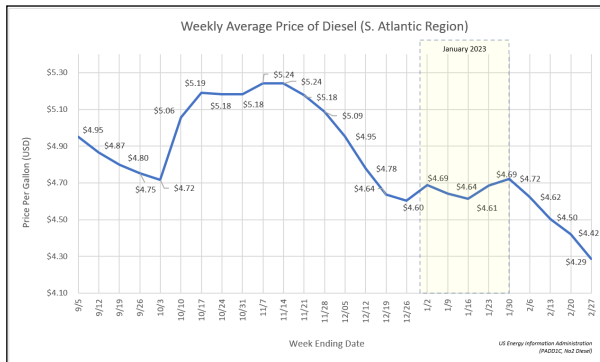
Performance Measure	Dec-22	% CHANGE	Jan-23	% CHANGE (MoM)	% CHANGE (YoY)
NCPFN System Total Commercial Cost of Delay	\$ 143,619,425	4.9%	\$ 145,167,319	1.1%	16.0%
NCPFN System Commercial Average Daily Cost per VMT	\$ 0.30	-3.2%	\$ 0.28	-6.7%	3.7%
Commercial VMT on the NCPFN System	474,527,959	8.7%	520,455,961	9.7%	10.7%
NCPFN System Com. Vehicle-hours of Delay (#Hours)	1,429,192	4.9%	1,444,595	1.1%	16.0%

NPMRDS Network Analysis

Rank	Previous Rank [†]	Top Freight Bottleneck Locations - September 1, 2022 - February 28, 2023	Average Daily Delay*	Division
1	1	I-40 East at US-70, Exit 306 between Garner and Clayton	2 h 17 m	5
2	2	I-77 South at Nations Ford Road, Exit 4 in south Charlotte	1 h 34 m	10
3	4	I-40 West at US-276, Exit 20 between Clyde & Waterville Lake	2 h 41 m	13
4	3	I-26 West at NC-146 Exit 37 south of Asheville	2 h 23 m	13
5	5	I-85 South at NC-273, Exit 27 between Charlotte and Belmont	1 h 9 m	10
6	7	I-485 East at NC-16, Providence Road, Exit 57 in Charlotte	1 h 34 m	10
7	21	NC-150 East at I-77 west of Mooresville	1 h 18 m	10
8	9	I-77 North at Woodlawn Road, Exit 6 in Charlotte	55 m	10
9	8	I-85 North at Graham Street, Exit 40 in Charlotte	1 h 18 m	10
10	11	US-74 East at Sam Newell Rd between Matthews & Charlotte	2 h 59 m	10

* hours per day in which congestion was present

† Previous rank based on rolling six-month analysis



January 2023 delivered a continued increase in congestion costs on the Statewide Priority Highway Freight Network including a 1.1% increase over December 2022 and a significant 16% increase, more than \$20M, year-over-year from January 2022. This January's total cost of congestion debuted at its highest starting point in the past five years with more than \$145M of delay. This is also the fourth consecutive month of congestion cost increases since a slight decline in September 2022. Overall VMT on the network increased in January to nearly 520.5M miles, an increase of 45.9M miles (9.7%) over December 2022 which was the highest monthly VMT in 2022. By comparison to

January 2022, the freight network supported a year over year increase of 10.7% or just over 50M miles. Diesel fuel prices in the region were stable during January between \$4.61 and \$4.69 per gallon before returning to a downward trajectory in February 2023. In fact, the final three weeks of February witnessed the lowest price per gallon for diesel since last February where the average price was \$3.99/gal.

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NCDOT RAIL DIVISION FREIGHT & LOGISTICS PROGRAM

The key NCDOT resource for supply chain, freight, and logistics-related issues, analysis, subject-matter expertise, related projects, and relevant initiatives.

MULTIMODAL FOCUS

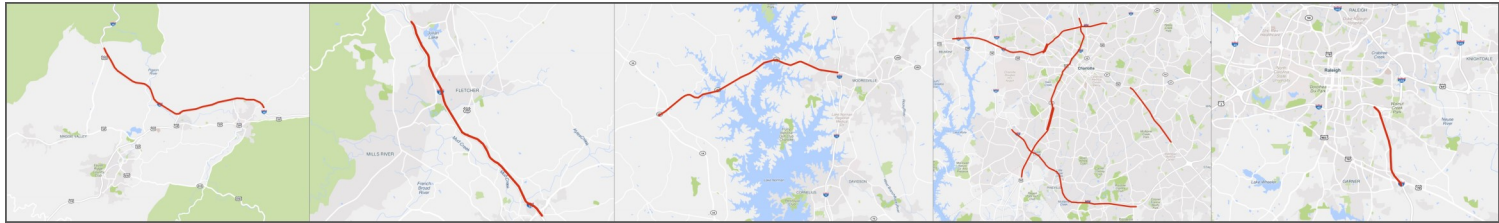
- Rail
- Highways/ Trucking
- Aviation
- Maritime/ Ports
- Bike/ Pedestrian
- Ferry
- Pipelines
- Information/ Data

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Cost of Congestion & Key Freight Bottlenecks, *continued*

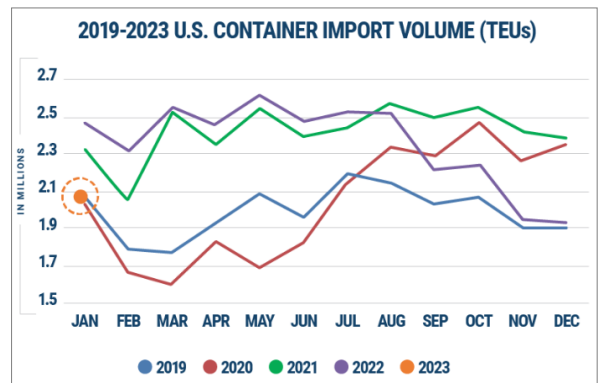


Top 10 Bottlenecks on the Statewide Priority Highway Freight Network: September 2022-February 2023

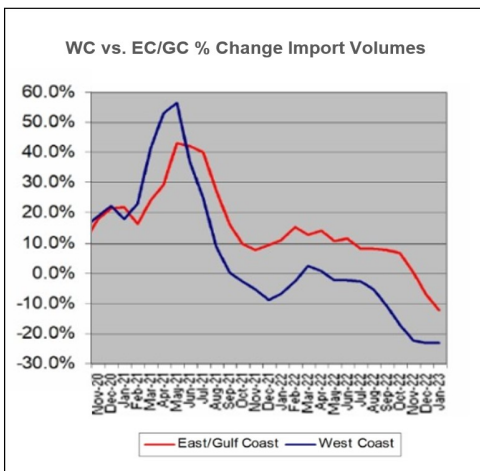
January’s review marks the second installment of the Top Freight Network Bottleneck Top 10 analysis based on a six-month rolling capture and there are only a few changes from the previous period. Our top two freight network bottlenecks remain the same between September 2022 and February 2023 on I-40 Eastbound at US-70, Exit 306; and I-77 Southbound at Nations Ford Road in south Charlotte respectively. Two bottlenecks in the western part of the state continue to challenge westbound drivers (including the only rural bottleneck on the list west of Clyde, NC) while the remainder of the rolling top 10 fall within broad Charlotte metropolitan area. Only two of the top 10 are new to the list with NC-150 eastbound at the I-77 intersection creating noteworthy congestion and US-74 eastbound between Matthews and Charlotte sneaking into the top 10 with increased delay. The average daily cost of congestion from the top 10 bottlenecks was more than \$294K while the total cost of congestion on the top 10 for the six-month period was nearly \$50.6M. We are currently working with the NCDOT Work Zone Traffic Control unit to cross-reference these congestion spots with their known work zones so future top 10 lists will have further information and context for work zone-related congestion.

Key Supply Chain Issues Facing North Carolina

Maritime exports on the rise, US import surge now history as freight rates continue to improve: Exports were a bright spot for US maritime ports in January with overall outbound volume up 11.9% at the top ten US ports. The increasing utilization of Gulf Coast and East Coast ports trend also continues, illustrated by a 25.7% spike from US East Coast ports offsetting a 5.2% loss in West Coast export volume. Alternatively, US import volumes continued to decline in January year over year despite a 7.2% increase over December 2022.



Source: Descartes



Source: John D. McCown

China is beginning to recover as a key origin market with US import draws from China increasing 11% in January, reversing a downward trend since August 2022.

The price of container shipping is also declining and pales in comparison to record high prices year over year in 2022. According to the *Freightos Baltic Global Container Freight Index*, the average price of shipping a 40 ft. container globally was \$1,984 at the end of February, down more than 56% year over year versus 2022. Shipping rates from US East Coast ports to Europe also reached their lowest point since January 2022, further benefiting North Carolina exporters (especially agricultural exports).

