



# Freight & Logistics

NCDOT is a part of your supply chain.

## Cost of Congestion & Key Freight Bottlenecks — May 2022 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	Q2			
	Apr-22	% CHANGE	May-22	% CHANGE
NCPFN System Total Commercial Cost of Delay (NPMRDS)	\$ 136,275,953	-1.4%	\$ 137,257,584	0.7%
NCPFN System Commercial Average Daily Cost per VMT (NPMRDS)	\$ 0.31	3.7%	\$ 0.30	-3.2%
Commercial VMT on the NCPFN System	445,170,405	-4.6%	456,729,896	2.6%
NCPFN System Com. Vehicle-hours of Delay (NPMRDS) (#Hours)	1,356,115	-1.4%	1,365,883	0.7%
Top 10 Bottlenecks Total Cost of Delay	\$ 5,400,178	3.3%	\$ 5,200,501	-3.7%
Top 10 Bottlenecks % of Total Cost	3.96%	6.0%	3.79%	-4.4%
Top 10 Bottlenecks Average Daily Total Cost of Delay	\$ 180,006	11.8%	\$ 167,758	-6.8%
Commercial VMT on Top 10 Bottlenecks NCPFN System	7,605,291	-37.2%	10,502,695	38.1%
Top 10 Bottlenecks Cost per VMT	\$ 0.71	25.5%	\$ 0.50	-29.6%

Rank	Previous Rank	May 2022 Bottleneck Locations	Average Daily Delay*	Events or Incidents	Division
1	2	I-40 East at US-70 Exit 306 between Garner and Clayton	2 h 40 m	20	5
2	66	I-77 South at Tyvola Road Exit 5 in Charlotte	1 h 13 m	20	10
3	3	I-85 South at NC-273 Exit 27 between Charlotte and Belmont	2 h 22 m	12	10
4	4	I-77 North at Tyvola Road Exit 5 in Charlotte	2 h 49 m	3	10
5	9	I-26 West @ US-25 Asheville Hwy Exit 44 south of Asheville	1 h 57 m	35	13
6	5	US-264-ALT West at NC-11/NC-43/NC-903 in Greenville	6 h 25 m	0	2
7	6	I-26 West at NC-146 Exit 37 south of Asheville	2 h 28 m	72	13
8	78	I-85 South at NC-7 between Belmont and Mt. Holly	25 m	14	10
9	8	US-17 South at Gordon Road in Wilmington	11 h	1	3
10	10	US-74 East at US-601 Pageland Hwy. east of Charlotte	13 h 30 m	0	10

\* hours per day in which congestion was present

For May 2022, overall congestion costs on the Statewide Priority Highway Freight Network rose by a nominal 0.7% or just over \$981K, however this was at a slower pace than overall the overall 2.6% increase in VMT on the network during the same time frame. As a result, the average daily cost of congestion per VMT enjoyed a 3.2% improvement over April, reversing a three month negative trend. Focusing on the most significant freight bottlenecks in the state during May, we see a 3.7% improvement in the total cost of commercial delay on the Top 10 bottlenecks and a reduced impact of these priority bottlenecks on overall statewide congestion. May's Top 10 bottlenecks, largely focused in urban and suburban areas, also represent 38.1% more VMT than April which contributes to a nearly 30% (29.6%) improvement in the bottleneck cost per VMT for the month. Once again incidents were a major factor in bottleneck ranking with 177 total events or incidents in the Top 10, a 31% increase over April, but still shy of the annual high watermark of 182 in March 2022. Overall the Statewide Priority Highway Freight Network saw improved fluidity versus April 2022, a nominal 2.2% improvement Year-over-Year from April 2021, yet 2Q2022 remains on pace to exceed congestion costs from 1Q2022.

### NCDOT RAIL DIVISION FREIGHT & LOGISTICS PROGRAM

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## Key Supply Chain Issues facing North Carolina

- West Coast labor contract to expire without replacement; no stoppage expected:** The current labor contract between the International Longshore and Warehouse Union (ILWU), representing 22,400 workers at nearly 30 west coast ports, and shipping terminal and carrier industry’s representation the Pacific Maritime Association (PMA), will expire on Friday, July 1st, yet no new contract has been agreed upon. Negotiations began in May and have, to this point, been productive. The Biden Administration has proactively engaged both sides far earlier than prior administrations facing similar situations and with a much stronger relationship with the port industry than prior administrations after ongoing national supply chain issues. Key points of negotiation include wage increases and expansion of automation, neither new to this long-standing conversation between labor and operators. Despite the lack of a new contract, talks are continuing and there is no labor stoppage or slowdown expected as the contract expires. It is not atypical for cargo operations to continue after the expiration of a contract. A joint release by the ILWU and PMA said, “Neither party is preparing for a strike or a lockout, contrary to speculation in news reports. The parties remain focused on and committed to reaching an agreement.” Although typical for negotiations, the economic timing on reaching an agreement is important for the full supply chain sector with several west coast ports servings as a primary Asian gateway handling an import surge. Retail purchasing is pulling volume and pushing inventory levels up even ahead of peak season. For example, in May, the Port of Los Angeles processed 967,900 TEU (twenty-foot unit equivalent containers), its third-busiest month since 1953 when it took in its first containers. (May 21, Oct. 20, rank first and second respectively.) Labor talks also take place as waterside congestion at west coast ports has subsided, (e.g. just 21 ships at anchor in LA awaiting berths, down from more than 100 in 1Q22), while supply chain congestion issues have moved inland.

- Logistics and transportation costs rose significantly in 2021:** According to the Council of Supply Chain Management Professionals’ 2022 Annual Report, released this month, US business logistics costs rose more than 22% in 2021 to \$1.85T, or 8% of the nation’s \$23T GDP. This represents is the highest percentage of GDP attributable to logistics costs since 2008. Driven by increased consumer demand and inventory recovery, trucking costs increased 23.4% to \$831B last year while tight capacity and volatile spot market rates delivered significant profits for top carriers (despite their own operational costs increases). Ongoing shifts in consumer purchasing habits continue to bolster the eCommerce sector whose sales now account for more than 14% of US retail sales or \$871B. By extension, parcel shipping’s key role in eCommerce fulfilment was not immune to cost increases adding more than 15% in costs YoY or \$134.5B last year. For air freight, with capacity tied closely to commercial passenger aviation’s recovery, overwhelming demand pressed costs to \$52.7B in 2021, a 19.2% increase. For freight rail, service level disruptions from port congestion coupled with equipment shortages and labor issues contributed to an annual cost increase of 18.8% or \$88.3B. Business inventory levels dropped significantly in 2021, but inventory carrying costs, logistics and warehousing costs (including freight financing), rose by 25.9% last year. Warehousing in particular has seen a surge in demand pushing vacancy rates down to 3.7%, while rents increased 9.5% over 2020 levels. For context, the 22.4% increase in logistics costs in 2021 was preceded by a 4% drop in 2020, less than 1% growth in 2019, and a more typical 11.4% increase in 2018.

### USBLC rose by 22.4 percent, and came to represent 8 percent of the nation’s GDP

(\$ billion)

	2021	YoY 21/20	5-year CAGR
<b>TRANSPORTATION COSTS</b>			
Full truckload	332.2	10.2%	4.5%
Less-than-truckload	83.0	13.2%	7.8%
Private or dedicated	415.2	39.3%	9.6%
<b>Motor carriers</b>	<b>830.5</b>	<b>23.4%</b>	<b>7.2%</b>
Parcel	134.5	15.2%	11.4%
Carload	71.9	19.4%	4.5%
Intermodal	16.4	15.9%	-1.0%
<b>Rail</b>	<b>88.3</b>	<b>18.8%</b>	<b>3.3%</b>
Air freight (includes domestic, import, export, cargo, and express)	52.7	19.2%	-6.4%
Water (includes domestic, import, and export)	32.4	26.3%	-4.1%
Pipeline	67.3	18.2%	8.7%
<b>SUBTOTAL</b>	<b>1,205.7</b>	<b>21.7%</b>	<b>6.1%</b>
<b>INVENTORY CARRY COSTS</b>			
Storage	186.4	19.9%	7.6%
Financial cost (WACC x total business inventory)	164.5	33.4%	2.4%
Other (obsolescence, shrinkage, insurance, handling, other)	150.4	25.9%	5.0%
<b>SUBTOTAL</b>	<b>501.3</b>	<b>25.9%</b>	<b>5.0%</b>
<b>OTHER COSTS</b>			
Carriers’ support activities	77.1	23.6%	7.9%
Shippers’ administrative costs	62.9	9.1%	5.6%
<b>SUBTOTAL</b>	<b>140.0</b>	<b>16.6%</b>	<b>6.8%</b>
<b>TOTAL U.S. BUSINESS LOGISTICS COSTS</b>	<b>1,847.02</b>	<b>22.4%</b>	<b>5.8%</b>

Note: USBLC is United States business logistics costs. YoY is year-over-year. WACC is weighted average cost of capital. Includes 5.4% inflation for 2021 numbers.

Sources: CSCMP’s 33<sup>rd</sup> Annual State of Logistics Report