An Analysis of the Operational Costs of Trucking: 2025 Update

July 2025

Prepared by the American Transportation Research Institute

ATRI American Transportation Research Institute

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ACRONYMS

ATA	American Trucking Associations
ATRI	American Transportation Research Institute
BLS	Bureau of Labor Statistics
CNG	Compressed Natural Gas
CPH	Cost Per Hour
CPM	Cost Per Mile
EIA	Energy Information Administration
EPA	Environmental Protection Agency
FMCSA	Federal Motor Carrier Safety Administration
FMI	Freight Mobility Initiative
GDP	Gross Domestic Product
KPM	Key Performance Metric
LNG	Liquified Natural Gas
LTL	Less-than-Truckload
MPG	Miles Per Gallon
MPH	Miles Per Hour
OO	Owner-Operator
QCEW	Quarterly Census of Employment and Wages
RAC	Research Advisory Committee
R&M	Repair and Maintenance
SIR	Self-Insurance Retention
STA	State Trucking Association
TMC	Technology & Maintenance Council
U.S. DOT	U.S. Department of Transportation
VMT	Vehicle Miles Traveled

INTRODUCTION

First published in 2008, the American Transportation Research Institute's (ATRI) *Analysis of the Operational Costs of Trucking* or "Ops Costs" report is a premier tool for benchmarking trucking industry costs, key performance metrics (KPM), and revenue. This report contains complete financial data from 2024 as well as indicators from Q1 2025.

The freight market recession that plagued 2023 persisted throughout 2024, once again despite an overall positive U.S. economy. Gross domestic product (GDP) rose by 2.8 percent, and consumer inflation cooled to an annual rate of 2.9.[1] The trucking industry experienced some cost relief as part of this broader respite, with a 0.3 percent reduction in the trucking industry's producer price index.[2]

While parts of the U.S. economy maintained positive growth rates, those sectors lacked the catalyst necessary to reverse the multiyear trucking downturn that followed the post-pandemic boom. Housing completions reached their highest post-pandemic levels (though starts remained below 2021 highs); manufacturing production slipped by just 0.2 percent by year's end; retail sales climbed 4.7 percent, 1.8 points higher than inflation.[3] Unfortunately, in trucking and specifically in the dry van, flatbed, and refrigerated sectors, nationwide contract and spot freight rates continued to slide over the year.[4] As a result, trucking firm bankruptcies mounted in 2024.[5]

In such a protracted period of economic challenges, ATRI's "Ops Costs" report is an essential benchmark and barometer for the trucking industry, trusted by fleets of all sectors and sizes as well as the many supply chain stakeholders: shippers, suppliers, financers, public planners, and more.

In 2024, the average operational costs of trucking decreased by 0.4 percent, from $2.270 per mile to $2.260 per mile. Excluding fuel, however, the operational costs of trucking rose by 3.6 percent to $1.779 per mile – an increase of 6.2 cents per mile over 2023.

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[1] U.S. Bureau of Economic Analysis, "Gross Domestic Product, 1st Quarter 2025 (Advance Estimate)" (April 30, 2025), https://www.bea.gov/sites/default/files/2025-04/gdp1q25-adv.pdf; U.S. BLS, "Consumer Price Index: 2024 in review" (January 24, 2025), https://www.bls.gov/opub/ted/2025/consumer-price-index-2024-in-review.htm.
[2] U.S. BLS, "Producer Price Index News Release" (January 14, 2025), https://www.bls.gov/news.release/archives/ppi_01142025.htm.
[3] U.S. Census Bureau, "Monthly New Residential Construction, April 2025" (May 16, 2025), https://www.census.gov/construction/nrc/pdf/newresconst.pdf; U.S. Federal Reserve, "Industrial Production and Capacity Utilization" (January 17, 2025), https://www.federalreserve.gov/releases/g17/20250117/ (historical and corrected data accessed on https://fred.stlouisfed.org/series/IPMAN); U.S. Census Bureau, "Advance Monthly Sales for Retail and Food Services: Retail Trade" (January 16, 2025), https://www2.census.gov/retail/releases/historical/marts/adv2501.pdf (historical and corrected data accessed on https://fred.stlouisfed.org/series/RSXFS#).
[4] DAT Freight & Analytics, "DAT Trendlines: National Van Rates" (accessed on May 19, 2025), https://www.dat.com/trendlines/van/national-rates.
[5] Clarissa Hawes, "Bankruptcies, closures and fraud: Key trucking stories in 2024," *FreightWaves* (January 9, 2025), https://www.freightwaves.com/news/bankruptcies-closures-and-fraud-key-trucking-stories-in-2024.

METHODOLOGY

This report relies on marginal cost data collected directly and confidentially from for-hire motor carriers, specifically relating to their Class 8 tractor-trailer operations. ATRI has utilized a consistent methodology for defining and analyzing data to enable year-over-year comparisons. No new metrics were added to the 2025 data collection form, which can be found in the Appendix.

Data collection, which ran from February 2025 through May 2025, was available for online and PDF submission. Outreach included direct contacts and industry marketing through ATRI's contact list, trade organizations, and trade press. Robust data reviews and validation were conducted to ensure the highest standards of data quality. A majority of participants continue to participate each subsequent year, further bolstering data continuity and quality. Key line-items are also corroborated throughout the report with the federal and industry sources (Table 1).

Table 1: Cost Centers and Corroborating Sources

Cost Center	Corroborating Sources
Fuel	Energy Information Administration (EIA)
Truck/Trailer Lease or Purchase Payments	J.D. Power Valuation Services Wards Intelligence ACT Research
Repair and Maintenance Costs	American Trucking Associations (ATA) Technology & Maintenance Council (TMC) and Decisiv Fullbay, Motor Information Systems
Truck Insurance Premiums	The Council of Insurance Agents & Brokers Fitch Ratings AM Best
Tires	Bureau of Labor Statistics (BLS)
Driver Wages	BLS
Driver Benefits	ATA

For industry-wide averages, ATRI weights responses by the market share of each sector using BLS Quarterly Census of Employment and Wages (QCEW) data. Table 2 compares ATRI respondents' truck counts to BLS employment by sector. As is often the case, the Less-than-Truckload (LTL) sector respondents were overrepresented in the sample, and the truckload sector was underrepresented.

Table 2: For-Hire Industry Sector Representation, 2024

	ATRI Respondents	U.S Trucking Industry[6]
Truckload	33.3%	57.5%
LTL	47.8%	27.8%
Other/Specialized	18.9%	14.8%

As is done by BLS and other federal sources, this report designates "specialized" trucking as a group of several distinctive sectors that includes flatbed, tanker, refrigerated, intermodal, bulk, and household goods movers. Where major cost or performance differences arise between these sectors, this report makes note. For more detailed sector-specific metrics, participating motor carriers are encouraged to consult their customized reports.

While most carriers report costs on a per-mile basis, these are also converted to costs per hour (CPH) using the average speed of 40.20 miles per hour (MPH), derived from truck GPS data in the U.S. Bureau of Transportation Statistics / ATRI Freight Mobility Initiative (FMI) program.[7]

Unlike overall industry averages, data within sectors and fleet sizes are not weighted due to their specificity. Where noted, operational or equipment metrics are weighted by the number of trucks in each fleet to estimate truck-level trends.

Due to rounding, the numbers in some tables or figures may not sum to exactly 100 percent.

RESPONDENT DEMOGRAPHICS

In 2024, for-hire trucking – the focus of this report – represented 69.3 percent of all registered carriers, while 19.6 percent were private fleets and 7.3 percent engaged in both for-hire and private carriage.[8]

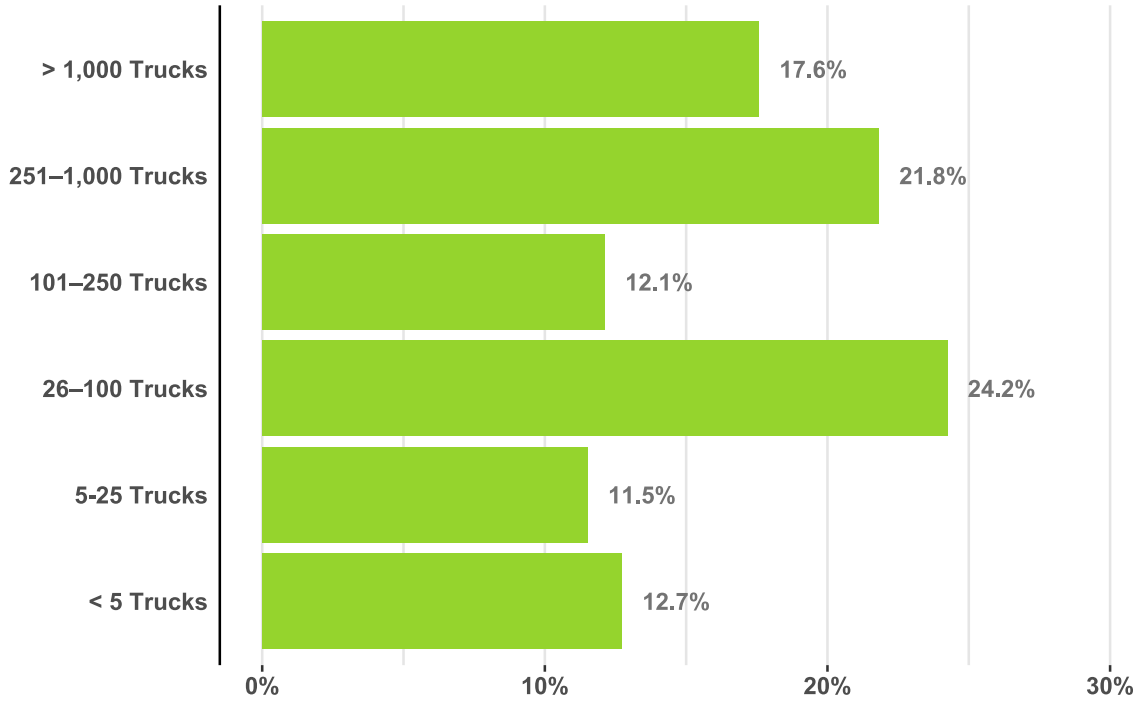
The operational data in this report represents 178,091 combination truck-tractors – approximately 5.4 percent of all registered trucks – that ran 14.08 billion miles, 7.2 percent of all U.S. combination truck vehicle miles traveled (VMT).[9]

[6] U.S. BLS, "Quarterly Census of Employment and Wages" (Q3 2024), https://www.bls.gov/cew/. SOC codes used were as follows: 484121 for truckload carriers, 484122 for less-than-truckload carriers, and 484230 for other/specialized carriers.
[7] ATRI derived this speed by analyzing one full week of national FMI data in each of the four quarters in 2023 (the 12th to the 18th of February, May, August, and October). This dataset consisted of over 300 million truck speed data points with non-zero speeds. The 40.20 MPH figure is an update to the 40.33 MPH figure from 2022. This speed figure represents an average operational speed since it includes speeds in all types of operational conditions, sectors, and locations.
[8] American Trucking Associations, *American Trucking Trends 2024* (2024), https://www.trucking.org/news-insights/truck-freight-bounce-back-2025-ata-projects.
[9] Office of Highway Policy Information, "Table VM-1: Annual Vehicle Distance Traveled in Miles and Related Data – 2023" (March 2025), *2023 Highway Statistics*, Federal Highway Administration, U.S. Department of Transportation, https://www.fhwa.dot.gov/policyinformation/statistics/2023/vm1.cfm. Percentage based on the most recent figures for miles traveled, from 2023.

Size of Operations

Respondent demographics were generally consistent with previous years. Fleets with 26 to 100 trucks made up the largest share of respondents (Figure 1). Amid particularly challenging conditions for small fleets, there was a smaller proportion of respondents with fewer than five trucks than in the previous Ops Costs report. Fleets with 10 or fewer trucks make up 95.5 percent of all motor carriers registered with the U.S. Department of Transportation (U.S. DOT).[10]

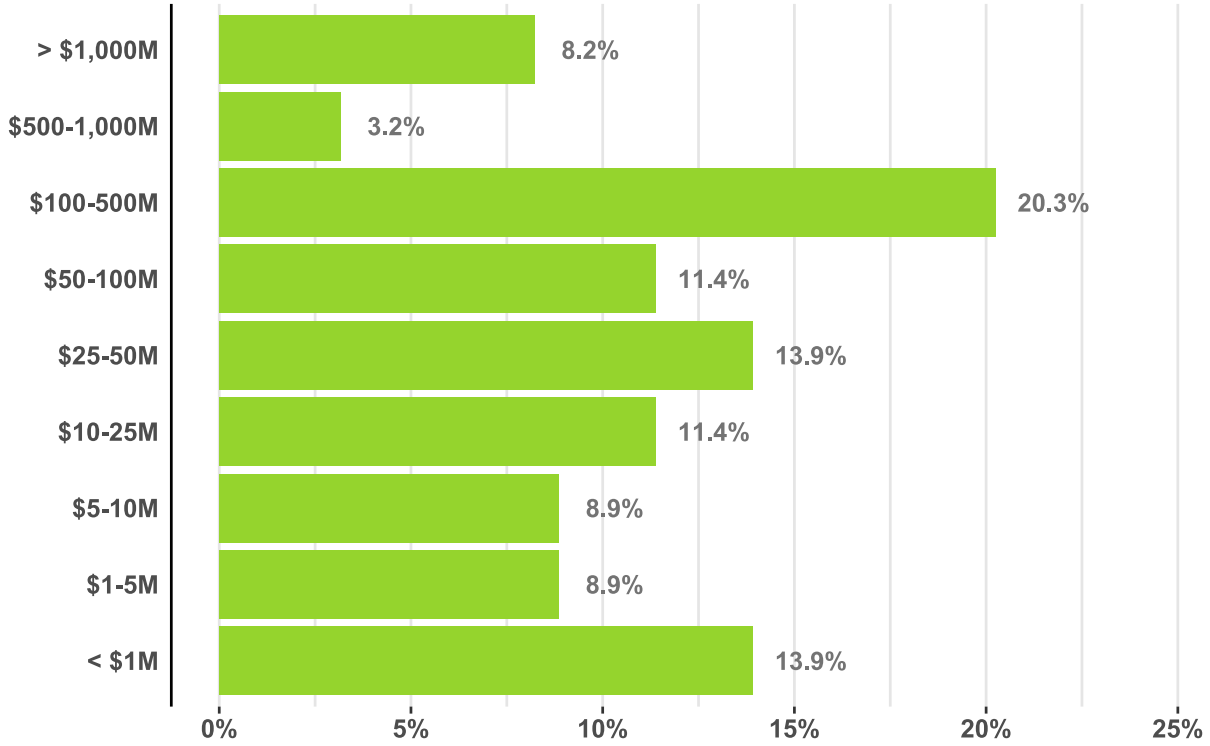
Figure 1: Respondent Fleet Size



Respondents' revenues were generally evenly distributed across the categories in Figure 2, with the exception of the plurality of fleets with revenues between $100 and $500 million and the typically small share of fleets with revenues between $500 and $1,000 million.

[10] American Trucking Association, *American Trucking Trends 2024* (2024), https://www.trucking.org/news-insights/ata-american-trucking-trends-2024.

Figure 2: Respondent Revenue



Type of Operations

Respondent trip lengths in 2024 returned to pre-2020 historical averages after a period of fluctuation following the COVID-19 pandemic, with the exception of a slight increase in regional trip lengths. Table 3 shows the average of carrier-reported trip lengths. A trip is defined as the distance between a pickup and delivery (i.e., a trip may last multiple days or just a fraction of a day).

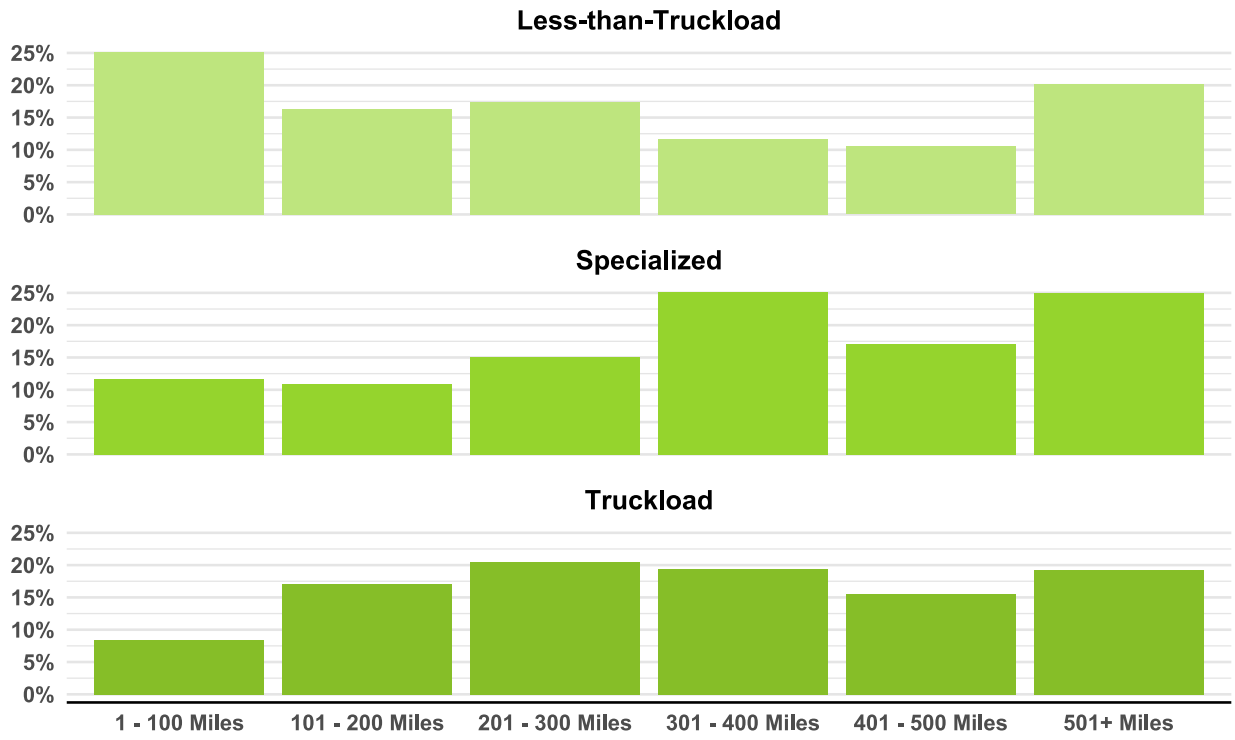
Table 3: Respondent Trip Lengths, 2019 to 2024

	2019	2020	2021	2022	2023	2024
Local (less than 100 miles)	26%	32%	24%	28%	28%	26%
Regional (100-500 miles)	39%	37%	40%	37%	37%	41%
Inter-regional (500-1,000 miles)	22%	19%	22%	21%	20%	20%
National (over 1,000 miles)	13%	12%	14%	14%	15%	13%

By contrast, Figure 3 shows the average daily mileage driven for each broad sector category, weighted by the number of trucks in each fleet. While average trip length is more useful for understanding route composition in the industry, average daily mileage is more useful for

understanding driver behavior, asset use, and any potential integration of alternative fuels or energy systems (which can alter effective mileage ranges).

Figure 3: Daily Mileage Driven, 2024



Respondents' regional distribution of mileage generally tracks with that of all combination trucks in the U.S. (Table 4), with slight overrepresentation in the Northeast and underrepresentation in the South Central and West regions. For a map of the regional groupings, see the Appendix.

Table 4: Respondent Truck Total Miles and National Truck Mileage by Region

Region	Average Share of Respondent Mileage	Share of U.S. Truck-Tractor Miles (2023)[11]
Midwest	28.3%	27.5%
Northeast	13.7%	8.1%
Southeast	29.2%	29.4%
South Central	9.9%	15.4%
West	15.5%	19.6%
Canada	3.4%	

[11] Federal Highway Administration, "Table VM-2: Functional System Travel – 2023" and "Table VM-4: Distribution of Annual Vehicle Distance Traveled – 2023" (November 2024), *2023 Highway Statistics*, https://www.fhwa.dot.gov/policyinformation/statistics/2023/.

Equipment

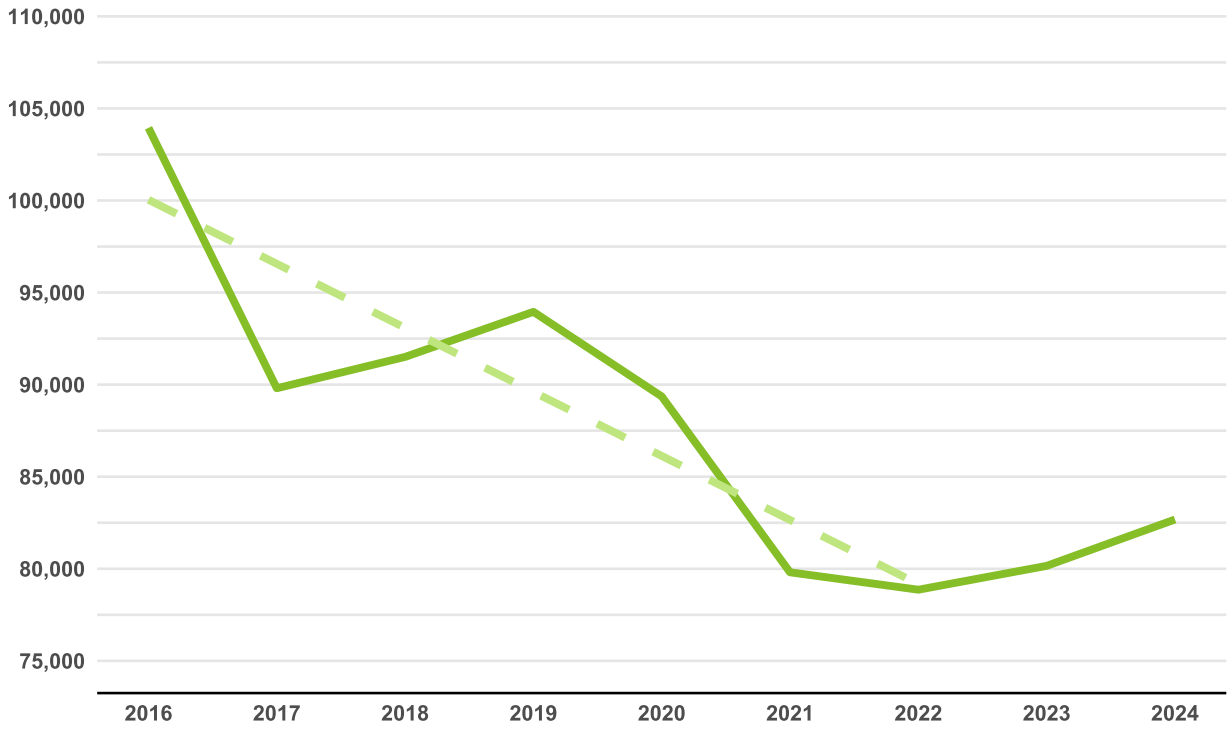
Average truck age fell again in 2024, to 3.4 years from 3.8 years in 2023. This low average reflects continued 2024 deliveries of aggressive 2023 truck purchases, following truck shortages and delays during the COVID-19 pandemic. There was no overall trend in trailer age, but it was noteworthy that the average age of 53-foot trailers – the most common trailer type by far – rose by one year to 7.4 years old. Table 5 details equipment age and mileage averages by the number of trucks in each fleet and by sector representation.

Table 5: Respondent Equipment Characteristics

Equipment Type	Number of Units	Average Age (Years)
Truck-Tractors	**178,091**	3.4
28’ Trailers	158,072	9.5
33’ Trailers	944	12.1
45’ Trailers	2,895	9.3
48’ Trailers	25,432	8.7
53’ Trailers	191,798	7.4
Tank Trailer	9,824	12.5
Flatbed Trailer	24,138	7.3
Refrigerated Trailer	38,569	5.6
Intermodal Trailers	106,737	10.3
Other Trailers	14,608	9.7
Total Trailers	**573,017**	

Average annual truck mileage increased for a second year in a row, from 80,159 in 2023 to 82,677 in 2024, after a multi-year period of decline (illustrated in Figure 4 with a dotted trend line). Trucks operated an average of 268 days per year, a substantial increase from 243 days of operation in 2023 and one that may result from fleets reducing their capacity. These trends are analyzed further in subsequent sections on Efficiency and Capacity.

Figure 4: Average Annual Truck Mileage



The average truck replacement cycle also decreased slightly in 2024 to 7.3 years from 7.5 years in 2023 (Table 6). Trailer trade cycles dropped by a greater amount, to 13.2 in 2024 from 15.3 in 2023, though this may reflect plans to retire additional older trailers in a low-freight market rather than to acquire new ones.

Table 6: Respondent Equipment Trade Cycle

Equipment Type	Average Number of Years Until Replacement	Average Miles Driven Until Replacement
Truck-Tractors	7.3	587,733
Trailers	13.2	

Alternative Energy Systems

The percentage of respondent fleets operating at least one Class 8 truck with an alternative energy system rose to 14.9 in 2024 – more than twice as high as in 2021 (7.0%). Compressed natural gas (CNG) remains the most-used technology, followed by liquified natural gas (LNG).

Most of these fleets, however, operate very few of these alternative energy trucks. Table 7 illustrates this fact by comparing these two percentages across each alternative energy technology. Furthermore, 96 percent of the trucks in Table 7 belong to just four carriers that each operate over 1,000 petroleum diesel trucks.

Table 7: Use of Alternative Fuel Truck-Tractors

Alternative Truck Type	Percent of Respondents	Percent of Trucks
CNG	6.5%	3.33%
LNG	0.6%	0.70%
Battery Electric	10.4%	0.01%
Hydrogen Fuel Cell	3.2%	0.001%
Hydrogen Combustion	0%	0%
LPG	0%	0%
All Types	**14.9%**	**4.04%**

Table 7 does not include renewable diesel because this fuel is used in traditional internal combustion engines. Often intermixed with petroleum diesel in varying quantities, renewable diesel is thus both convenient for operations and difficult to track, though its use has been on the rise.[12]

OPERATIONAL COST FINDINGS

The operational cost of trucking in 2024 was $2.260 per mile, 1.0 cent or 0.4 percent shy of 2023's record total. The seven-cent decline in fuel costs in 2024 was the largest year-over-year change, and as a result operational costs excluding fuel actually rose by 3.6 percent to $1.779 per mile in 2024. The primary driver of this increase was truck and trailer payment costs (up 3.0 cents on the year). Table 8 documents ATRI's per-mile costs for each line-item over the past decade.

Per-hour operational costs in 2024 totaled $90.89 with fuel and $71.57 without fuel. Table 9 documents ATRI's per-hour costs for each line item over the past decade.

[12] Jeffrey Short, *Renewable Diesel – A Catalyst for Decarbonization*, ATRI (April 2024), https://truckingresearch.org/2024/04/renewable-diesel-a-catalyst-for-decarbonization/.

Table 8: Average Marginal Costs per Mile, 2015-2024

Motor Carrier Costs	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Vehicle-Based										
Fuel Costs	$0.403	$0.336	$0.368	$0.433	$0.384	$0.308	$0.417	$0.641	$0.553	$0.481
Truck/Trailer Lease or Purchase Payments	$0.230	$0.255	$0.264	$0.265	$0.256	$0.271	$0.279	$0.331	$0.360	$0.390
Repair & Maintenance	$0.156	$0.166	$0.167	$0.171	$0.149	$0.148	$0.175	$0.196	$0.202	$0.198
Truck Insurance Premiums	$0.074	$0.075	$0.075	$0.084	$0.071	$0.087	$0.086	$0.088	$0.099	$0.102
Permits & Licenses	$0.019	$0.022	$0.023	$0.024	$0.020	$0.016	$0.016	$0.015	$0.009	$0.009
Tires	$0.043	$0.035	$0.038	$0.038	$0.039	$0.043	$0.041	$0.045	$0.046	$0.047
Tolls	$0.020	$0.024	$0.027	$0.030	$0.035	$0.037	$0.032	$0.028	$0.034	$0.038
Driver-Based										
Driver Wages	$0.499	$0.523	$0.557	$0.596	$0.554	$0.566	$0.627	$0.724	$0.779	$0.798
Driver Benefits	$0.131	$0.155	$0.172	$0.180	$0.190	$0.171	$0.182	$0.183	$0.188	$0.197
TOTAL	**$1.575**	**$1.592**	**$1.691**	**$1.821**	**$1.699**	**$1.646**	**$1.855**	**$2.251**	**$2.270**	**$2.260**

Table 9: Average Marginal Costs per Hour, 2015-2024

Motor Carrier Costs	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Vehicle-Based										
Fuel Costs	$16.13	$13.45	$14.50	$17.07	$15.14	$12.52	$16.78	$25.84	$22.23	$19.32
Truck/Trailer Lease or Purchase Payments	$9.20	$10.20	$10.39	$10.45	$10.09	$11.00	$11.21	$13.37	$14.46	$15.70
Repair & Maintenance	$6.23	$6.65	$6.58	$6.72	$5.87	$6.00	$7.04	$7.89	$8.13	$7.96
Truck Insurance Premiums	$2.98	$3.00	$2.95	$3.32	$2.80	$3.55	$3.46	$3.57	$3.99	$4.11
Permits & Licenses	$0.78	$0.88	$0.92	$0.95	$0.79	$0.67	$0.64	$0.60	$0.36	$0.36
Tires	$1.72	$1.41	$1.50	$1.50	$1.54	$1.73	$1.67	$1.81	$1.85	$1.90
Tolls	$0.79	$0.97	$1.05	$1.17	$1.38	$1.49	$1.30	$1.14	$1.35	$1.51
Driver-Based										
Driver Wages	$19.95	$20.91	$21.97	$23.50	$21.84	$22.97	$25.24	$29.20	$31.32	$32.10
Driver Benefits	$5.22	$6.18	$6.78	$7.10	$7.49	$6.94	$7.31	$7.37	$7.58	$7.93
TOTAL	**$62.98**	**$63.66**	**$66.65**	**$71.78**	**$66.94**	**$66.87**	**$74.65**	**$90.78**	**$91.27**	**$90.89**

Table 10 summarizes the percentage change year-over-year for each line item.

Table 10: 2023-2024 Annual Change in Average Costs per Mile

Motor Carrier Costs	Percent Change
Vehicle-Based	
Fuel Costs	- 13.0%
Truck/Trailer Lease or Purchase Payments	8.3%
Repair & Maintenance	- 2.0%
Truck Insurance Premiums	3.0%
Permits & Licenses	0.0%
Tires	2.2%
Tolls	11.8%
Driver-Based	
Driver Wages	2.4%
Driver Benefits	4.8%
TOTAL	**- 0.4%**
TOTAL excluding Fuel	**3.6%**

Several line-items set new record highs in 2024: truck and trailer payments, insurance premiums, tires, tolls, driver pay, and driver benefits.

Even so, cost increases did moderate. Only three line-items outpaced inflation (which was 2.9%) – truck and trailer payments, tolls, and driver benefits – with toll costs rising by just 0.4 cents per mile.

Only driver benefits costs increased by a larger percentage in 2024 (4.8%) than they did in 2023 (2.7%).

Sector Costs

The three broad sectors of the trucking industry differ by business models and cost structures. Table 11 tracks total sector costs, including fuel. Since fuel costs have been a countervailing force over the past year, Table 12 tracks total sector costs, excluding fuel – which may be more indicative.

Table 11: Average Total Marginal Costs per Mile by Sector, 2016-2024

Sector	2016	2017	2018	2019	2020	2021	2022	2023	2024
LTL	$1.74	$1.84	$1.92	$1.85	$1.72	$1.99	$2.34	$2.55	$2.49
Specialized	$1.83	$1.95	$2.02	$1.85	$1.82	$2.01	$2.44	$2.33	$2.32
Truckload	$1.42	$1.49	$1.71	$1.55	$1.56	$1.74	$2.15	$2.11	$2.13

Table 12 shows that truckload and specialized carriers' costs, excluding fuel, each increased by slightly more than 5 percent (5.1% and 5.3% respectively) between 2023 and 2024. At the sector level, therefore, truckload and specialized carriers saw costs increase at a higher rate in 2024 than in 2023, when there was no change in the average cost for specialized carriers.

Table 12: Average Total Marginal Costs per Mile Excluding Fuel by Sector, 2016-2024

Sector	2016	2017	2018	2019	2020	2021	2022	2023	2024
LTL	$1.40	$1.45	$1.50	$1.47	$1.43	$1.58	$1.73	$2.00	$2.02
Specialized	$1.44	$1.52	$1.51	$1.41	$1.49	$1.57	$1.70	$1.70	$1.79
Truckload	$1.10	$1.16	$1.29	$1.17	$1.25	$1.32	$1.52	$1.58	$1.66

While LTL carriers led cost increases between 2022 and 2023, they experienced just a 1 percent increase between 2023 and 2024.

Costs by Region

In 2024, regional differences were of greater consequence than in any recent year, with year-over-year cost changes varying significantly across the country. Table 13 estimates regional average costs that are obtained by weighting each carrier's costs by its percentage of mileage traveled in each region.

Table 13: Average Marginal Cost per Mile by Region

Motor Carrier Costs	Midwest	Northeast	Southeast	South Central	West
Vehicle-Based					
Fuel Costs	$0.473	$0.505	$0.480	$0.454	$0.488
Truck/Trailer Lease or Purchase Payments	$0.420	$0.410	$0.389	$0.344	$0.365
Repair & Maintenance	$0.195	$0.186	$0.197	$0.188	$0.206
Truck Insurance Premiums	$0.093	$0.127	$0.106	$0.104	$0.090
Permits & Licenses	$0.007	$0.009	$0.007	$0.008	$0.005
Tires	$0.042	$0.050	$0.047	$0.050	$0.051
Tolls	$0.036	$0.072	$0.033	$0.032	$0.016
Driver-Based					
Driver Wages	$0.771	$0.846	$0.741	$0.755	$0.690
Driver Benefits	$0.172	$0.256	$0.196	$0.173	$0.200
TOTAL	**$2.207**	**$2.461**	**$2.196**	**$2.107**	**$2.112**
TOTAL excluding Fuel	**$1.735**	**$1.956**	**$1.716**	**$1.653**	**$1.623**

The Northeast once again led in costs, with the nation's highest driver wages ($0.846) and insurance premiums ($0.127) as well as its second-highest truck and trailer payment costs ($0.410). The region's total cost was 2.6 cents higher per mile in 2024 than in 2023; the single largest contributor to this change was driver benefits, which rose by 5.8 cents even as driver wages slipped by half a cent.

The Midwest saw average costs increase by 1.3 cents per mile between 2023 and 2024. The two primary drivers behind this rise were driver wages ($0.771) and truck and trailer payment costs ($0.420), the latter of which was the highest among all regions. While several Midwest line-item costs declined or remained flat (e.g. repair and maintenance, tires, and tolls), the Midwest region's insurance costs rose by a full cent per mile from 2023 to 2024 (to $0.093).

In the West, costs decreased by 9.8 cents per mile, led by an 11.6 cent decrease in fuel costs. A decrease in the nation's already-lowest average driver wage costs were offset by an increase in one of the nation's highest driver benefits costs. Once again, truck and trailer payments were the West's fastest-rising cost.

From 2023 to 2024, the Southeast experienced a 7.8-cent decrease in costs. The primary source of this decline was fuel followed by driver wages ($0.741), in the face of slight year-over-year cost increases in truck and trailer payments ($0.389) as well as repair and maintenance ($0.197).

Costs in the South Central region (formerly referred to as "Southwest") decreased by 9.2 cents per mile. While costs rose for truck and trailer payments, insurance, tires, and repair and maintenance, costs fell by a greater amount for fuel, driver wages, and driver benefits.

Looking Ahead: Q1 2025 Costs

The first quarter of 2025 indicated some significant potential changes in cost trends. Table 14 provides insight into Q1 trends by averaging the change in per-mile costs that fleets experienced in January and February 2025 compared to 2024. These trends are analyzed in detail in the "Looking Ahead" sections for each line-item below.

Table 14: Change in Costs per Mile, Q1 2025 over 2024

Motor Carrier Costs	Percent Change
Truck Insurance Premiums	5.8%
Tolls	4.3%
Truck/Trailer Lease or Purchase Payments	3.9%
Driver Benefits	3.5%
Repair & Maintenance	2.8%
Driver Pay	0.9%
Fuel Costs	0.4%
Permits & Licenses	0.0%
Tires	-4.7%

Line-Item Analyses

The following sections analyze costs for each line-item in detail, juxtapose them with other industry sources, and assess the trends emerging in 2025. Average costs are provided by fleet size for two sectors, truckload and specialized (which includes flatbed, tanker, refrigerated, intermodal, bulk, and other specialized carriers), and for the LTL sector overall.

Driver Compensation Costs

With an industry average of $0.798 spent on driver pay and $0.197 on driver benefits per mile, overall driver compensation costs totaled $0.995 per mile in 2024, a 2.9 percent increase over 2023.

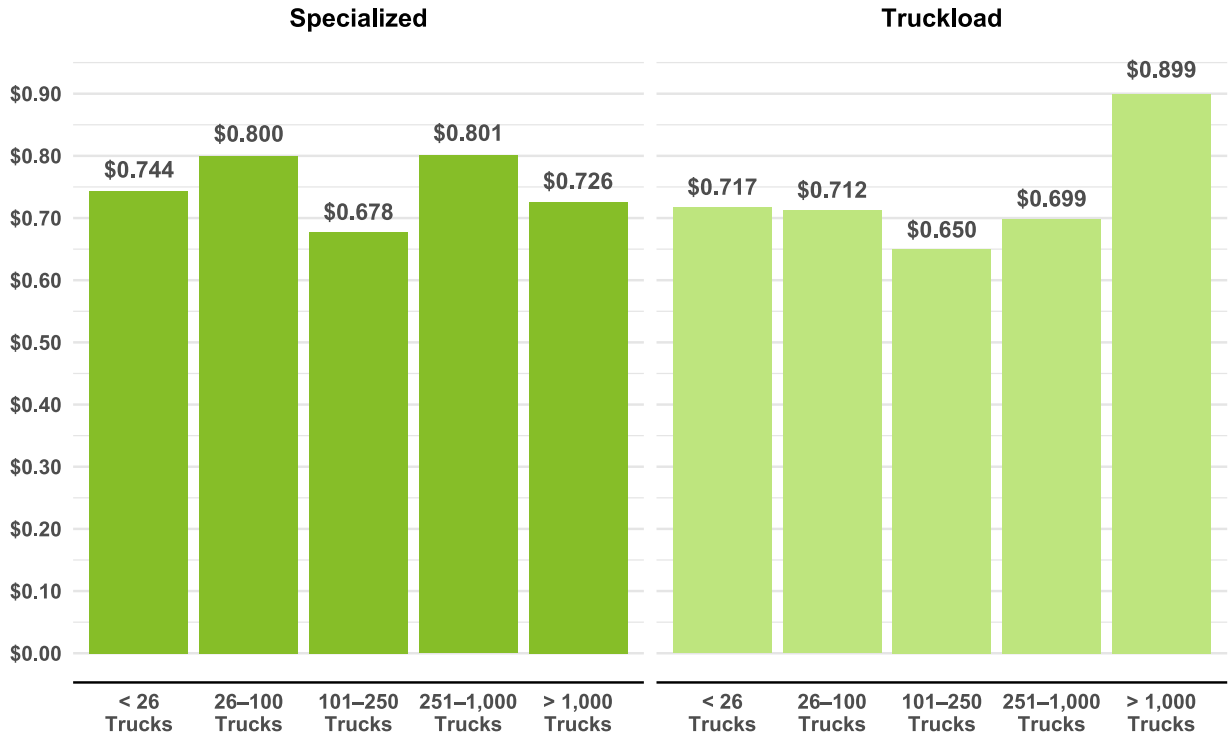
Driver Wages

Figure 5 depicts company driver wages per mile across various fleet sizes for the truckload and specialized sectors. All hourly compensation structures are converted to per-mile figures for comparability using average GPS speed, annual mileage, or revenue per truck.

Truckload carrier wages were highly competitive across most fleet sizes: less than 2 cents separated the average driver wage of fleets with fewer than 26 trucks from fleets with 251 to 1,000 trucks. The major exception to this trend was very large fleets with more than 1,000 trucks, which for a second year in a row had the highest per-mile pay not only in the truckload sector but also the specialized sectors. Average wages rose in every truckload fleet size category except 26-to-100-truck fleets in 2024.

Specialized carriers tend to have higher wages than truckload carriers, with whom they compete for labor, with the exception of very large fleets. Though there was more variation in wage costs among specialized fleets, this variation did not follow any particular fleet size pattern. Average wages fell in 2024 for all specialized fleet size groups with 101 or more trucks and rose among the two fleet size groups with 100 or fewer trucks.

Figure 5: Driver Wages per Mile by Fleet Sector and Size



LTL per-mile driver wages – generally linehaul – rose to an average of $0.929 per mile in 2024. LTL hourly driver wages – generally pickup and delivery – averaged $36.96 in 2024, solidifying major increases incurred during 2023 (when some LTL carriers hired a significant number of former Yellow drivers and union LTL carriers signed new Master Freight Agreements).

Overall, driver wages across all sectors grew by 2.4 percent between 2023 and 2024 (Table 10), slightly trailing the annual consumer inflation rate of 2.9 percent. BLS indicates truck driver wages grew 4.3 percent between 2023 and 2024.[13] This 1.9-point difference is likely explained as a slight lag in federal estimates: between 2022 and 2023, ATRI recorded a driver wage increase 2.1 points higher than BLS.

In general, driver wages rose in 2024 at the same time that driver employment dropped across the industry (Figure 9), suggesting that many fleets elected to reduce new hiring while retaining proven veteran drivers at higher wage levels. Lower driver turnover in 2024 versus 2023, discussed below, also corroborates this hypothesis.

Driver Benefits

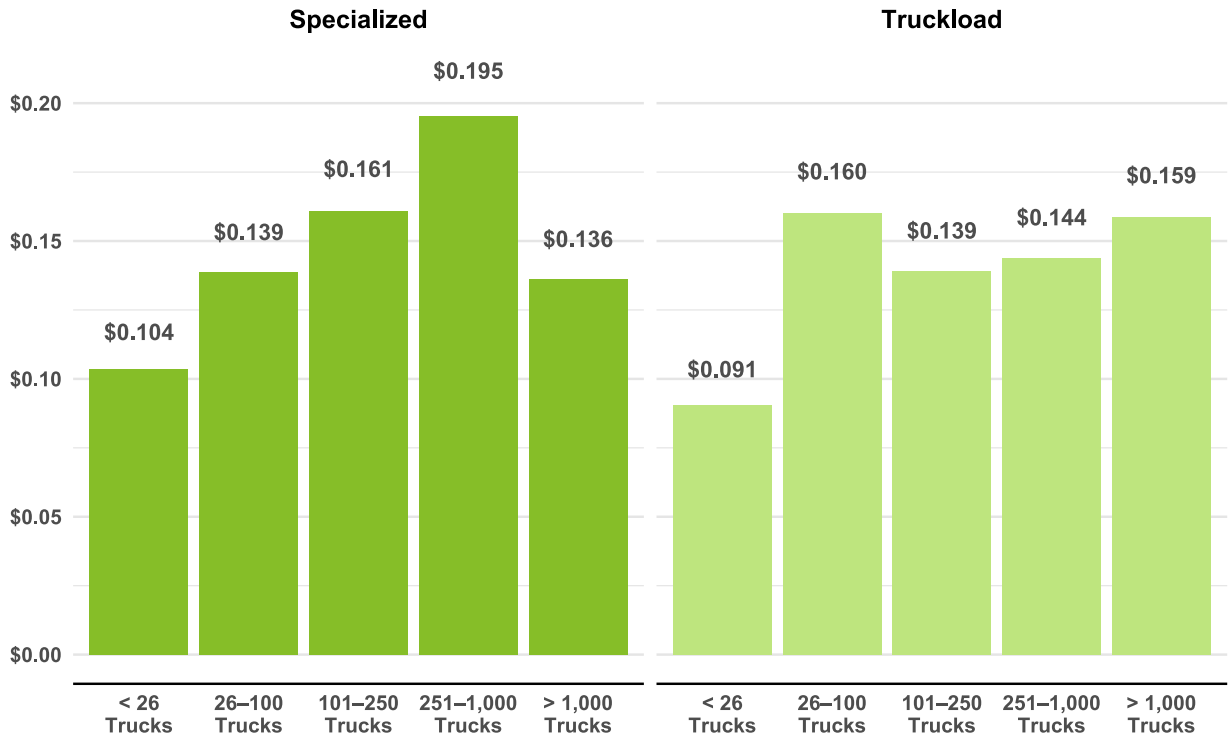
Driver benefits costs rose at an overall average rate of 4.8 percent between 2023 and 2024; unlike the driver wages increase, this driver benefits increase was well above inflation during the same period. Figure 6 compares average per-mile benefits costs by fleet size.

[13] U.S. BLS, "Occupational Employment and Wage Statistics, May 2024: 53-3032 Heavy and Tractor-Trailer Truck Drivers" (accessed on May 2024), https://data.bls.gov/oesprofile/.

Truckload carrier benefits costs in 2024 were highly consistent across fleet size. The typical exception to this relative cost parity was truckload fleets with fewer than 26 trucks, who spent less on benefits than their larger peers. And yet, this fleet size group experienced a significant increase in benefits costs: 4.4 cents per mile higher in 2024 than in 2023. Very large truckload fleets also experienced a significant increase of 3.7 cents per mile in year-over-year benefits costs.

Among specialized fleets, average benefits costs fell in the largest fleet size group while every other fleet size group saw benefits costs increase. As with truckload fleets, specialized fleets with fewer than 26 trucks experienced a significant jump in benefits costs: 2.7 cents per mile. The fleet size group with the largest increase, however, was fleets with 251 to 1,000 trucks, for whom costs rose by 3.6 cents per mile.

Figure 6: Driver Benefits per Mile by Fleet Sector and Size



Higher benefits costs in 2024 compared to 2023 were driven primarily by fleets with fewer than 26 trucks. This shift may have several explanations. On the one hand, four straight years of aggressive compensation increases across the trucking industry may have driven even very small fleets, which historically offer significantly fewer benefits, to compete on benefits with their larger peers. On the other hand, very small fleets are often more susceptible to price increases of all kinds; benefits costs are likely no exception.

LTL driver benefits rose to $13.20 per hour ($0.328 per mile), an increase of just 1.8 percent after significant increases over the preceding two years.

Driver Benefits Breakdown

Table 15 lists the most common driver benefits and the percentage of respondents offering each. The percentage of respondents offering benefits increased in every single benefits category in 2024, partly explaining why benefits costs rose at a higher rate than most other line-items during the year. Health insurance, paid vacation, dental insurance, and 401(k) remained the most common driver benefits.

Table 15: Percentage of Carriers Offering Each Benefit Type

Benefit	All Fleets	Small Fleets (100 or Fewer Trucks)	Large Fleets (More than 100 Trucks)
Health Insurance	98%	93%	99%
Paid Vacation	94%	91%	94%
Dental Insurance	88%	77%	93%
401(k)	87%	71%	95%
Life Insurance	82%	66%	93%
Vision Insurance	80%	63%	90%
Paid Sick Leave	62%	52%	68%
Per Diem	50%	39%	56%
Employee Ownership / Profit Sharing	13%	9%	16%

Benefits availability in Table 15 is corroborated by the most recent ATA *Driver Compensation Study*: for example, that report found 97 percent of respondents offered health insurance and 95 percent offered paid ”leave.”[14]

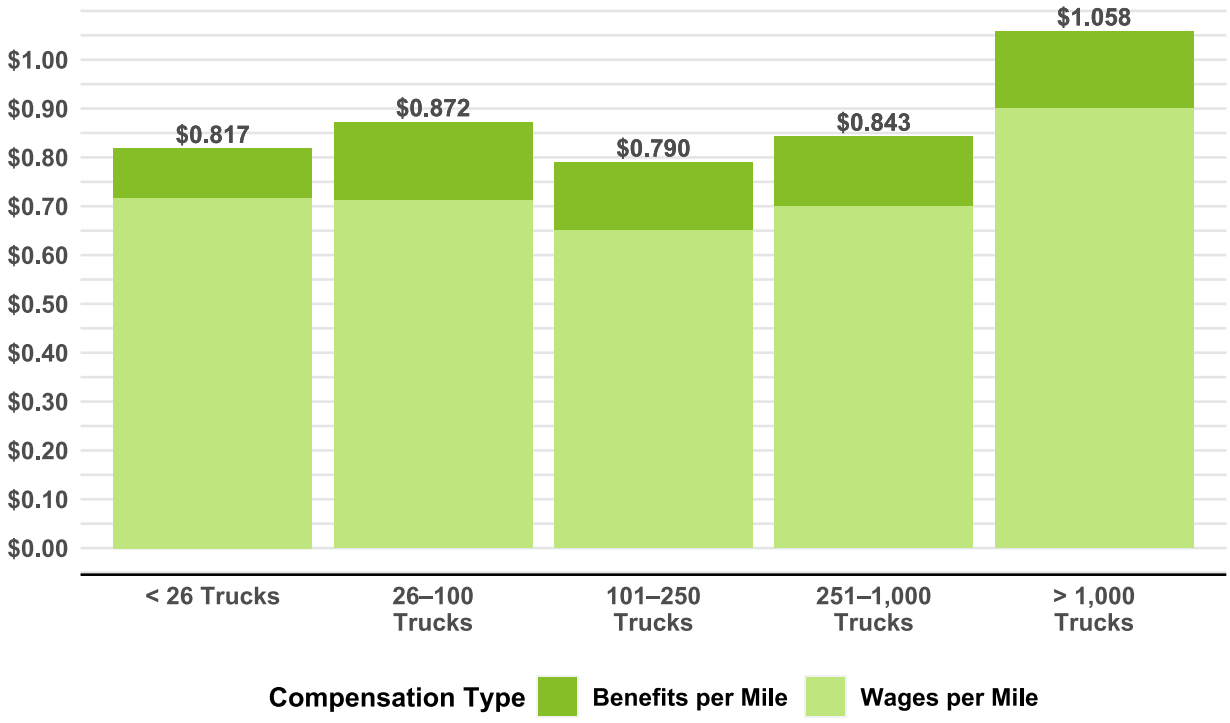
Large fleets (of more than 100 trucks) were more likely to offer every benefit listed in Table 15. Percentages between the two groups were closest for the most common benefit types overall: health insurance and paid vacation. By contrast, the greatest disparity in benefit offerings between large and small fleets was found in life insurance and vision insurance (a 27-point difference each).

Combined Wages and Benefits Analysis

In the truckload sector, the combined driver wage and benefits costs in Figure 7 generally followed the same patterns as exhibited in driver wage costs individually. Very large fleets’ combined compensation costs continued to climb relative to all other fleet size groups, whose average costs tended to become more comparable in 2024.

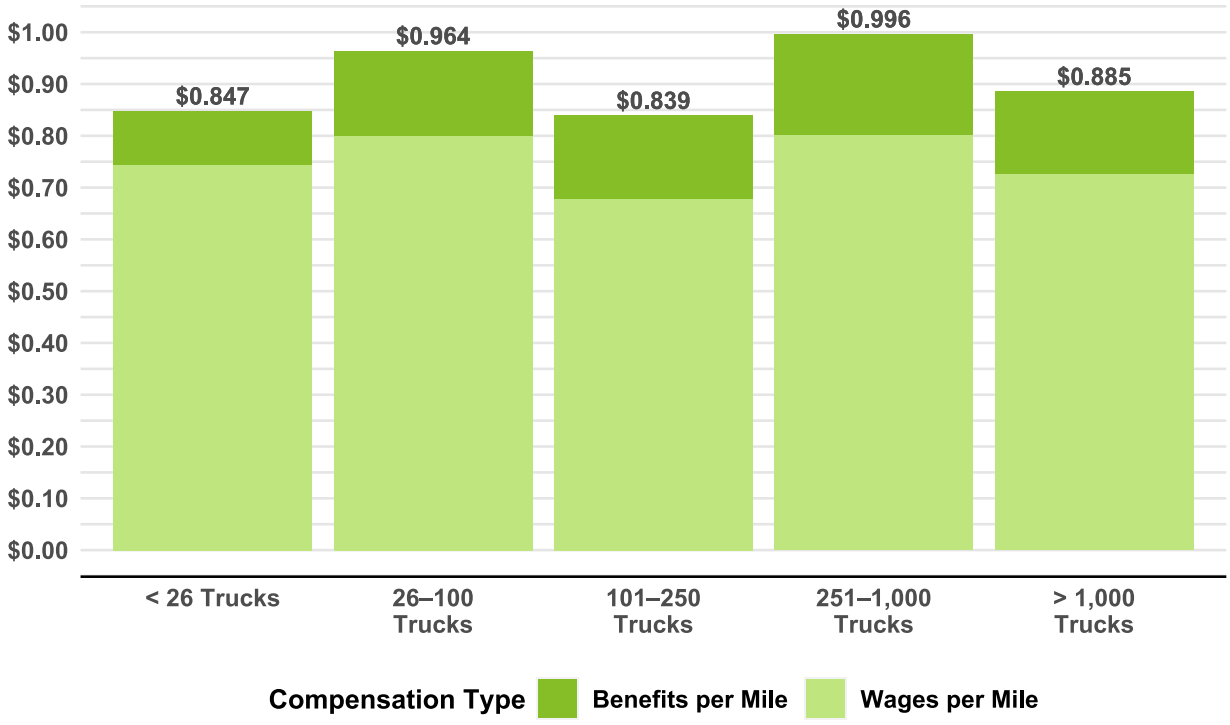
[14] Lindsay Bur and Bob Costello, *ATA 2024 Driver Compensation Study*, ATA (August 2024), https://www.trucking.org/news-insights/ata-driver-compensation-study. Data drawn from 2023 operations.

Figure 7: Truckload Carrier Driver Wages and Benefits per Mile by Fleet Size



Specialized carriers' combined driver compensation costs, shown in Figure 8, did not follow a uniform trend this year. This was partly due to the fact that smaller fleets in this sector tend to be more highly specialized compared to the largest fleets in this sector; it was also partly due to freight demand and thus driver demand being more fragmented across specialized sectors.

Figure 8: Specialized Carrier Driver Wages and Benefits per Mile by Fleet Size



LTL carriers expended $50.16 in per-hour driver compensation costs and $1.257 in per-mile driver compensation costs.

Owner-Operators and Contract Drivers

In December 2024, there were 571,049 registered single-truck, single-driver for-hire carriers, down from 578,329 a year prior.[15] Sixty-one percent of Ops Costs respondents utilized owner-operators (OOs) in some capacity in 2024.

In the truckload sector, a median of 2.0 percent of carriers' drivers were OOs. In the specialized sectors, a median of 6.1 percent of carriers' drivers were OOs. Both of these medians were between 1 and 2 percentage points lower in 2024 than in 2023, likely reflecting a lower need for capacity as the freight recession deepened.

Motor carriers' average OO contract rates typically track slightly below the average total marginal cost, as shown for the past six years in Table 16. Between 2023 and 2024, motor carriers' average OO contract rate dipped by one cent.

[15] FMCSA, "Registration Statistics" (accessed on June 4, 2025), https://ai.fmcsa.dot.gov/RegistrationStatistics/CustomReports.

Table 16: Contracted Owner-Operator Rates and Total Marginal Costs per Mile, 2019-2024

	2019	2020	2021	2022	2023	2024
OO Contract Rate	$1.36	$1.65	$1.81	$2.08	$2.10	$2.09
Truckload Marginal Cost	$1.55	$1.56	$1.74	$2.15	$2.11	$2.13
Industry Overall Marginal Cost	$1.699	$1.646	$1.855	$2.251	$2.270	$2.260

Motor carriers utilize OOs and independent contractors in a variety of capacities, whether to satisfy fluctuations in demand or address unique operational needs. As such, it should be noted that OO rate levels vary more widely than company driver pay.

Driver Bonuses

Over 74 percent of carriers offered some type of bonus in 2024; annualized averages for four key bonus types are tracked in Table 17 for the past six years. Given the economic conditions in 2024, it is somewhat surprising that starting bonuses returned to their position as the highest average dollar value. The average safety bonus declined from 2023 to 2024, although it was still 12.1 percent higher than in 2016 when the metric was first collected. As previously noted, retention of good truck drivers in a soft economy is critical; thus, the truck driver retention bonus increased by 42.1 percent from 2023 to 2024.

Table 17: Average Annual Driver Bonus by Type, 2019-2024

Bonus Type	2019	2020	2021	2022	2023	2024
Safety	$1,373	$1,597	$1,943	$1,698	$1,831	$1,680
Starting	$1,846	$1,662	$1,974	$2,373	$1,782	$2,122
Retention	$1,218	$1,391	$1,055	$1,272	$1,289	$1,832
Referral				$1,783	$1,577	$1,738

While the majority of carriers (74%) offer bonuses, there is considerable variety in the offering of bonus type and eligibility. Of the bonus types listed in Table 17, safety bonuses were the most commonly offered by carriers (58%). Other bonuses offered by carriers included: referral bonuses (47%), starting bonuses (30%), and retention bonuses (19%).

For many carriers, bonuses represent a vital and consistent component of driver compensation. Additional bonus types, common among specialized sectors – for performance, loads, rigging, or employee ownership – are not represented in Table 17.

Parking Compensation

Truck parking remains a perennial concern, ranked only behind the economy in ATRI's 2024 survey of top industry issues.[16] The prevalence of this issue has led many motor carriers to offer a separate form of compensation just for parking.

In the truckload sector, 31 percent of carriers provided truck parking compensation. The vast majority of these, 87 percent, do so by reimbursement as opposed to advance reservation. The average parking compensation in the sector was $19.60 per day.

In the specialized sectors, 30 percent of carriers provided truck parking compensation. Reimbursement is the preferred mode of parking compensation for specialized fleets as well, with a 73 percent majority. The average parking compensation was $23.47 per day.

It should be noted that many other carriers may include truck parking fees in their calculation of per diem benefits or even base pay. Parking compensation, accordingly, only represents one aspect of the trucking industry's efforts to support drivers' parking needs. Furthermore, many specialized carriers' operations do not involve overnight routes and thus do not require truck parking compensation.

Looking Ahead

The rate of driver wage growth is on track to decelerate further during 2025. After increasing by 10.8 percent in 2021 and 15.5 percent in 2022, driver wages increased by 7.6 percent in 2023 and by only 2.4 percent in 2024, with an increase of just 0.9 percent in the first two months of 2025.

Average wage growth across all U.S. occupations in 2024 was 3.7 percent according to BLS.[17] This rate of growth was well below 2023's overall average of 5.8 percent, indirectly reflecting efforts to curb inflation.[18] National unemployment has hovered between 4.0 and 4.2 percent since May 2024, higher than 2022-2023 levels though still comparatively low by historical standards.[19] The slowing rate of national wage growth and uptick in unemployment means that there will be less upward pressure on driver wages from other industries competing for labor talent.

Another obvious factor slowing growth in driver wages in 2025 is the reduced demand for drivers. The number of production and nonsupervisory employees in long-distance trucking – a surrogate for heavy-duty truck drivers in the industry – declined steadily, from 685,100 in December 2023 to 672,500 in December 2024.[20] Since that time, though, Figure 9 shows that it has remained stable.

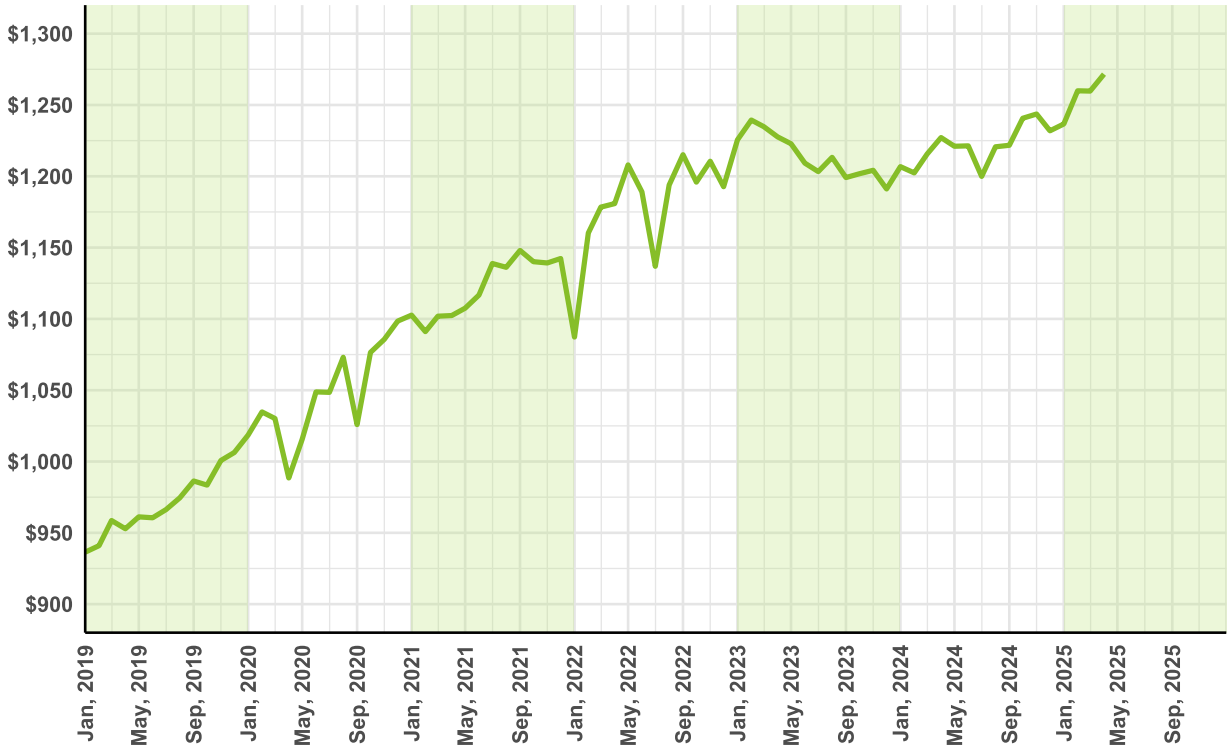
[16] ATRI, "Critical Issues in the Trucking Industry – 2024" (October 2024), https://truckingresearch.org/2024/10/critical-issue-in-the-trucking-industry-2024/.
[17] U.S. BLS, "May 2024 National Occupational Employment and Wage Statistics" (accessed on May 2025), https://data.bls.gov/oes/#/industry/000000.
[18] U.S. BLS, "May 2023 National Occupational Employment and Wage Estimates" (accessed on May 2025), https://www.bls.gov/oes/2023/may/oes_nat.htm.
[19] U.S. BLS, "The Employment Situation – April 2025" (May 2, 2025), https://www.bls.gov/news.release/pdf/empsit.pdf.
[20] U.S. BLS, "Current Employment Statistics" (accessed on May 21, 2025), https://www.bls.gov/ces/data/.

Figure 9: Long-Distance Trucking Production/Nonsupervisory Employment (Thousands)

Wages continued to rise at a consistent pace, both as employment dropped over 2024 and as it stabilized in the opening months of 2025, according to BLS data in Figure 10.[21] Though driver wage costs are thus unlikely to increase significantly in 2025 under current conditions, they are also unlikely to recede. A key uncertainty in this outlook, however, is the impact of tariffs. If truck driver demand remains steady at its present level, driver compensation costs could be exposed to any uptick in inflationary pressure resulting from tariffs.[22]

[21] U.S. BLS, "Current Employment Statistics" (accessed on May 21, 2025), https://www.bls.gov/ces/data/.
[22] Bart Hobijn and Fernanda Nechio, "The Effects of Tariffs on Inflation and Production Costs," Federal Reserve Bank of San Francisco (May 19, 2025), https://www.frbsf.org/research-and-insights/publications/economic-letter/2025/05/effects-of-tariffs-on-inflation-and-production-costs/.

Figure 10: Long-Distance Trucking Production/Nonsupervisory Average Weekly Wages



Given these current labor market conditions in the trucking industry, driver benefits costs are poised to increase at a greater rate than driver wages in 2025. The consumer price index for medical care inflation is currently on comparable pace with 2024, when driver benefits costs rose by 4.8 percent.[23] In the first two months of 2025, carriers reported that driver benefits costs were up 3.5 percent on average.

Fuel Costs

Average on-highway diesel prices trended downward throughout 2024, ending the year 37.3 cents lower than on January 1, 2024, according to the U.S. Department of Energy's EIA.[24] Figure 11 plots average prices since before the COVID-19 pandemic. The 2024 impact on trucking was an annualized fuel cost decrease of 13.0 percent to $0.481 per mile.

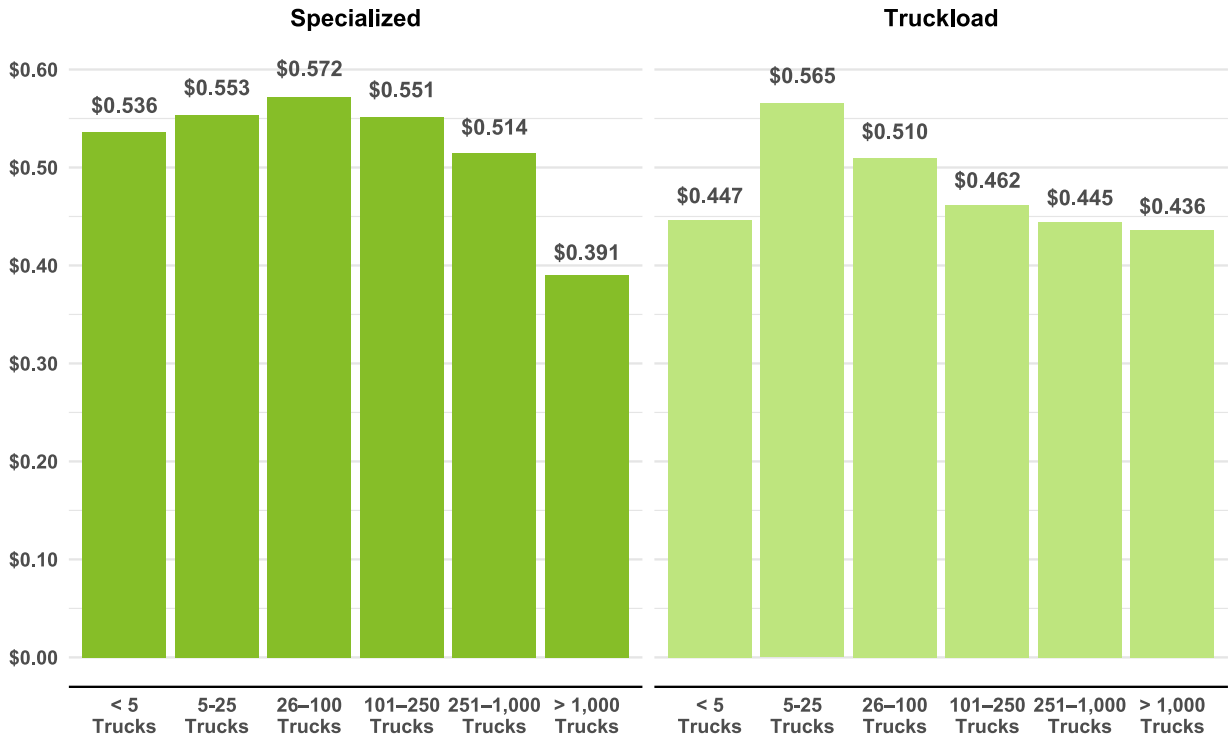
[23] U.S. BLS, "Consumer Price Index – May 2025" (June 11, 2025), https://www.bls.gov/news.release/pdf/cpi.pdf.
[24] U.S. Energy Information Association, "Weekly Retail Gas and Diesel Prices" (accessed on May 21, 2025), https://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_w.htm.

Figure 11: Monthly U.S. On-Highway Diesel Prices, 2019-2024

In the truckload sector, larger fleets paid progressively lower fuel costs (Figure 12). The relationship between size and cost in this sector was a departure from recent years, when high fuel prices and unstable fuel markets (Figure 11) had mitigated larger truckload fleets' economies of scale advantage.

In the specialized sectors, fleets with 26 to 100 trucks had the highest fuel costs, with costs decreasing progressively among both smaller and larger fleets. Specialized fleets with over 1,000 trucks had markedly lower fuel costs than any other specialized size group; as with other line-item costs, this was partly due to economies of scale and partly due to the fact that their operations tend to be more consistent and standardized than those of smaller specialized fleets.

Figure 12: Fuel Costs per Mile by Fleet Sector and Size



LTL fleets spent an average of $0.476 per mile or $19.14 per hour on fuel, slightly below the industry-wide average of $0.481.

Looking Ahead

EIA forecasts predict that highway diesel prices will continue to drift lower as 2025 progresses for an annual average price slightly below $3.50 per gallon, followed by a slight uptick in 2026.[25] If this forecast holds through 2025, average trucking industry fuel costs for 2025 could dip below $0.45 per mile.

The impact of tariffs on diesel prices is complicated by the highly globalized and highly commoditized nature of oil markets. On one hand, tariffs on oil imports can be passed along to consumers in the form of higher prices; on the other hand, tariffs can stifle demand and thus decrease prices. If such an outcome were prolonged, oil producers would likely cut production to stem the price decline.[26]

[25] U.S. Energy Information Association, "Short-Term Energy Outlook" (accessed on June 11, 2024), https://www.eia.gov/outlooks/steo/.
[26] Robert Rapier, "How Trump's Tariffs on Mexico and Canada Could Impact U.S. Gas Prices," *Forbes* (March 4, 2025), https://www.forbes.com/sites/rrapier/2025/03/04/how-trumps-tariffs-on-mexico-and-canada-could-impact-us-gas-prices/; Jillian Ambrose, "Trump tariffs will mean world uses less oil this year, IEA says," *The Guardian* (April 15, 2025), https://www.theguardian.com/business/2025/apr/15/trump-tariffs-will-mean-world-uses-less-oil-2025-iea.

It is equally unclear what impact the Israel-Iran conflict might have on diesel prices. A protracted war or attacks on Iranian oil fields could quickly and dramatically reverse price declines.[27]

Equipment Costs

Equipment costs are tracked in three categories. *Truck and trailer payment costs* include all expenses related to the acquisition of truck-tractors and trailers, whether by outright purchase, financing, or leases. *Repair and maintenance costs* include the cost of parts and labor, whether purchased or conducted internally, including roadside service but excluding tires and towing or recovery. *Tire costs*, finally, also include parts and labor.

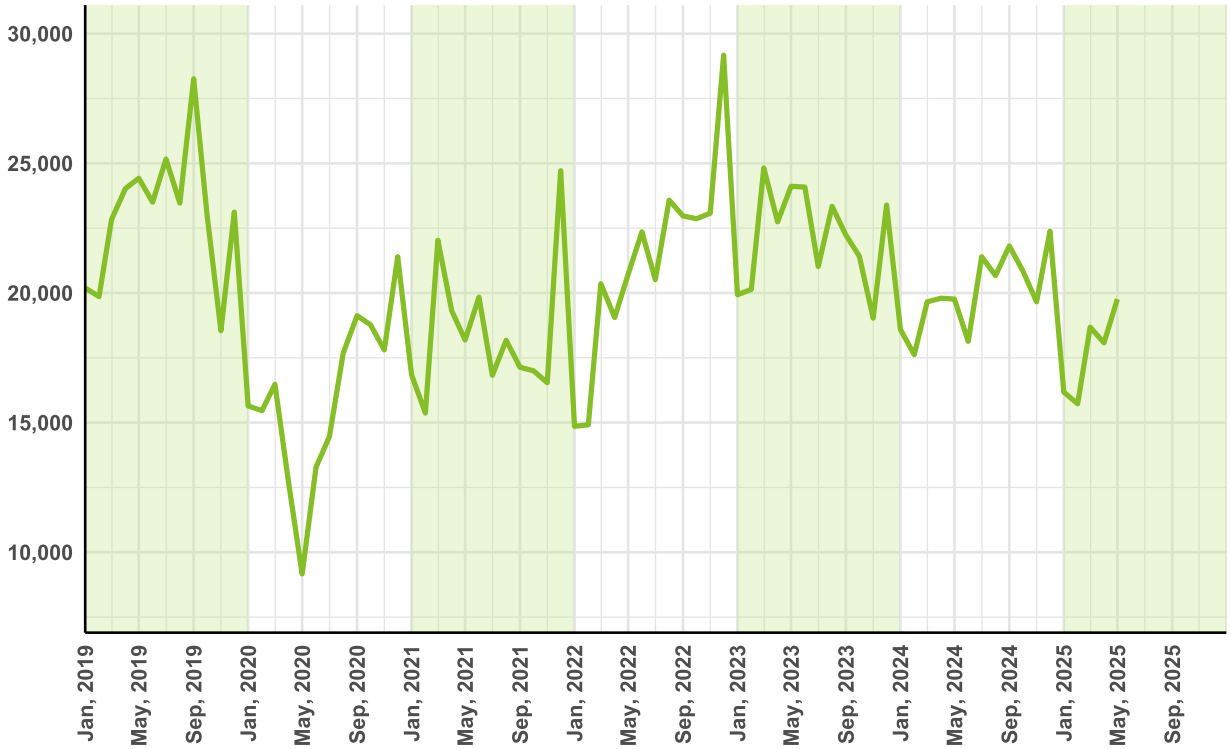
Truck and Trailer Payment Costs

Truck and trailer payment costs rose by 8.3 percent between 2023 and 2024 to $0.390 per mile for the single-highest cost increase this year. Sales data and this year's low average truck age (3.4 years) suggest that fleets, in the period from late 2022 through 2024, were able to replace the aging trucks they maintained during pandemic-related shortages from 2020 to mid-2022.

The total number of monthly Class 8 tractor sales in 2024 trended upward over the course of the year, as data from Wards Intelligence shows in Figure 13.[28] Monthly units sold in 2024 mostly remained below their corresponding 2023 marks but often by a narrow margin, and they were generally still higher than the period from 2020 through the first half of 2022. These purchasing patterns, combined with inflation, help explain why fleet costs continued to rise at such a rapid pace even amid a prolonged freight downturn.

[27] Aimee Picchi, "What does the widening military conflict in Iran mean for oil prices? Here's what the experts say," *CBS News* (June 24, 2025), https://www.cbsnews.com/news/oil-price-prices-iran-military-strike-crude-gasoline-cbs-news-explains/.
[28] Connor D. Wolf, "April Class 8 Truck Sales Slip 8.7% as Market Slump Persists," *Transport Topics* (May 13, 2025), https://www.ttnews.com/articles/class-8-truck-sales-april-2025.

Figure 13: Wards Intelligence New Class 8 Sales



The used truck market was likely impacted by stronger-than-expected new truck sales. Figure 14 shows that the average used Class 8 sleeper price, after having fallen over 2023, stabilized at an average of $59,300 in 2024, according to data from J.D. Power.[29] This price point was $2,700 (4.8%) higher than the 2019 pre-COVID average of $56,600.

[29] Chris Visser, "Commercial Vehicle Guidelines," J.D. Power Valuation Services (April 2025), https://www.jdpowervalues.com/article/april-2025-commercial-truck-guidelines.

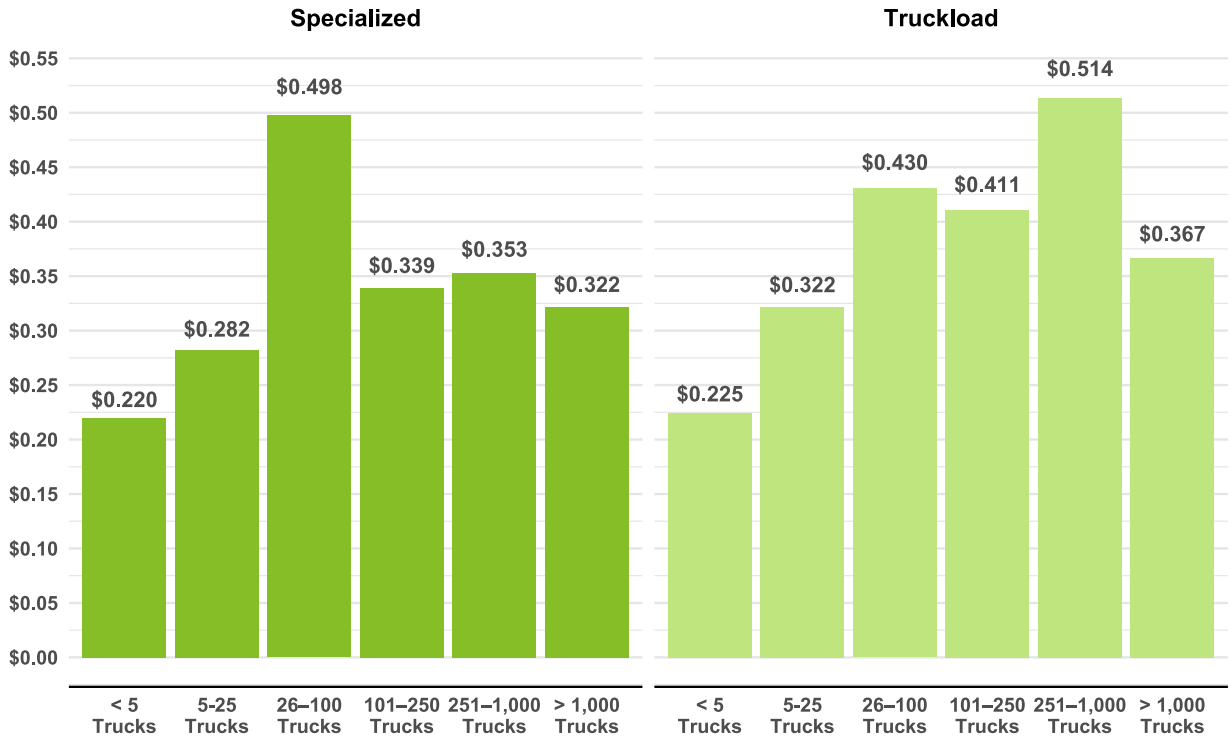
Figure 14: J.D. Power Average Used Class 8 Sleeper Price

As Figure 15 shows, these economic factors contributed to significant variation in carriers' truck and trailer payment costs. Larger fleets in the truckload sector tend to have higher per-mile truck and trailer payment costs than their smaller competitors due to larger fleets' tendency to purchase new truck-tractors (compared with other methods of acquisition, like purchasing used truck-tractors). Interestingly, truckload fleets with 251 to 1,000 trucks spent more than twice as much as fleets with fewer than 5 trucks in this line-item.

In the specialized sectors, larger fleets also tended to have higher per-mile truck and trailer costs than smaller fleets due to acquiring a greater percentage of new truck-tractors. Some specialized fleets were able to keep costs lower in this line-item by primarily utilizing day cabs rather than more-expensive sleeper cabs. Even so, differences in per-mile costs were pronounced: fleets with 251 to 1,000 trucks had costs that were 60.5 percent higher than fleets with fewer than 5 trucks in this line-item.

Fleets with 26 to 100 trucks typically have some of the highest truck and trailer payment costs regardless of sector, and 2024 was no exception in this regard. This fleet size group is consistently one of the most expensive, across all line-items, in which to operate.

Figure 15: Truck and Trailer Lease or Purchase Costs per Mile by Fleet Sector and Size



LTL carriers' truck and trailer payment costs averaged $14.28 per hour or $0.355 per mile, as compared to $15.70 per hour or $0.390 per mile for all fleets. Unlike the rest of the industry, this represented a reduction in lease / purchase costs compared to 2023, when LTL carriers spent $0.394 per mile on truck and trailer payments. Several factors contributed to this development. Many LTLs had expanded their fleets to capture open market share after the 2023 closure of Yellow, one of the sector's largest carriers, resulting in disproportionately higher truck and trailer payment costs during that year. Conversely, auctions of Yellow's truck-tractors commenced in spring 2024, allowing many LTLs to acquire used day cabs at competitive prices which thereby helped to reduce costs.[30]

Repair and Maintenance

Reduced repair and maintenance (R&M) costs were one of the few bright spots on industry balance sheets in 2024. After double-digit increases in 2021 and 2022, R&M costs fell by 2.0 percent from 2023 to 2024. Equally encouraging was the fact that these savings came even as asset use increased (Table 5), though average truck age and thus repair needs did decrease at the same time. Figure 16 shows how these costs averaged by sector and fleet size.

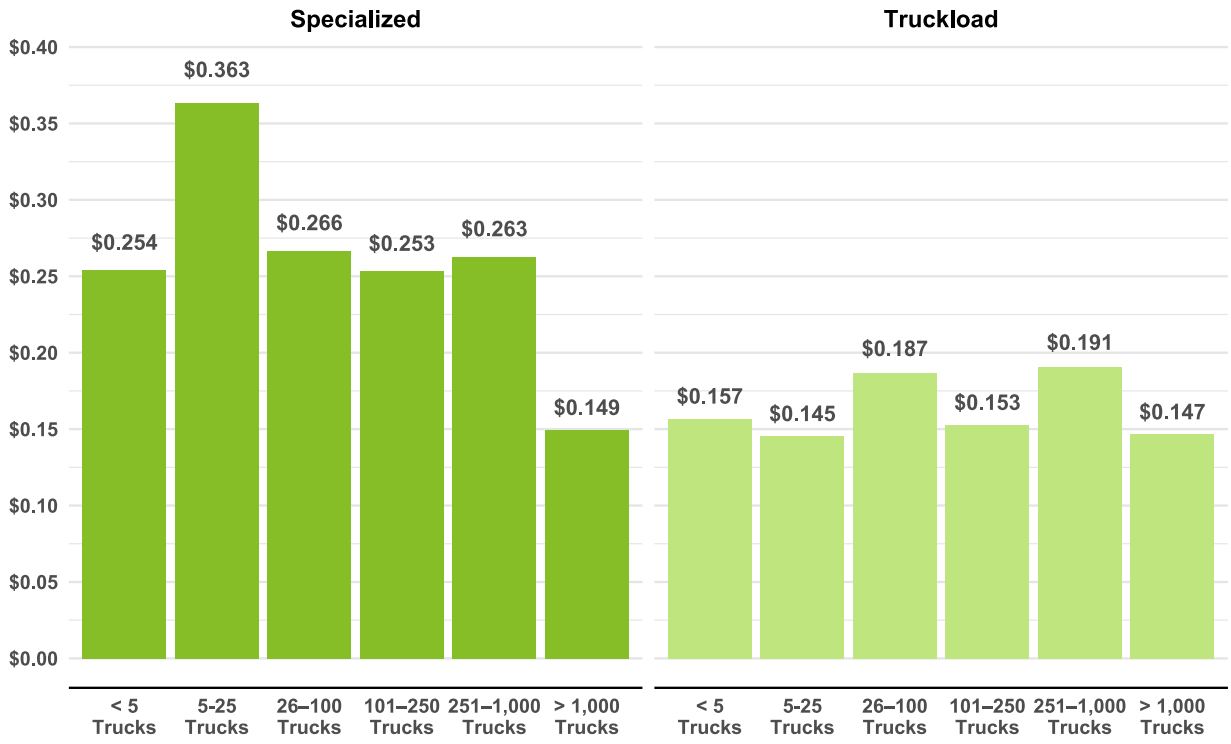
Truckload carriers' R&M expenses were relatively consistent across the various fleet sizes. Though small truckload fleets historically tend to have higher costs in this line-item, they were able to reduce costs more effectively in 2024, possibly by foregoing some standard

[30] Keiron Greenhalgh, "First Yellow Trucks and Trailers Up for Auction March 5," *Transport Topics* (February 28, 2024), https://www.ttnews.com/articles/yellow-trucks-trailers-sale.

maintenance amid the challenging freight market. By comparison, the larger fleet size groups (more than 100 trucks) spent roughly the same or more on R&M in 2024 compared to 2023.

Among specialized carriers, very large fleets as usual experienced significantly lower R&M costs than other fleet size groups. Specialized fleets with 5 to 25 trucks had the highest R&M costs of any fleet size. As this group also had some of the lowest per-mile truck and trailer payments (Figure 15), these two line-items can be interpreted as offsetting costs: fleets that save by acquiring older trucks often must perform additional R&M on them. In every other specialized fleet size group, R&M costs were lower in 2024 than in 2023.

Figure 16: Repair and Maintenance Costs per Mile by Fleet Sector and Size



LTL carriers had average R&M costs of $8.91 per hour or $0.222 per mile in 2024, a very slight decrease from the sector's 2023 average of $0.224 per mile.

The quarterly "Parts and Labor Costs Analysis" report by TMC and Decisiv, an industry-leading service management system provider, closely corroborates ATRI's industry-wide decrease in R&M costs, with an overall 1.6 percent decline between Q4 2023 and Q4 2024 despite an increase in the number of operations during the same period.[31] TMC/Decisiv further shows that a 2.0 percent decrease in parts costs were the primary driver of lower R&M expenses in 2024 compared to 2023, indicating continued improvement during 2024 in parts availability and price stabilization. TMC/Decisiv's R&M labor costs also decreased slightly (-0.9% year-over-year), which the report's authors hypothesize may stem from lower turnover among diesel technicians.

[31] ATA Technology Maintenance Council and Decisiv, "VMRS System Service Data Quarterly Report" (Q4 2024), https://tmc.trucking.org/blog/parts-and-labor-costs-fall-fourth-quarter-2024.

Cost decreases were not universal across all shop activities, however. TMC and Decisiv reported the largest combined parts and labor R&M cost increases in aerodynamic devices (6.3%), automatic transmissions (5.8%), general accessories (5.3%), and power take-off (5.1%). The largest cost decreases were observed in manual transmissions (-8.9%), rear drive axles (-8.1%), driveshafts (-6.1%), and fuel systems (-5.2%).[32]

Tires

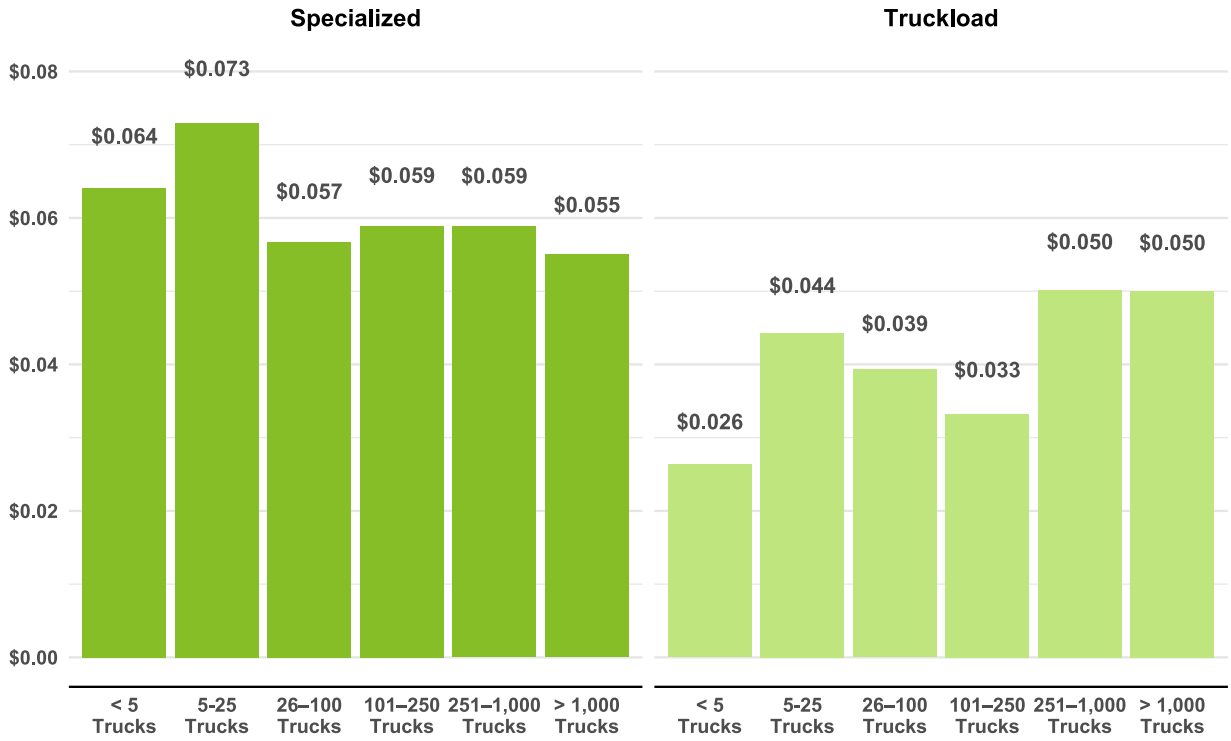
Within the ATRI data, tire costs rose by 0.1 cent per mile for the second year in a row in 2024, an increase of 2.2 percent to $0.047 per mile. This year-over-year change was below inflation (2.9%) during the same period, though somewhat surprising given the considerable decrease in oil prices. Figure 17 contains per-mile breakdowns for tire costs by sector.

In the truckload sector, larger fleets tend to spend more on tires per mile than smaller fleets, as was broadly the trend again in 2024.

Specialized carriers' average tire costs were generally consistent across fleet sizes, aside from the smallest (and generally more niche) fleet sizes. Most specialized fleets (aside from those with fewer than 5 trucks) experienced a slight reduction in tire costs in 2024 compared with 2023, unlike truckload fleets.

[32] Ibid.

Figure 17: Tire Costs per Mile by Fleet Sector and Size



LTL carriers' tire costs were $2.07 per hour or $0.051 per mile. Unlike in previous years, this was slightly higher (0.4 cents per mile) than the overall trucking industry average.

Looking Ahead

New Class 8 truck sales in the first four months of 2025 lagged behind 2024 levels (Figure 13).[33] In addition to soft freight demand, the anticipated rollback of Environmental Protection Agency (EPA) regulations on heavy-duty truck emissions has undercut pre-buy sales in 2025.[34] With a low average truck age and no sign of significant increases in freight volumes or rates, demand for new trucks is likely to remain low. Manufacturers' intent to raise prices in response to steel and aluminum tariffs as well as uncertainty over the application of tariffs on Mexican imports will likely further stymie new purchases.[35]

Used Class 8 sleepers, by contrast, have increased in average price each month from November 2024 to March 2025 – the first sustained rise since early 2022 – suggesting that at least some truck demand has transferred to the used market under these adverse conditions

[33] Connor D. Wolf, "April Class 8 Truck Sales Slip 8.7% as Market Slump Persists," *Transport Topics* (May 13, 2025), https://www.ttnews.com/articles/class-8-truck-sales-april-2025.
[34] Pamella De Leon, "EPA's regulatory rollback would weaken 2027 pre-buy," *Commercial Carrier Journal* (March 28, 2025), https://www.ccjdigital.com/business/article/15741451/epas-regulatory-rollback-could-weaken-pre27-prebuy.
[35] Keiron Greenhalgh, "Truck Prices to Rise as Early as May Due to Tariffs," *Transport Topics* (April 10, 2025), https://www.ttnews.com/articles/tariffs-raise-truck-prices.

(Figure 14).[36] This increase in used truck demand can also be partly explained as a corrective price recovery, given that the average used Class 8 sleeper price was only 4.8 percent higher in 2024 than it was prior to the pandemic five years earlier. If this trend continues, it will likely contribute to higher average costs for smaller fleet sizes given their tendency to rely on used equipment.

Though a cooling equipment market in 2025 could stabilize industry-average truck and trailer payment costs over the year, higher prices associated with tariffs could change these pricing dynamics. In the first two months of 2025, carriers reported that truck and trailer payment costs were up 3.9 percent on average.

R&M cost trends in 2025 are also susceptible to the uncertain tariff landscape. Lower parts costs in 2024 were the primary cause of lower overall R&M costs; if tariffs and/or tariff uncertainties remain elevated long enough in 2025, they may offset the improvements of 2024.[37]

Given that the trucking industry labor market is expected to continue cooling (as discussed previously in the driver compensation "Looking Ahead" section), technician labor costs may remain flat or decrease further on average. In the first two months of 2025, carriers reported that R&M costs were up 2.8 percent on average.

BLS' heavy-duty tire producer price index continued to list slightly downward through the first four months of 2025.[38] With tariffs going into effect, however, leading commercial tire manufacturers have announced price increases of up to 10 percent.[39] All natural rubber used in tires is imported – even if manufacture occurs in the U.S. – with Southeast Asian countries serving as the largest global suppliers (Thailand alone produces 35% of the globe's natural rubber, followed by Indonesia, Vietnam, India, and China).[40] In the first two months of 2025, carriers reported that tire costs were down 4.7 percent on average.

Truck Insurance

After a 12.5 percent spike in truck insurance premiums in 2023, insurance rose an additional 3.0 percent in 2024 to $0.102 per mile, a new record high. This rate of increase was below the annual average for the commercial auto segment as a whole (which includes other types of vehicles employed commercially), suggesting that trucking may have outperformed other

[36] J.D. Power, "April 2025 Commercial Vehicle Market Update" (April 23, 2025), https://discover.jdpa.com/hubfs/Files/Industry%20Campaigns/Valuation%20Services/April_Coomercial_Truck_GL2025.pdf.
[37] ATA Technology Maintenance Council and Decisiv, "VMRS System Service Data Quarterly Report" (Q4 2024), https://tmc.trucking.org/blog/parts-and-labor-costs-fall-fourth-quarter-2024.
[38] U.S. BLS, "Producer Price Index by Industry: Tire Manufacturing, Except Retreading: Truck and Bus (Including Off-the-Highway) Pneumatic Tires [PCU32621132621103]" (accessed on May 22, 2025), https://fred.stlouisfed.org/series/PCU32621132621103.
[39] *Modern Tire Dealer*, "A Recap of Recent Price Hikes" (May 2, 2025), https://www.moderntiredealer.com/suppliers/article/55287602/a-recap-of-recent-price-hikes.
[40] Keiron Greenhalgh, "Replacement Truck Tire Prices to Rise in May Due to Tariffs," *Transport Topics* (April 29, 2025), https://www.ttnews.com/articles/truck-tire-prices-tariffs.

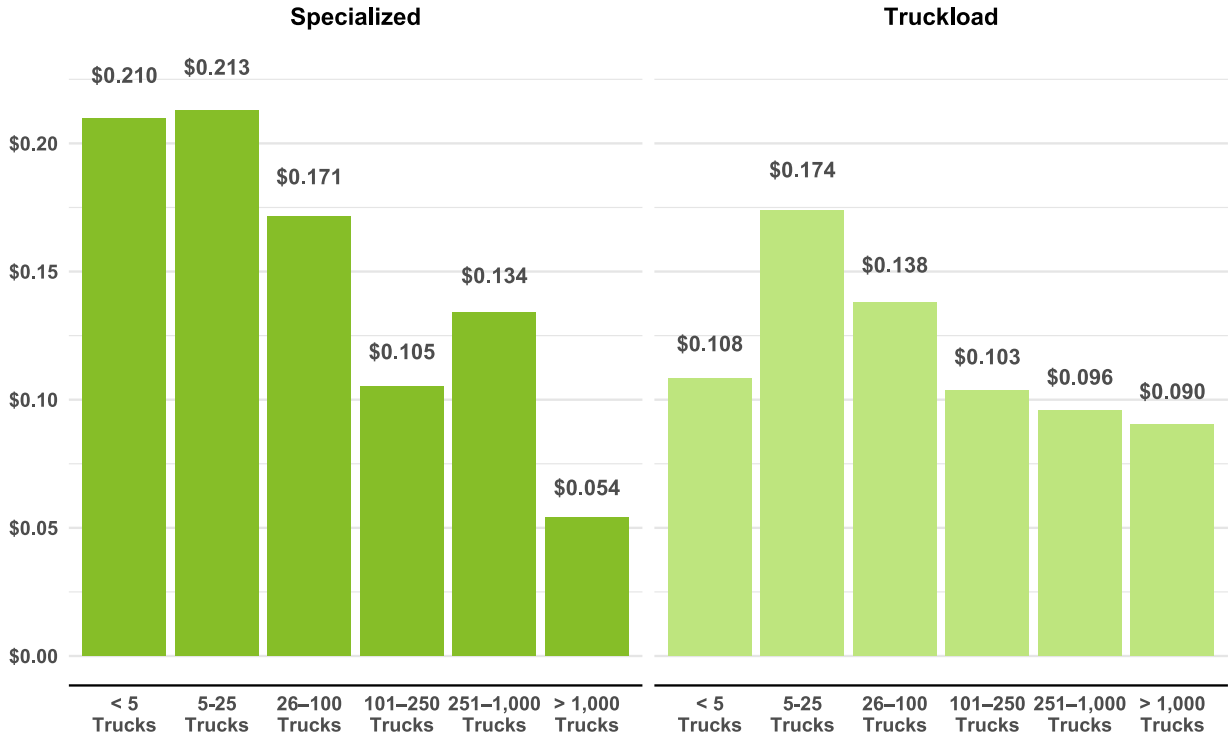
industries during a year in which the number of large truck crashes declined for the third year in a row.[41]

Truck insurance costs in this report include auto liability and cargo coverage but not physical damage or workers' compensation coverage. Per-mile insurance costs in 2024 increased across every fleet size of every sector except specialized fleets with 101 to 250 trucks and truckload fleets with 5 to 25 trucks.

Truckload carrier insurance costs tend to decrease as fleet size increases, as shown in Figure 18, partly due to economies of scale and partly due to large fleets' greater use of self-insurance or high-deductible policies.

Specialized carrier insurance costs also tend to decrease as fleet size increases. Small specialized fleets (25 trucks or fewer) in particular felt the brunt of insurance cost increases in 2024, with costs more than twice as high as the industry-wide average ($0.210 and $0.213 vs $0.102).

Figure 18: Commercial Auto Insurance Premium Costs per Mile by Fleet Sector and Size



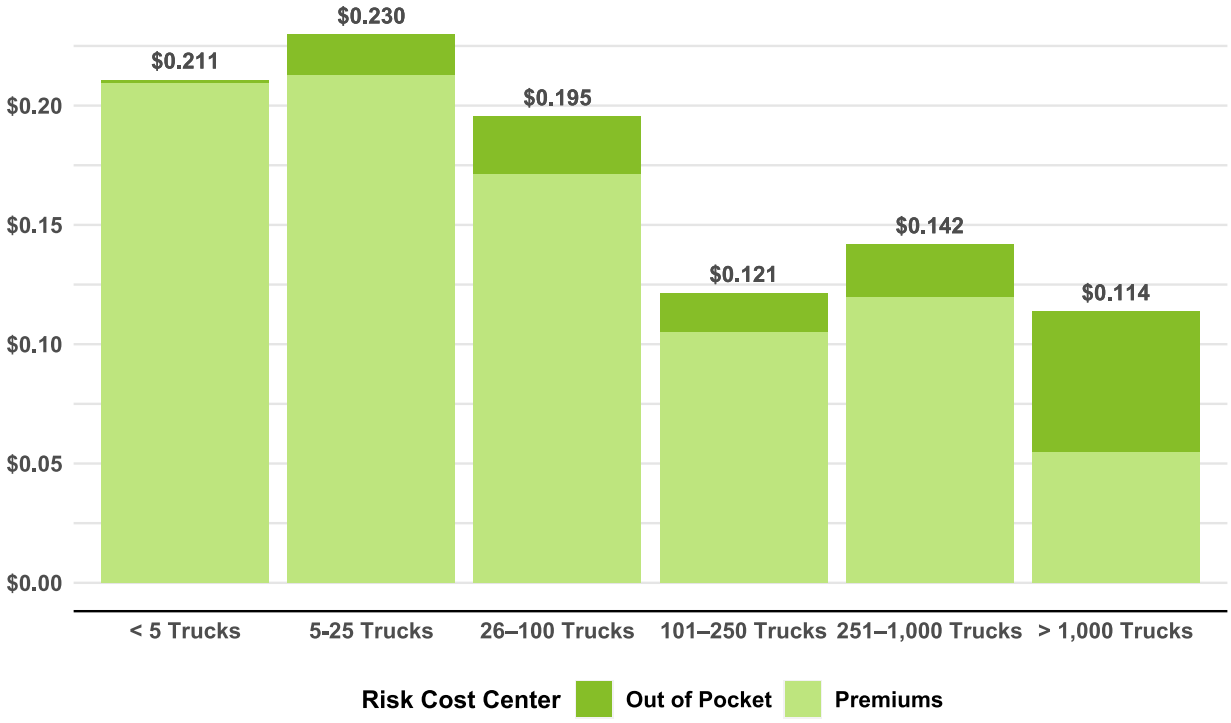
In 2024, LTL carriers' insurance premiums amounted to $2.12 on a per-hour basis or $0.053 on a per-mile basis. As with large fleets in other sectors, these lower average marginal insurance costs are due to a greater reliance on self-insurance among LTLs.

[41] The Council of Insurance Agents & Brokers, "Commercial Property/Casualty Market Index Q1/2025" (May 15, 2025), https://www.ciab.com/resources/news-releasemost-lines-of-business-softening-litigation-influencing-others-the-councils-q1-2025-p-c-market-survey-shows/; FMCSA, "Crash Statistics: Summary Report" (accessed on June 6, 2025), https://ai.fmcsa.dot.gov/CrashStatistics.

Crash costs are partly covered by insurance and partly by motor carriers in the form of deductibles and expenses not covered by their policy. These out-of-pocket crash costs are a significant component of the total cost of risk in the trucking industry, especially among larger fleets that self-insure. Furthermore, the relationship between premium costs and out-of-pocket costs can be an important metric for right-sizing insurance coverage stacks.

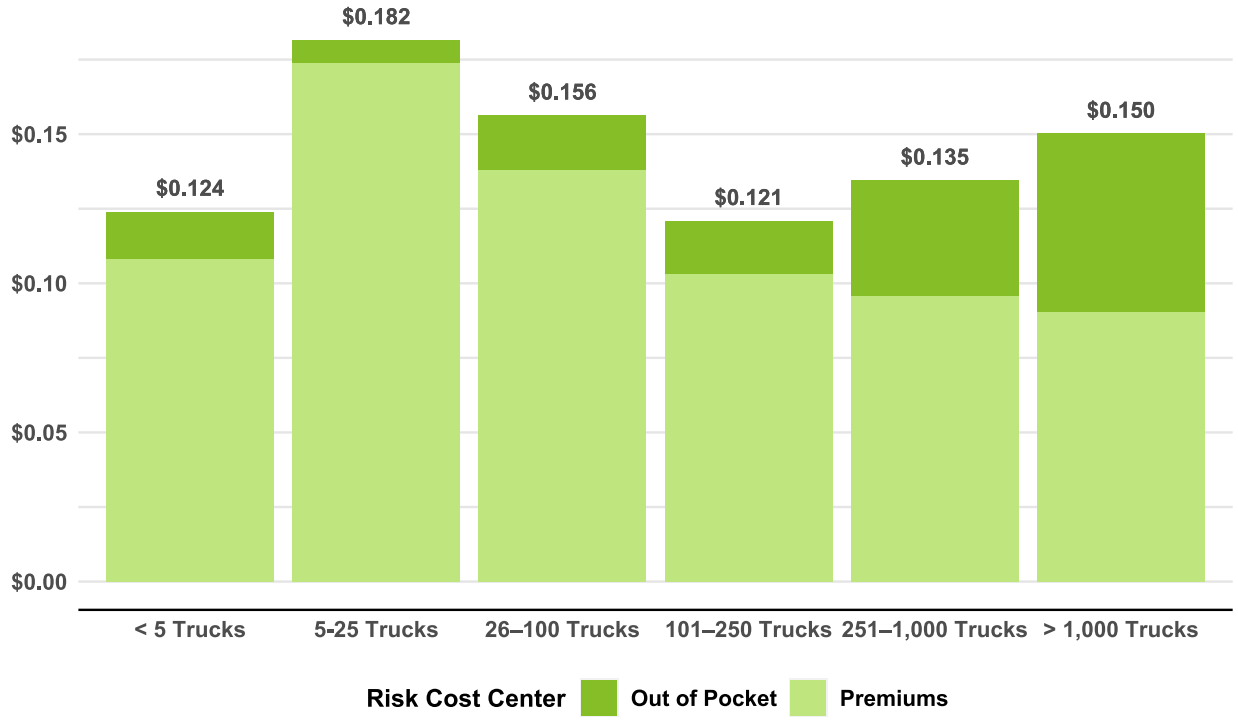
Figure 19 shows the combined premium and out-of-pocket crash costs per mile for all carriers outside the truckload sector. Carriers report insurance premium costs on a per-mile basis and a total annual out-of-pocket cost, which is divided by their reported total mileage. Generally, these combined costs of risk trend lower as fleet size increases. Ideally, large fleets offset their higher out-of-pocket costs by their savings on insurance premium costs.

Figure 19: Insurance Premium and Out-of-Pocket Costs per Mile by Fleet Size: All Sectors but Truckload



However, in 2024 large truckload fleets' advantage of lower insurance premium costs was negated, on average, by higher out-of-pocket costs in 2024 (Figure 20). For example, though truckload fleets with over 1,000 trucks spent 1.3 cents less per mile on insurance premiums than fleets with 101 to 250 trucks, they spent 2.9 cents *more* per mile on combined insurance and out-of-pocket costs than fleets with 101 to 250 trucks.

Figure 20: Truckload Insurance Premium and Out-of-Pocket Costs per Mile by Fleet Size



Looking Ahead

The total number of large truck crashes declined for the third straight year in 2024 to 151,399 – an improvement of over 9.1 percent since 2021 according to the Federal Motor Carrier Safety Administration (FMCSA) – while large truck fatal crashes and fatalities declined for the second straight year.[42] Large truck crashes are currently on pace to decline again in 2025.[43] Safety is only one factor in the cost of insurance, however; increasingly expensive equipment, growing litigation against carriers, the departure of insurance capacity from the commercial auto segment, and broader market performance all contribute to rising rates.

The commercial auto insurance segment saw a 10.4 percent rate increase for Q1 2025 renewals according to the Council of Insurance Agents & Brokers – the segment's highest jump since Q2 2023 (a year in which ATRI tracked a 12.5 percent annual increase in premiums).[44] These premium increases accompanied a return to pre-pandemic levels of unprofitability: the commercial auto segment had a worsening combined ratio of 108.5 in 2024 according to AM Best.[45]

[42] FMCSA, "Crash Statistics: Summary Report" (accessed on June 6, 2025), https://ai.fmcsa.dot.gov/CrashStatistics.
[43] Ibid.
[44] The Council of Insurance Agents & Brokers, "Commercial Property/Casualty Market Index Q1/2025" (May 15, 2025), https://www.ciab.com/resources/news-releasemost-lines-of-business-softening-litigation-influencing-others-the-councils-q1-2025-p-c-market-survey-shows/.
[45] Chad Hemenway, "AM Best: US P/C Industry Improves Despite 2024 Underwriting Loss," *Insurance Journal* (February 21, 2025), https://www.insurancejournal.com/news/national/2025/02/21/812758.htm.

Based on these factors, carrier insurance costs are likely to continue to increase in 2025 at a greater rate than in 2024. In the first two months of 2025, carriers reported that insurance premium costs were up 5.8 percent on average. Even so, litigation reform continues to make inroads across the country. State legislation passed in 2024 included a repeal of seatbelt non-admissibility in Indiana, a non-economic damages cap in West Virginia, preventing the joinder of motor carriers and insurers as co-defendants in Georgia and Louisiana, and establishing standards of care for optional safety equipment in Arizona, Indiana, and Louisiana.[46]

Other Marginal Costs

Tolls

Toll costs rose to 3.8 cents per mile in 2024, an increase of 0.4 cents or 11.8 percent over 2023. This was the largest year-over-year toll cost change on a percentage basis despite being a comparatively small monetary difference.

This increase was driven entirely by higher toll costs in the truckload sector, which rose from an average of 2.8 cents per mile in 2023 to 3.8 cents per mile in 2024. Specialized carrier toll costs remained stable at a 2.6-cent per-mile average, while average LTL toll costs decreased from 5.0 cents per mile in 2023 to 4.3 cents per mile.

Toll costs are highly regional. In the Northeast they reached a new high of 7.2 cents per mile (Table 13). By contrast, tolls in the West – where toll facilities and costs are typically the lowest – were just 1.6 cents per mile.

In the first two months of 2025, carriers reported that toll costs were up 4.3 percent on average.

Permits and Special Licenses

There was no change in industry-average permit costs between 2023 and 2024 at 0.9 cents per mile.

Permit costs are primarily incurred in specialized sectors: among these fleets, they amounted to 1.8 cents per mile or double the industry-wide average. By contrast, LTL carriers spent an average of just 0.6 cents per mile, and truckload carriers spent 0.8 cents per mile.

In the first two months of 2025, carriers reported that permit costs were again unchanged on average.

Efficiency

Though many of the economic factors influencing truck operating costs are beyond carriers' control, operational costs directly reflect carriers' operational efficiencies. This section provides industry averages for a wide variety of equipment, workforce, and logistics KPMs both for benchmarking and for illuminating industry trends.

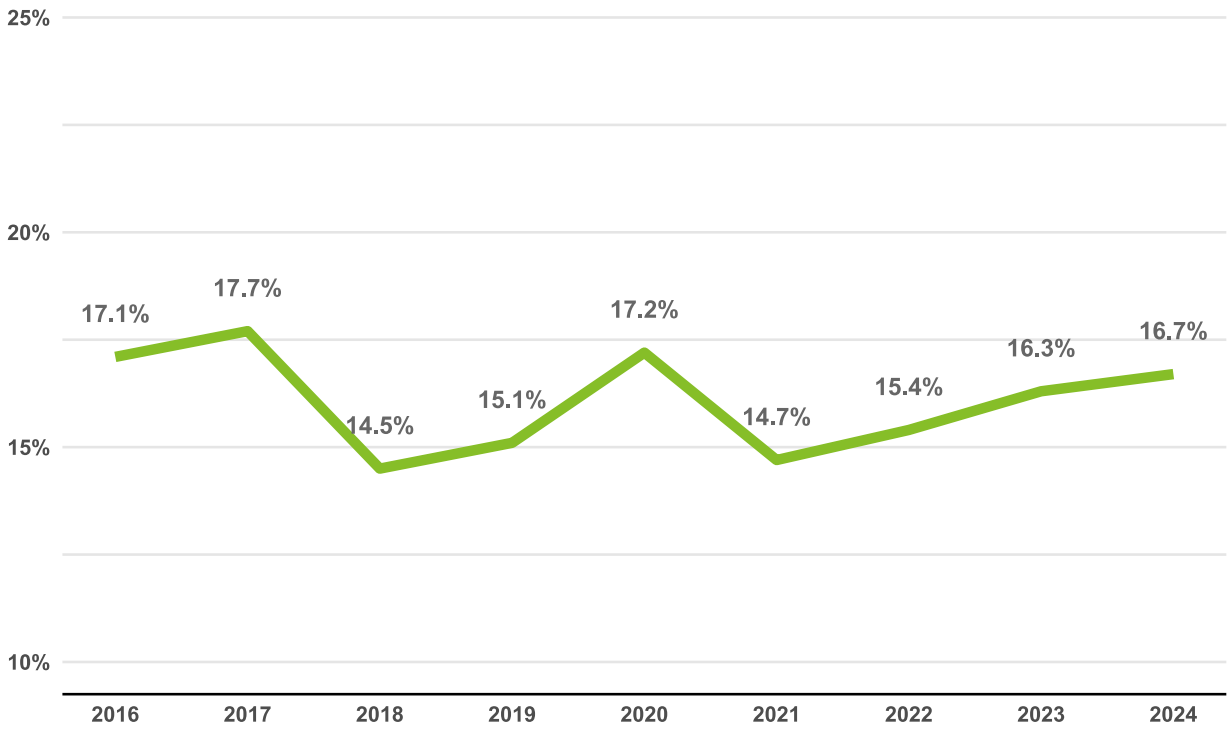
[46] ATA, "Lawsuit Abuse Resource Hub" (accessed on June 13, 2025), https://www.trucking.org/lawsuitabuse.

Deadhead Mileage

Deadhead or empty mileage – any unloaded travel that does not generate revenue – is one of the most flagrant contributors to higher costs and lower asset efficiency. Deadhead mileage and its incurred costs are included in all of the cost metrics in this report (which carriers report as total cost divided by total mileage). The most direct negative impact of deadhead mileage can be seen in revenue per mile as measured per mile or per truck, as shown below.

Non-tank deadhead mileage rose again in 2024 (Figure 21), from 16.3 to 16.7 percent of total mileage. Despite additional costs, increased deadhead mileage is sometimes necessary in soft markets in order to procure loads with adequate rates.

Figure 21: Percentage of Non-Tank Mileage Run Empty, 2016-2024



Given its unique business model, it is not surprising that tank carriers spent an average of 43.8 percent of their mileage running deadhead.

In the truckload sector, fleets with 5 to 25 trucks had the lowest deadhead miles, at 9.0 percent of all mileage. TL fleets with 251 to 1,000 trucks had the most, at 17.7 percent of all mileage.

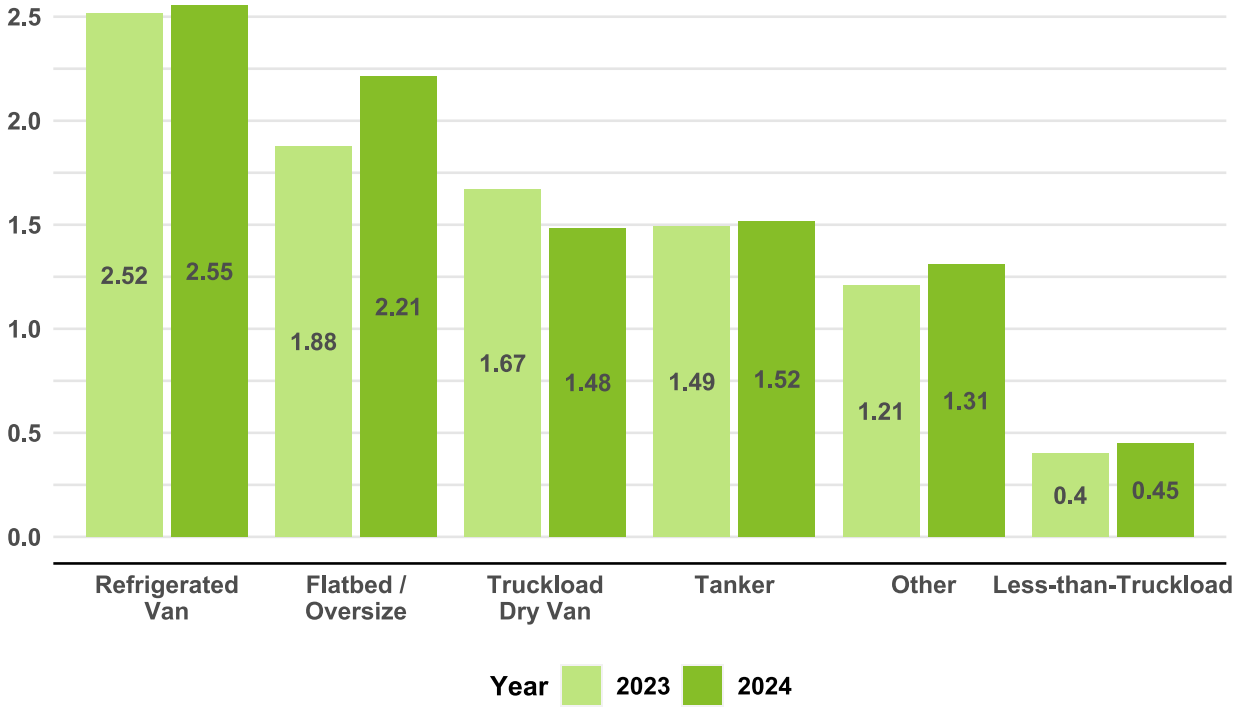
Dwell Time

Dwell time measures the total duration between a driver's scheduled arrival at a customer facility (or the time of arrival if late) and when he or she leaves the facility. It thus includes any time spent loading or unloading as well as entirely unproductive time waiting for operations to commence, otherwise known as driver detention. The industry typically defines detention as any dwell time exceeding two hours.

ATRI's *Costs and Consequences of Truck Driver Detention* study found that the trucking industry lost 135.9 million hours and $3.6 billion in expenses during driver detention in 2023 alone.[47] In the truckload sector, to illustrate the impact of detention on operations, carriers lost $5,104 in unproductive costs during detention per driver, while drivers lost approximately 173 hours and $889 in income.[48]

Overall average dwell time decreased slightly in 2024, by 2 minutes, to 1 hour and 38 minutes per stop – just 22 minutes below the industry-standard threshold for excessive driver detention. The source of this improvement, however, was limited exclusively to the truckload sector, as shown in Figure 22.

Figure 22: Dwell Time per Stop by Sector (Hours)



While average dwell times in the truckload sector improved by roughly 12 minutes per stop, they increased in every other sector. The greatest year-over-year dwell time change was for flatbed carriers (a 20-minute increase in dwell time); the refrigerated sector, as usual, had the longest average dwell times at 2 hours and 33 minutes on average.

[47] Alex Leslie and Dan Murray, *Causes and Consequences of Truck Driver Detention*, ATRI (September 2024), https://truckingresearch.org/2024/09/costs-and-consequences-of-truck-driver-detention-a-comprehensive-analysis/.
[48] Ibid.

Fuel Economy and Speed Governors

The overall average fleet fuel economy in 2024 was 6.852 miles per gallon (MPG). In the past ten years, operational fuel economy has improved by 0.532 miles per gallon (6.32 MPG in 2015).

This raw fleet average represents a wide variety of operational models, fleet sizes, and truck procurement strategies. To determine the average fuel economy of the national Class 8 tractor-trailer population, carrier-wide averages were weighted by their number of trucks and by sector representation. The result was an average per-truck fuel economy of 7.41 MPG, up from 7.06 in 2021.

Speed governors were used by 90 percent of respondents in 2024, down from a recent high of 93 percent in 2022 – when spiking fuel costs made governors' fuel-saving benefits highly attractive. Generally, large fleets are consistent in their use of speed governors from year to year, but small fleets have lower adoption rates. While 98 percent of fleets with more than 100 trucks used governors in 2024, 79 percent of fleets with 100 or fewer trucks used governors.

Asset, Driver, and Employee Utilization

The average number of trailers per truck-tractor rose in 2024 (Table 18). This change was primarily due to a reduction in the number of truck-tractors, as discussed in the next section, rather than an increase in fleets' trailers. (Otherwise, the number of trailers per truck tends to decrease in soft markets as fleets allow trailers to age out without replacement.)

Table 18: Trailer-to-Truck Ratio

Year	Average Number of Trailers per Truck
2024	2.96
2023	2.63
2022	2.71
2021	2.82
2020	2.90
2019	2.55
2018	2.70

Another marker of reduced capacity in the trucking industry was the significant decrease in the number of drivers per truck: from 0.97 in 2023 to 0.93 in 2024 (Table 19). In an individual fleet, ratios below 1.0 in a healthy economy may reflect underproductive asset use or an inability to hire drivers; in a soft freight economy, however, ratios below 1.0 likely indicate that trucks are being parked rather than operated due to a lack of financially viable freight.

Table 19: Driver-to-Truck Ratio

Year	Average Number of Drivers per Truck
2024	0.93
2023	0.97
2022	0.98
2021	0.96
2020	1.03
2019	1.02
2018	0.95

At the same time, the ratio of drivers to non-driver employees increased significantly in most sectors (Table 20) – a barometer of industry efforts to reduce costs by reducing payrolls. This metric excludes diesel technicians as well as OOs and carriers that predominately use OOs, so it targets core administrative, sales, and support personnel.

Table 20: Ratio of Truck Drivers to Non-Driver Employees

Sector	2023	2024
Flatbed	4.0	4.6
LTL	1.2	1.1
Refrigerated	3.3	3.1
Tanker	3.6	4.3
Truckload	2.8	4.4

Industry Capacity

Many freight experts remain concerned that excess capacity – too many trucking companies and too many trucks for the current level of demand – is preventing a recovery in freight rates.[49] While the number of monthly operating authority revocations has eclipsed the number of newly authorized motor carriers since Q4 2022, data on entrants/exits is skewed towards OOs and very small fleets.[50] Last year's Ops Costs report showed that most of the industry, outside of OOs and very small fleets, were still adding capacity (at a rate of 4.1%) in 2023.

In 2024, however, returning Ops Costs participants decreased fleet sizes by an average of 2.2 percent. In addition, an increased proportion of the remaining trucks were unseated (Table 19).

[49] Jeremy Wolfe, "Trucking's capacity outlook for 2025," *Fleet Owner* (February 4, 2025), https://www.fleetowner.com/operations/article/55265018/truckings-capacity-outlook-for-2025.
[50] David Taube, "Carrier exits outweigh gains in Q4," *Trucking Dive* (January 8, 2025), https://www.truckingdive.com/news/carrier-exits-outweigh-gains-in-q4/736338/.

Total annual per-truck mileage did increase slightly (0.4%) among returning participants during this time, but this change can be attributed almost entirely to the corresponding increase in deadhead mileage, noted above.

As such, it is safe to conclude that capacity left the freight market in meaningful volumes during 2024 and will likely continue to do so in 2025.

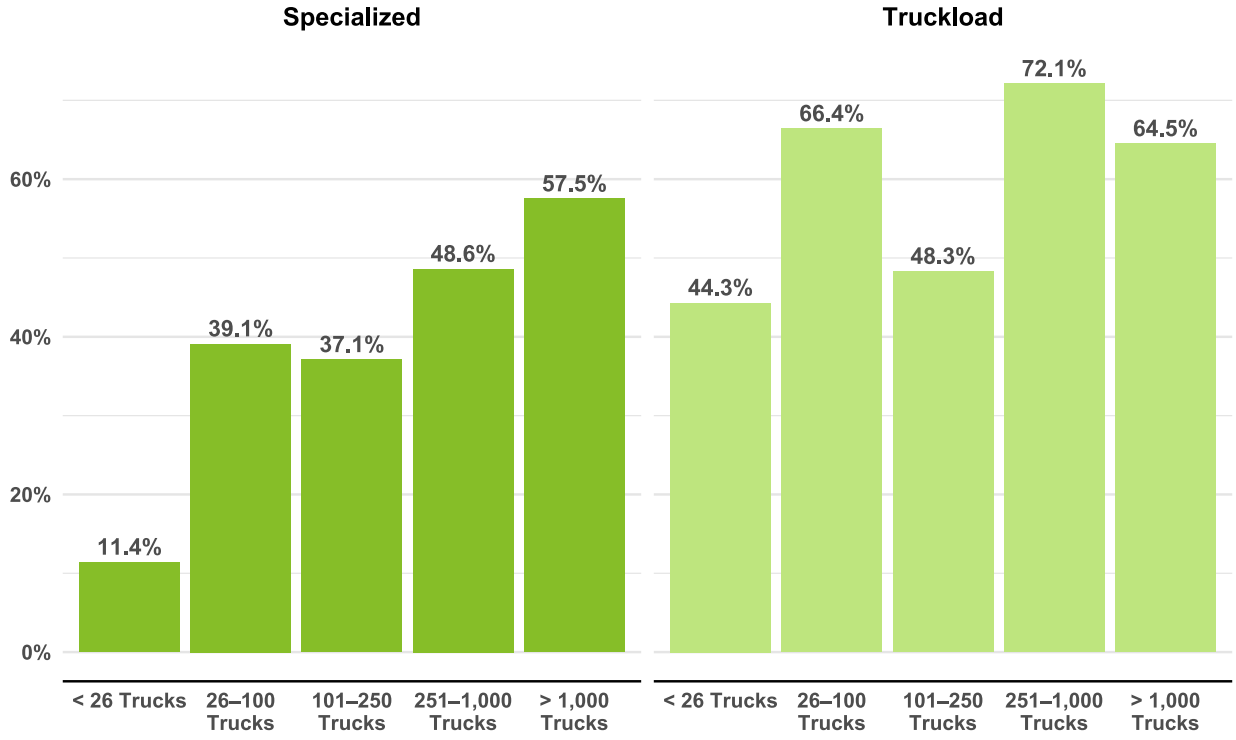
Truck Driver Turnover

The average driver turnover rate, weighted by sector representation, was 48.0 percent in 2024, a slight increase from 2023's average of 46.6 percent. Turnover varies considerably, however, across industry sectors and sizes.

Turnover in the truckload sector is typically highest among the largest carriers, but in 2024 fleets with more than 1,000 trucks reduced turnover while fleets with fewer than 100 trucks experienced heightened turnover compared with 2023 (Figure 23).

Specialized carrier driver turnover in 2024 increased with increasing fleet size. As is typical, turnover was lower in the specialized sectors than in the equivalent truckload sector fleet size groups.

Figure 23: Average Annualized Driver Turnover Rate by Fleet Sector and Size



The LTL sector had an average driver turnover rate of 20.8 percent, which has been highly consistent in recent years (20.3% in 2023 and 20.6% in 2022).

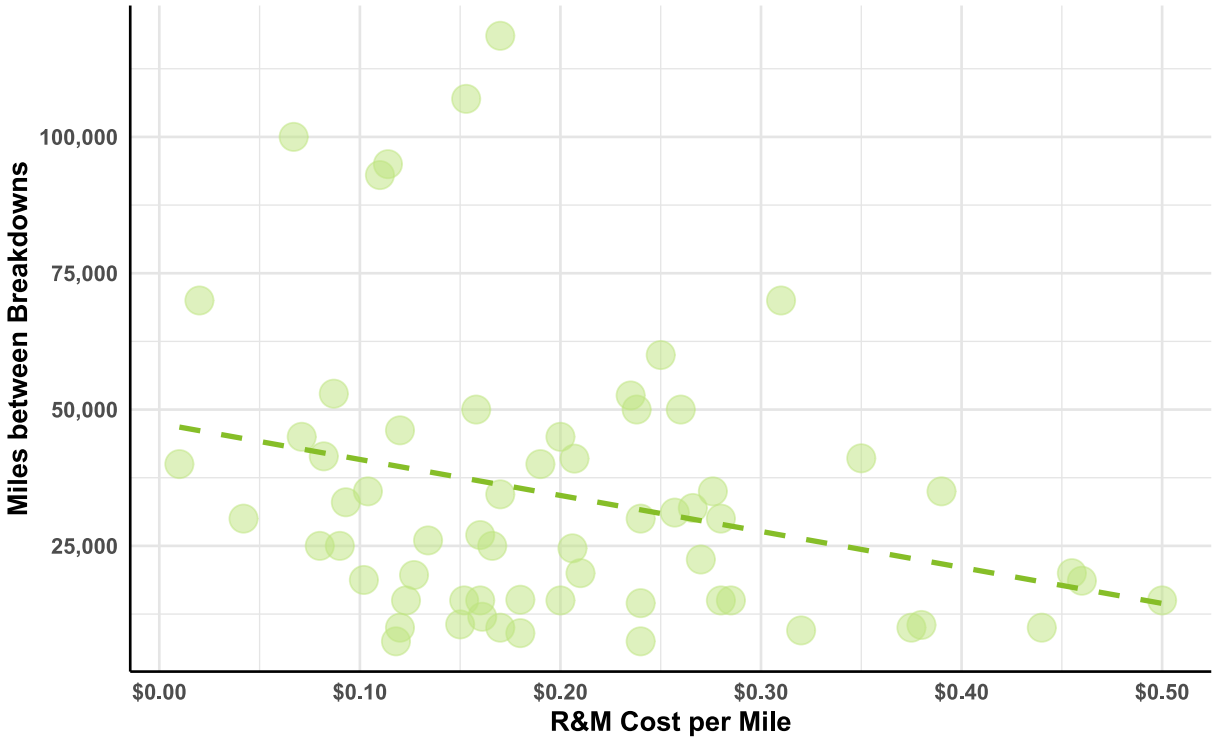
Turnover is directly related to drivers' working conditions. As last year's Ops Costs report showed, both increasing driver compensation and decreasing annual mileage each have statistically significant relationships with decreased driver turnover ($p < 0.05$).[51] Furthermore, ATRI's *Causes and Consequences of Truck Driver Detention* showed that decreasing average per-stop detention time has a statistically significant relationship with decreasing turnover ($p < 0.05$).[52]

Mileage between Breakdowns and In-House Servicing

The overall industry average for miles traveled between breakdowns or unscheduled repairs was 38,249 in 2024, a slight improvement over 2023's average of 37,700. Mileage between breakdowns is a vital KPM for the effectiveness of a fleet's maintenance program. Furthermore, a larger number of miles between breakdowns indicates that a fleet misses fewer revenue opportunities due to unavailable trucks undergoing repair.

In 2024, carriers that ran more miles between breakdowns also had lower R&M costs per mile with a high level of statistical significance ($p < 0.05$).[53] Figure 24 shows a dotted regression line that indicates the average relationship between R&M expenses and mileage between breakdowns.

Figure 24: Relation between R&M Costs and Mileage between Breakdowns



[51] Alex Leslie and Dan Murray, *An Analysis of the Operational Costs of Trucking: 2024 Update*, ATRI (June 2024), https://truckingresearch.org/2024/06/an-analysis-of-the-operational-costs-of-trucking-2024-update/.
[52] Alex Leslie and Dan Murray, *Causes and Consequences of Truck Driver Detention*, ATRI (September 2024), https://truckingresearch.org/2024/09/costs-and-consequences-of-truck-driver-detention-a-comprehensive-analysis/.
[53] This finding applies to fleets that conduct 75 percent or less of R&M in-house.

While numerous other factors impact mileage between breakdowns – including sector, truck procurement or age, preventative maintenance practices, and operating weight – this finding underscores the effectiveness of preventative maintenance, which generally improves mileage between breakdowns and reduces R&M costs.

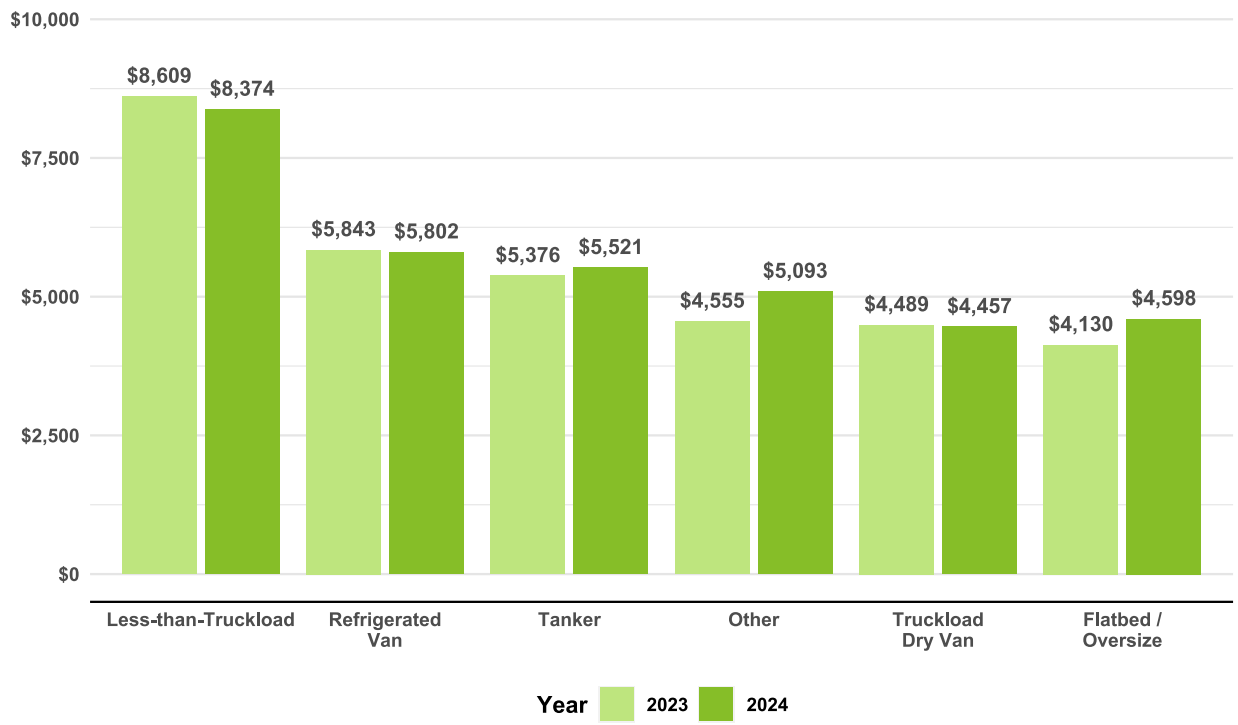
The percentage of a fleet's maintenance conducted at in-house shops is another KPM associated with lower R&M costs ($p < 0.05$). That said, even fleets with robust in-house shop programs still rely on independent shop partners when complex, inconveniently located, or high volumes of repairs are needed. In 2024, the overall industry average for in-house maintenance was 59.8 percent. Even among fleets with more than 1,000 trucks, in-house maintenance represented just 62.4 percent of maintenance needs on average. Fleets with 5 to 25 trucks, by contrast, conducted an average of 48.2 percent of maintenance in-house.

Revenue and Operating Margins

This section contains several key revenue and operating margin benchmarks. These figures are based on pre-tax, trucking-related operations only. They do not include any other sources of revenue, such as brokerage or warehousing. They do, however, include fuel surcharge revenues in order to ensure direct comparisons between marginal costs and revenues and to fully account for fuel burned during deadhead mileage.

Figure 25 compares the average weekly revenue per truck (assuming 52 weeks of operation in the year). There was no uniform trend in this metric in 2024, unlike in the period from 2022 to 2023 when revenues declined across nearly every sector.

Figure 25: Average Weekly Revenue per Truck by Sector, 2023-2024



Truckload carriers and refrigerated carriers each experienced slight reductions (0.7%) in average weekly per-truck revenues year-over-year, as did LTLs (2.7%).

All other sectors had improved weekly revenues per truck in 2024. The largest year-over-year changes were in other specialized carriers (11.8%) and the flatbed sector (11.3%), where rates gained some ground during the year.

One caveat for Figure 25 offers a silver lining. Declining fuel costs in 2024 amounted to lower fuel surcharge revenues. When fuel surcharge revenue is removed, weekly revenues per truck increased, or increased at a greater rate, in all sectors.

Even so, financial results in the trucking industry were poor. The 2024 freight market combined doggedly high costs with persistently depressed rates. The results, as Table 21 and Figure 26 summarize, were adverse operating margins in nearly every part of the industry. No sector other than LTLs had average margins of 2 percent or higher, and the truckload sector had a negative average operating margin of -2.3 percent.

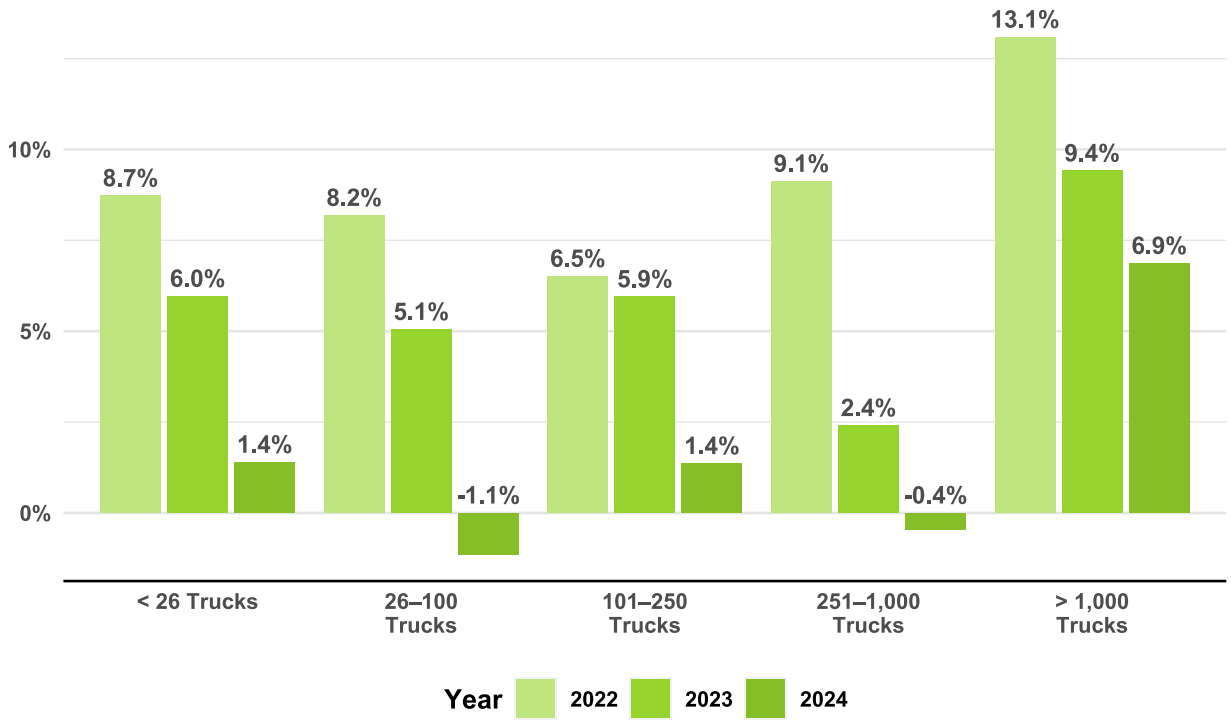
Table 21: Operating Margins by Sector, 2022-2024

Sector	2022 Operating Margin	2023 Operating Margin	2024 Operating Margin
LTL	12%	12%	11.6%
Tanker	11%	6%	1.9%
Refrigerated Van	6%	2%	0.1%
Truckload	8%	3%	- 2.3%
Flatbed / Oversize	7%	5%	0.4%

Operating margins in 2022 reflect the freight market reversal: rates began the year strong but fell steadily over the second half of the year. In 2023, while costs rose and rates fell, many fleets were still hauling freight on comparatively favorable contracts signed in 2022. By 2024, operating margin averages represent the full brunt of the freight recession.

Fleet size also impacts carriers' economic performance, even though some of these differences diminish during recessionary markets. All fleet sizes saw significantly reduced operating margins in 2024 even when compared with 2023 (Figure 26). Profits remained highest for fleets of 1,000+ trucks, though it should be noted that this group's average is partially skewed by its greater share of LTLs, whose business model has many factors that enhance revenue and support a more resilient bottom line. Among fleets with 26 to 100 and 251 to 1,000 trucks, average operating margins constituted a loss.

Figure 26: Average Operating Margin by Fleet Size, 2022-2024



The bar graph in Figure 27 synthesizes revenue (listed above each bar), operating profit or loss, and operational costs (listed as percentages of revenue) on a per-mile average. Costs are broken into two categories. The darker-shaded category represents marginal costs: namely, the core line-item costs analyzed in Table 8 above and throughout this report. The "other costs" category includes all additional expenses not explicitly tracked in this report – non-driver payrolls, technology subscriptions, etc. – and is calculated by subtracting core marginal costs and operating profit from revenue.

Figure 27: Average Respondent Revenue, Costs, and Profit per Mile

Several industry-wide trends stand out when comparing Figure 27 to other metrics in this report. The first is that while revenue improved on a per-truck basis for some sectors, it worsened or remained flat on a per-mile basis for every sector except refrigerated because trucks traveled more miles and with more deadhead mileage in order to bring in revenue.

A second industry-wide trend was that the percentage of per-mile revenue expended on “other costs” (outside the core marginal operating cost line-items) rose across every sector except LTL in 2024 compared to 2023. Despite efforts to reduce expenses in this category by, for example, reducing non-driving personnel (Table 20), other costs remain a sticking point for many carriers’ balance books.

CONCLUSIONS

In 2024 the average marginal costs of trucking were $2.260 per mile. Though this was 0.4 percent lower than the 2023 total, operating costs with fuel excluded actually rose by 3.6 percent (from $1.717 to $1.779 per mile).

Truck and trailer payment costs have undergone a sea change since the pandemic, increasing by 52.3 percent since 2019 and by 8.3 percent between 2023 and 2024 alone. No other line-item has been subject to such a radical cost upheaval. Even driver wages, with the second-highest percentage increase during the same period, rose at the comparatively milder rate of 44 percent during the same 5-year period.

There were some welcome points of cost relief. Fuel and R&M expenses fell in 2024. In addition, tires, permits, and driver wages – after years of unprecedented growth – increased only at rates below inflation. Yet these positive trends were overshadowed by lower per-mile revenues in most sectors.

Other operational KPMs show the strain of the prolonged freight downturn. Deadhead mileage rose another half percent in 2024 to 16.7 percent. Carriers thinned back-office costs for savings, with truckload fleets going from 2.8 drivers per non-driver employee in 2023 to 4.4 in 2024. Significantly more trucks were left parked to avoid running at a loss – as measured by a 7-year-low 0.93 ratio of drivers per truck – even as carriers shrunk fleet sizes by 2.2 percent on average. This decrease in capacity may at least help improve rates going forward.

Despite these efforts to reduce expenses, financial results in the trucking industry suffered in 2024. Average operating margins dropped below 2 percent in all sectors other than LTL, as well as in all fleet size categories below 1,000 trucks – with truckload carriers averaging an operating loss of -2.3 percent.

Economic conditions in the trucking industry continue to appear uncertain at best for the foreseeable future. GDP slipped 0.2 percent in Q1 2025 due primarily to the large volume of imports ahead of expected tariffs, and it is forecast to be counterbalanced by a disproportionately high Q2 GDP.[54] The pertinent disappointment for trucking, however, is that the swell of Q1 import freight did not buoy freight rates; aside from slight improvements in the flatbed sector, rates continued to stagnate in the first quarter of 2025.[55]

Industrial manufacturing production rose over Q1 2025 but gave back some of these gains in April (up 1.2% year-over-year); retail sales are uncertain after following a similar pattern in the first four months of the year amid lower consumer confidence.[56] Housing starts (-1.7%) and

[54] U.S. Bureau of Economic Analysis, “Gross Domestic Product (Second Estimate)” (May 29, 2025), https://www.bea.gov/news/2025/gross-domestic-product-second-estimate-corporate-profits-preliminary-estimate-1st-quarter; Federal Reserve Bank of Atlanta, “GDPNow” (June 9, 2025), https://www.atlantafed.org/cqer/research/gdpnow.
[55] DAT Freight & Analytics, “DAT Trendlines: National Van Rates” (accessed on June 13, 2025), https://www.dat.com/trendlines/van/national-rates.
[56] U.S. Federal Reserve, “Industrial Production and Capacity Utilization” (January 17, 2025), https://www.federalreserve.gov/releases/g17/20250117/ (historical and corrected data accessed on https://fred.stlouisfed.org/series/IPMAN); U.S. Census Bureau, “Advance Monthly Sales for Retail and Food Services: Retail Trade” (January 16, 2025), https://www2.census.gov/retail/releases/historical/marts/adv2501.pdf (historical and

completions (-12.3%) were down year-over-year in April 2025.[57] Freight shipments and spend were down year-over-year in Q1 according to U.S. Bank, and BMO showed poor credit conditions in trucking during Q2.[58] The full impact of tariffs and trade agreements, along with geopolitical disruptions in Europe and the Middle East, cast uncertainty not only over freight volumes and rates but over industry costs and profitability.

The opportunities for cost management outlined in this report's benchmarking and trend analyses are more important than ever, as carriers continue to weather the freight recession over the coming year. Each motor carrier participant in ATRI's *Operational Costs of Trucking* receives a customized report directly plotting their costs and KPM alongside an anonymized peer group of the same sector and size. All for-hire motor carriers interested in participating are encouraged to contact ATRI.

corrected data accessed on https://fred.stlouisfed.org/series/RSXFS#); Nazmul Ahasan, "US Consumer Sentiment Jumps as Inflation Expectations Improve," *Bloomberg* (June 13, 2025), https://www.bloomberg.com/news/articles/2025-06-13/us-consumer-sentiment-jumps-as-inflation-expectations-improve.

[57] U.S. Census Bureau, "Monthly New Residential Construction, April 2025" (May 16, 2025), https://www.census.gov/construction/nrc/pdf/newresconst.pdf.

[58] U.S. Bank, "U.S. Bank Freight Payment Index" (Q1 2025), https://www.usbank.com/corporate-and-commercial-banking/industry-expertise/transportation/freight-payment-insights.html; Keiron Greenhalgh, "Fleet Margins Set to Shrink Again in 2025, CSCMP Finds," *Transport Topics* (June 4, 2025), https://www.ttnews.com/articles/fleet-margins-cscmp-2025; John Kingston, "BMO's Q2 earnings show no improvement in credit conditions for trucking," *FreightWaves* (May 28, 2025), https://www.freightwaves.com/news/bmos-q2-earnings-show-no-improvement-in-credit-conditions-for-trucking.

APPENDIX: Operational Costs Data Collection Form

OPERATIONAL COSTS OF TRUCKING DATA COLLECTION

The American Transportation Research Institute (ATRI) is conducting its annual **for-hire** motor carrier data collection for its *Operational Costs of Trucking* report, the industry's leading public benchmarking tool. ATRI is seeking cost data **for 2024** associated with operating a truck. Please note that the questions below are focused on **TRACTOR-TRAILER** combos only (not straight trucks).

The data collection form can be completed online here, **OR** by completing this form and returning it via email to aleslie@trucking.org or via fax to 770-432-0638. Carriers with multiple operating fleets may submit data separately for each fleet. **All responses will be kept strictly confidential.**

All participants submitting a completed data collection form will receive a confidential, customized report directly comparing your operational costs to the operational cost trends of anonymized peer carriers of the same sector and size as well as an advance copy of the full report.

Again, all collected data will be kept completely **confidential**. Personal, organizational, and/or financial information will never be released for public use under any circumstance. The final published report will only be presented in an aggregated, non-identifying format. As needed, ATRI will sign a confidentiality agreement.

For any of your costs that were equal to zero in 2024, please explicitly enter "0" in the submission box. If you have any questions, please contact Alex Leslie at aleslie@trucking.org or 651-641-6162 ext. 2.

CONTACT INFORMATION

1) Please enter your contact information below. Occasionally ATRI will follow up with participants to clarify responses. Your information will be kept strictly confidential**. All participants will receive an advance copy of the full report as well as a confidential, customized report directly comparing your operational costs to those of your anonymized peer carriers.**

Company	Contact Name
Email	Position/Title
City, State	

COSTS DATA

2) **What was your fleet's total mileage driven in 2024?**

_____

3) **Please list your 2024 average TRACTOR-TRAILER cost per mile for the following key cost centers, calculated using total mileage.** *(i.e. Tires: .04. If the line-item does not apply to your operation, please enter 0. If based in Canada, please report as US Dollars.)*

Expense Type	2024 Cost per Mile USD
Repair & Maintenance • Include all R&M costs, including R&M labor and roadside repairs, for all trucks and trailers; do not include tire-related expenses.	$
Tires • Include all purchase, maintenance, re-treading, and replacement costs.	$
Fuel Costs • Include all fuel. Do not include fuel surcharge revenue.	$
Truck Insurance Premiums • Include all liability, cargo, and excess liability policy premiums related to insuring the truck. Do not include workers compensation costs/insurance, physical damage, jury awards, or out-of-court settlements.	$
Truck and Trailer Lease or Purchase Costs • Include all payment costs, and interest and fees associated with the payments. Do not include depreciation tax benefits.	$
Tolls • If you paid tolls in 2024, what were your costs per mile (total annual toll costs/annual mileage)? If you had no toll costs in 2024, please enter 0.	$
Permit Costs • Include permits for oversize/overweight, HazMat, etc. Do not include truck registration or CDL costs.	$
Total	**$**

4) **What were your total out-of-pocket crash costs not covered by insurance in 2024 pertaining to liability and cargo?** *(Include deductibles and any other costs associated with a crash, but do not include workers compensation, physical damage, jury awards, or out-of-court settlements.)*

_____

5) Please list the average pay and benefits rate per mile ($/mile) OR per hour ($/hour) for each tractor-trailer solo driver type in 2024. *(Do not include bonuses in this question. If there are multiple pay and benefit rates for the same type of driver, please use the average pay and benefits rates. If you use a different compensation method, please estimate an average hourly or per-mile pay. LTL carriers should report both linehaul and P&D driver averages* ***separately****.)*

	Company Driver / Company Truck	Owner-Operator
Pay per Mile[1]		
Benefits per Mile[2]		
Pay per Hour[1]		
Benefits per Hour[2]		

[1] Pay – Include only base pay. Do not include benefits, incentives, and bonuses.

[2] Benefits – Include employer contributions to medical insurance, per diem and other financial benefits to the driver that are a standard part of employment. Do not include incentives and bonuses.

Please check the benefits you provide to drivers that were included in previous question:

❑ Health Insurance ❑ Paid Vacation ❑ 401k
❑ Dental Insurance ❑ Paid Sick Leave ❑ Life insurance
❑ Vision Insurance ❑ Per Diem ❑ Employee Ownership / Profit Sharing
❑ Other – please specify: _____

6) Do you provide any additional financial incentives and/or bonus pay for tractor-trailer solo drivers that are not part of their regular wages?

❑ Yes ❑ No ❑ Don't Know

If yes, what was the average annual incentive and/or bonus paid per driver who received the incentive/bonus in 2024? (e.g. Safety Bonus: $2,000. *Please report as an annual average paid per driver. Please only include drivers who received bonuses in 2024.)*

Type of Bonus	Company Driver / Company Truck	Owner-Operator
Safety Bonus		
New / Starting Driver Bonus		
Referral Bonus		
Retention Bonus		
Fuel Economy Bonus		
Other (please specify):		
Other (please specify):		

DEMOGRAPHIC AND WORKFORCE DATA

7) **What was your company's annual trucking-related revenue in 2024?** *(Include fuel surcharge revenue; exclude brokerage/logistics revenue)*
_____

8) **What was your company's before-tax operating or profit margin in 2024?** (*Include as a percentage: profit margin can be calculated as (Revenue – Expenses) / Revenue.*)
_____**%**

9) **What is your primary for-hire business operation type?** *(Check only one)*

- ❑ Truckload Dry Van
- ❑ Less-Than-Truckload
- ❑ Refrigerated Van
- ❑ Tanker
- ❑ Flatbed
- ❑ Specialized – Oversize/Overweight
- ❑ Express / Parcel Service
- ❑ Intermodal Containers
- ❑ Automotive Transportation
- ❑ Household Goods Mover
- ❑ Bulk
- ❑ Other (please specify):_____

10) **What are the three primary types of commodities that your company hauls?** *(While your company may haul multiple commodities, select only the top 3 most frequently hauled commodities.)*

- ❑ Agricultural Products
- ❑ Automotive Parts
- ❑ Construction/Building Materials
- ❑ Electronics
- ❑ Finished Vehicles
- ❑ Food Products – Refrigerated
- ❑ Food Products – Non-Refrigerated
- ❑ Forest Products / Wood
- ❑ Garbage or Sanitation
- ❑ General Freight
- ❑ Hazardous Materials
- ❑ Heavy Machinery/Equipment
- ❑ Household Goods
- ❑ Industrial Gases
- ❑ Industrial Gases
- ❑ Intermodal Containers
- ❑ Livestock
- ❑ Manufactured Goods
- ❑ Mine Ores
- ❑ Modular/Mobile Homes
- ❑ Non-Hazardous Chemicals
- ❑ Paper Products
- ❑ Petroleum Products
- ❑ Refrigerated Not-Food
- ❑ Retail Store/General Merchandise
- ❑ Steel / Metal Sheets, Coils, Etc.
- ❑ U.S. Mail/Parcel Service
- ❑ Other (please specify):_____

11) **Are any of the trucks in your fleet speed-limited or governed?**
❑ Yes ❑ No ❑ Don't Know

12) If you answered yes to previous question, please provide the maximum speed setting and the percent of your fleet governed at that speed.

	Maximum Speed (MPH)	Percent of Trucks
Speed Setting 1		
Speed Setting 2		
Speed Setting 3		

13) What percentage of your drivers' *daily mileage* was in the following ranges in 2024?

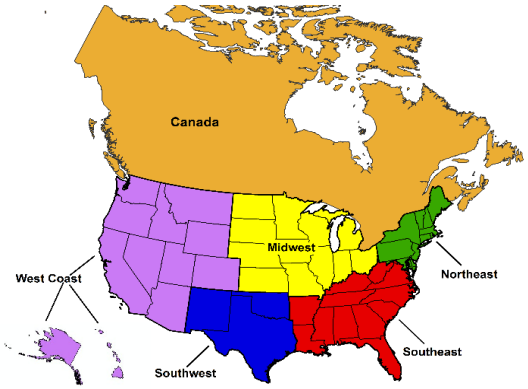
1 – 100 miles	
101 – 200 miles	
201 – 300 miles	
301 – 400 miles	
401 – 500 miles	
501 + miles	
Total	**100%**

14) Based on your fleet's total mileage, what percentage of your drivers' trips were in the following categories in 2024? A trip is defined as the distance between a pickup/loading and a delivery/unloading. *(Total must sum to 100%)*

Local pickups and deliveries (less than 100 miles)	
Regional pickups and deliveries (100 – 500 miles)	
Inter-regional pickups and deliveries (500 – 1,000 miles)	
National (greater than 1,000 miles)	
Total	**100%**

15) Please estimate the percentage of miles traveled by your fleet (include IC/Owner-Operator miles) in the following regions during 2024. (*Total must sum to 100%*)

Region	% of Total Miles
Midwest	
Northeast	
Southeast	
Southwest	
West	
Canada	
Total	**100%**



16) How many drivers did your company utilize in 2024 for each type of equipment?

	Company Driver / Company Truck	Leased Driver / Company Truck	Owner-Operator
Truck-Tractor – Solo Driver			
Truck-Tractor – Team Drivers (Total number of team drivers)			

17) How many non-driving employees did your company utilize in 2024? *(Do not include technicians or brokerage employees: only fleet operations.)*

_____

18) What was your company's annualized tractor-trailer driver turnover rate in 2024?

_____

TRUCK-TRACTOR AND EFFICIENCY DATA

19) What was your fleet size, average age and average number of miles traveled (including Owner-Operators) in 2024?

	Total Number of Truck-Tractors	Average Age (in years)	Average Miles per Year per Tractor	Average Days of Use per Year per Tractor
Truck-Tractors				

Trailer Type	Number of Units	Average Age (in years)
28' Trailer		
33' Trailer		
45' Trailer		
48' Trailer		
53' Trailer		
Tank Trailer		
Flatbed Trailer		
Auto Transporter		
Refrigerated Trailer		
Intermodal Chassis		
Other Trailer (please specify):		
Other Trailer (please specify):		
Other Trailer (please specify):		

20) For your fleet of tractor-trailers, what is the average loaded weight of a tractor-trailer combination in pounds? (truck + trailer + cargo)

_____ LBS

21) How long do you typically keep your equipment? *(Please check years or miles.)*

Equipment Type	Avg. Trade Cycle	Years	Miles
Truck-Tractors			
Trailers			

22) Are any of the truck-tractors in your fleet powered by an alternative fuel? Do not include diesel, gasoline, biodiesel or renewable diesel fuel.

❑ Yes ❑ No ❑ Don't Know

23) If you answered yes to previous question, please indicate the number of truck-tractors in your fleet that use each of the alternative fuels listed below.

Alternative Fuel Type	Number of Trucks
Compressed Natural Gas (CNG)	
Liquefied Natural Gas (LNG)	
Liquefied Petroleum Gas (LPG)	
Battery Electric Vehicle	
Hydrogen Fuel Cell Electric Vehicle	
Hydrogen Combustion Engine	
Other (please specify):	

24) What was your average tractor-trailer fuel economy in miles per gallon (MPG) for 2024 (i.e. total miles driven divided by gallons of fuel purchased)?
_____MPG

25) What percentage of your total annual tractor-trailer miles were non-revenue/dead-head miles in 2024?
_____ % of total 2024 miles

26) What was your average tractor-trailer total dwell time (loading/unloading + detention) per stop at shipper/receiver facilities in 2024?

_____ hours per stop

27) On average, how many miles do tractor-trailers in your fleet run between unscheduled repairs or breakdowns/failure?
_____ miles

28) What percentage of your fleet's total repair and maintenance is conducted at in-house or company-owned shops (versus outside shops)? *(Include scheduled and unscheduled maintenance but not towing expenses.)*
_____ % in-house

29) Do you pay truck parking costs to your drivers?

❑ Yes, in advance (via reservation, pre-paid card, etc.) ❑ Yes, by reimbursement ❑ No

If you answered yes, how much do you pay drivers for truck parking per day on average?

$_____

30) Please estimate how your tractor-trailer costs per mile are trending for the following key cost centers in January and February 2025 compared to 2024 annual costs (if decreasing, use a minus sign):

Expense Type	% Change
Repair & Maintenance • Include R&M costs, including R&M labor and roadside repairs, for all trucks and trailers; do not include tire-related expenses.	%
Tires • Include all purchase, maintenance, re-treading, and replacement costs.	%
Fuel Costs • Include all fuel. Do not include fuel surcharge revenue.	%
Truck Insurance Premiums • Include all liability, cargo, and excess liability policy premiums related to insuring the truck. Do not include workers compensation costs/insurance, physical damage, jury awards, or out-of-court settlements.	%
Truck and Trailer Lease or Purchase Costs • Include all payment costs, and interest and fees associated with the payments. Do not include depreciation tax benefits.	%
Tolls • Include all toll costs.	%
Permit Costs • Include permits for oversize/overweight, HazMat, etc. Do not include truck registration or CDL costs.	%
Company Driver Wages • Include only base pay. Do not include benefits, incentives, and bonuses.	%
Company Driver Benefits • Include employer contributions to medical insurance, per diem and other financial benefits to the driver that are a standard part of employment. Do not include incentives and bonuses.	%

Thank you! We greatly appreciate your participation.

Please return completed data collection form to ATRI via email aleslie@trucking.org or fax 770-432-0638.

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