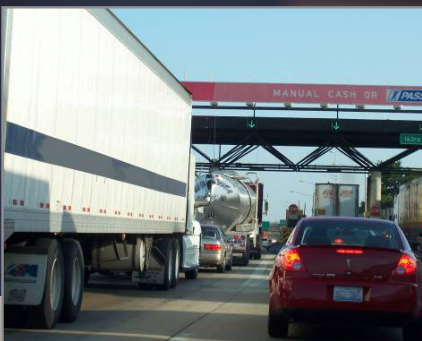


An Analysis of the Operational Costs of Trucking: 2015 Update

September 2015



Prepared by the American Transportation Research Institute

An Analysis of the Operational Costs of Trucking: 2015 Update

September 2015

W. Ford Torrey, IV
Research Associate
American Transportation Research Institute
Atlanta, GA

Dan Murray
Vice President, Research
American Transportation Research Institute
Minneapolis, MN



950 N. Glebe Road, Suite 210
Arlington, Virginia 22203
www.atri-online.org

ATRI BOARD OF DIRECTORS

Ms. Judy McReynolds
Chairman of the ATRI Board
President & CEO
ArcBest Corporation
Fort Smith, AR

Mr. Michael S. Card
President
Combined Transport, Inc.
Central Point, OR

Mr. Michael L. Ducker
President & CEO
FedEx Freight
Memphis, TN

Mr. Rich Freeland
President & COO
Cummins Inc.
Columbus, IN

Mr. Hugh H. Fugleberg
President & COO
Great West Casualty Company
South Sioux City, NE

Mr. Jack Holmes
President
UPS Freight
Richmond, VA

Mr. Dave Huneryager
President & CEO
Tennessee Trucking Association
Nashville, TN

Mr. Chris Lofgren
President & CEO
Schneider National, Inc.
Green Bay, WI

Mr. Jeffrey J. McCaig
President & CEO
Trimac Transportation, Inc.
Houston, TX

Mr. Gregory L. Owen
Head Coach & CEO
Ability/ Tri-Modal Transportation
Services
Carson, CA

Ms. Annette Sandberg
President & CEO
Transsafe Consulting, LLC
Davenport, WA

Mr. Douglas W. Stotlar
President & CEO
Con-way Inc.
Ann Arbor, MI

Mr. Steve Williams
Chairman & CEO
Maverick USA, Inc.
Little Rock, AR

Ms. Rebecca M. Brewster
President & COO
American Transportation Research
Institute
Atlanta, GA

Hon. Bill Graves
President & CEO
American Trucking Associations
Arlington, VA

ATRI RESEARCH ADVISORY COMMITTEE

Mr. Steve L. Niswander

RAC Chairman

VP, Safety Policy & Regulatory Relations
Groendyke Transport, Inc.

Mr. Doug Bennett

Director, Operations & Business Development
U.S. AutoLogistics, L.L.C.

Ms. Amy Boerger

Vice President – North American Engine Business
Cummins Inc.

Mr. Andrew Boyle

Executive VP & CFO
Boyle Transportation

Mr. Randy Boyles

Senior Vice President, Tailored Solutions
PeopleNet

Ms. Cheryl Bynum

Manager, SmartWay Transport Partnership
U.S. Environmental Protection Agency

Mr. Louis Campion

President
Maryland Motor Truck Association, Inc.

Mr. Michael Conyngham

Director of Research
International Brotherhood of Teamsters

Mr. Bob Costello

Chief Economist and Senior VP
American Trucking Associations

Mr. Dennis Dellinger

President
Cargo Transporters

Mr. Duke Drinkard

Energy Manager
Southeastern Freight Lines

Mr. Chip Duden

Vice President, Strategic Business Analytics
Werner Enterprises

Mr. Chad England

Chief Executive Officer
C.R. England

Mr. Paul J. Enos

Chief Executive Officer
Nevada Trucking Association

Ms. Sherri Garner Brumbaugh

President/CEO
Garner Transportation Group

Dr. David W. Guess

Executive Vice President, Safety and Regulatory Affairs
Usher Transport, Inc.

Mr. Sanford Hodes

Senior Vice President and Deputy General Counsel
Ryder System, Inc.

Ms. Barbara Ivanov

Director, Freight Systems
Washington State Department of Transportation

Mr. Kevin X. Jones

Vice President, Inbound Transportation
Wal-Mart Stores, Inc.

Mr. Shannon Lively

Vice President – Planning and Engineering
ABF Freight System, Inc.

Ms. Michelle D. Livingstone

Vice President – Transportation
The Home Depot

Mr. Vladimir Livshits, Ph.D.

System Analysis Program Manager
Maricopa Association of Governments

Mr. Chris McLoughlin

Cargo Risk Manager
C.H. Robinson

Mr. Scott Mugno

Vice President, Safety and Maintenance
FedEx Ground

Ms. Brenda Neville

President
Iowa Motor Truck Association

Mr. Dean Newell

Vice President, Safety
Maverick USA, Inc.

Major David L. Palmer

Major, Texas Hwy Patrol Division
Texas Dept. of Public Safety

Mr. Jonathan R. Peters, PhD

Professor of Finance, Department of Business
College of Staten Island – The City University of New York

Ms. Karen Rasmussen

President and CEO
HELP Inc.

Ms. Barbara Robinson

Director
American Truck Dealers (ATD)
McLean, VA

Mr. Wellington F. Roemer, III

President & CEO
Wellington F. Roemer Insurance, Inc.

Mr. Steve Rogers

Vice President, Truckload Operations
J.B. Hunt Transport, Inc.

Mr. Brett A. Sant

VP, Safety and Risk Management
Knight Transportation, Inc.

Ms. Andrea Sequin

Directory, Regulatory Services
Schneider National, Inc.

Mr. Brandon Shafer

Director of Health and Safety
UPS Freight

Mr. Keith Tuttle

Founder
Motor Carrier Service Inc.

Mr. Ronald Uriah

Vice President, Safety
Pitt-Ohio, LLC

Mr. Tom Weakley

Director of Operations
Owner-Operator Independent Drivers Association Foundation

Mr. Rusty Weiss

Director, External Research
DriveCam-Lytx

Mr. Geoffrey Wood

VP, Operations & Safety
Canadian Trucking Alliance

TABLE OF CONTENTS

FIGURES AND TABLES	2
LIST OF ACRONYMS.....	3
INTRODUCTION.....	4
RESEARCH OBJECTIVE.....	5
METHODOLOGY.....	6
SURVEY RESPONDENT DEMOGRAPHICS	8
COST CENTERS	12
Fuel	13
Equipment	15
Driver Pay.....	15
FINDINGS	16
Average Marginal Costs.....	16
Line Item Cost Centers.....	19
<i>Fuel Costs</i>	<i>19</i>
<i>Equipment Lease or Purchase Payments</i>	<i>20</i>
<i>Repair and Maintenance</i>	<i>21</i>
<i>Truck Insurance Premiums</i>	<i>23</i>
<i>Permits and Special Licenses</i>	<i>24</i>
<i>Tires.....</i>	<i>24</i>
<i>Tolls.....</i>	<i>24</i>
<i>Driver Wages and Benefits</i>	<i>24</i>
Cost Trends.....	25
Cost by Region	27
CONCLUSION	28
GLOSSARY	29
APPENDIX A	30

FIGURES AND TABLES

Figure 1: Modified Revenue Survey Question	6
Table 1: For-Hire Industry Sector Breakout	7
Table 2: Respondent Revenue Statistics	8
Figure 2: Respondent Fleet Size	9
Table 3: Survey Respondent Truck/Trailer Type, Average Truck Age, and Average Miles Driven per Year per Truck	9
Table 4: Survey Respondent Equipment Trade Cycle	10
Table 5: Survey Respondent Speed Limiter Usage.....	11
Table 6: Survey Respondent Trip Types	11
Table 7: Survey Respondent Truck VMT and National Truck Registrations by Region.....	12
Figure 3: Average U.S. On-Highway Diesel Prices, 2008 – 2014	13
Figure 4: Average U.S. On-Highway Diesel Prices, 2014	14
Table 8: Average Marginal Costs per Mile, 2008-2014	17
Table 9: Average Marginal Costs per Hour, 2008-2014	17
Table 10: Share of Total Average Marginal Cost, 2008-2014	18
Table 11: Average Total Marginal Costs by Sector, 2008-2014	18
Figure 5: Respondent Fuel Cost per Mile by Fleet Size	20
Table 12: Repair and Maintenance Costs by Sector	21
Figure 6: LTL New Equipment Purchases.....	22
Figure 7: Respondent Repair and Maintenance Cost per Mile by Fleet Size	23
Table 13: Average Marginal Cost Trends	26
Table 14: Average Marginal Cost Trends by Sector	26
Table 15: Average Marginal Cost per Mile by Region, 2014	27

LIST OF ACRONYMS

ATA	American Trucking Associations
ATRI	American Transportation Research Institute
BLS	Bureau of Labor Statistics
CFO	Chief Financial Officer
CNG	Compressed Natural Gas
CPH	Cost per Hour
CPM	Cost per Mile
CSA	Compliance, Safety, Accountability
EIA	Energy Information Administration
ELD	Electronic Logging Device
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FPM	Freight Performance Measures
HOS	Hours-of-Service
LNG	Liquefied Natural Gas
LTL	Less-than-Truckload
MC	Marginal Cost
MPH	Miles per Hour
NDA	Non-Disclosure Agreement
P&D	Pick-up and Delivery
RAC	Research Advisory Committee
R&M	Repair and Maintenance
TL	Truckload
VMT	Vehicle Miles Traveled

INTRODUCTION

Since 2008 the American Transportation Research Institute (ATRI) has annually published the report, *Analysis of the Operational Costs of Trucking*, to provide more accurate marginal cost data on motor carrier operations. In the literature review for the inaugural study in 2008, ATRI identified previous research that reported cost calculation findings ranging from \$22 per hour to over \$370 per hour¹; figures which were considered unreasonably high or low by many in the trucking industry. Additionally, some of these studies calculated costs using highly subjective “value-of-time” calculations that may extend far beyond direct costs – resulting in dramatic variability for industry costs depending on the metrics used.

Consequently, ATRI undertook research to document and quantify motor carriers’ key operational costs, stratified by fleet size, sector, and region of the country. The goal of the research was to accurately identify current operational costs based on real-world data provided directly from motor carriers. The resulting analyses could then be used by both motor carriers as a high level benchmarking tool, and by government agencies for various transportation impact calculations.

This research was initially identified as a top research priority by ATRI’s Research Advisory Committee (RAC)². The RAC sought to better inform policymakers on the impact that new and potentially inefficient transportation funding strategies could have on freight movement. The trucking industry, which is heavily reliant on the 4 million miles of public roadway in the United States³, has a vested interest in efficient, effective, and equitable funding and maintenance of the nation’s transportation system.

Since its original publication in 2008, ATRI has received nearly 10,000 requests for the *Analysis of the Operational Cost of Trucking* reports. Based on this continued high demand for the research, ATRI updates the “ops cost” data on an annual basis, making minor adjustments and improvements to the data collection methodology as necessary. Over the years, these improvements have led to a more streamlined process for obtaining sensitive fleet cost data on an annual basis. This report includes the most recent 2014 cost data.

¹Trego, Todd. *An Analysis of the Operational Costs of Trucking*. American Transportation Research Institute. Arlington, VA. (2008)

² The American Transportation Research Institute (ATRI) Research Advisory Committee (RAC) is comprised of industry stakeholders representing motor carriers, trucking industry suppliers, labor and driver groups, law enforcement, federal government, and academics. The RAC is charged with annually recommending a research agenda for the Institute.

³ Highway Statistics Series 2013 Table HM-20. Federal Highway Administration, United States Department of Transportation. Available online: <https://www.fhwa.dot.gov/policyinformation/statistics/2013/hm20.cfm>

RESEARCH OBJECTIVE

This research is predicated on the need for current and accurate trucking industry operational cost data. Previous iterations of this research by ATRI in 2008, 2011, 2012, 2013, and 2014⁴ have resulted in more precise cost metrics over the years. Although previous studies conducted by consultants and academic entities have attempted to quantify these costs, the use of highly subjective value-of-time metrics produced immensely inconsistent results that were considered inaccurate or political by industry stakeholders. These disparate results can be detrimental to both the trucking industry and public sector transportation planners seeking objective, standardized data. For instance, lower operational cost estimates have been used to downplay the value or significance of certain transportation investments, while unreasonably high figures have been used to minimize the financial impact that innovative financing initiatives have on trucking companies and drivers.

The result is a standardized survey methodology that captures and analyzes sensitive motor carrier operational costs. The data presented in this report reflects 2014 cost data collected from a wide range of motor carriers. With the addition of this 2014 data, ATRI now has seven complete years (2008 – 2014) of detailed operational cost data.

⁴ Torrey, W. Ford and Dan Murray. *An Analysis of the Operational Costs of Trucking: A 2014 Update*. American Transportation Research Institute. Arlington, VA. (2014). Previous year reports are available from ATRI online at www.atri-online.org/

METHODOLOGY

This year's analysis utilized a similar data collection methodology to previous years. One survey question was altered slightly to allow for the collection and analysis of more detailed motor carrier revenue data (Figure 1). The result is a more robust revenue calculation and assessment, using descriptive statistics, of the respondent pool.

Figure 1: Modified Revenue Survey Question

<u>Previous Question:</u>	
What is your company's annual trucking-related revenue? <i>(Exclude brokerage/logistics revenue)</i>	
Less than \$10 million/year	<input type="checkbox"/>
\$10-\$100 million/year	<input type="checkbox"/>
Greater than \$100 million/year	<input type="checkbox"/>
<u>New Question:</u>	
What was your company's annual trucking-related revenue in 2014? <i>(Exclude brokerage/logistics revenue)</i> \$_____	

Through the use of its online data collection system, ATRI was able to improve response and data processing efficiency. The data collection form emphasized common industry operational and financial metrics, and was beta-tested with motor carriers. Specifically, the research team solicited technical guidance and review from industry financial officers or those with working knowledge of motor carrier cost structures.

Given the highly competitive nature of the trucking industry and the extreme sensitivity associated with corporate financials and expenditures, the operational cost information was collected confidentially from motor carriers and the data is presented in aggregate form only. ATRI also provided survey respondents with non-disclosure agreements (NDA) as requested.

Data collection efforts commenced in April 2015 and data request forms were sent electronically and via express mail to a representative group of for-hire carriers which included Truckload (TL), Less-than-Truckload (LTL), and Specialized fleets. ATRI also solicited carrier participation through targeted mailings and emails, news alerts, and coverage in major industry news outlets. The 50 State Trucking Associations also solicited participation from their respective memberships. Responses were collected through late-August 2015.

Participants were provided several options for submitting data to ATRI, utilizing the online response form, or transmitting the data to ATRI via email or fax. All responses were carefully reviewed by the research team for clarity and the research team contacted respondents to clarify any ambiguous responses as needed.

The survey's composition was primarily focused on components and sub-components of carrier marginal costs per mile (CPM), which allows for comparative analyses across the different industry business models. In order to convert line-item CPM figures into a total marginal cost per hour (CPH) figure, a GIS-generated, industry-vetted average operational speed of 39.98 miles per hour (MPH) was used in these calculations. It should be noted that this speed relates to moving trucks only, and includes all roadway speeds rather than solely highway speeds.⁵

To ensure representativeness, ATRI then weighted survey responses to reflect share percentages of the major for-hire trucking industry sectors. Compared to national averages, TL carriers were slightly over-represented in the survey sample while LTL and Specialized carriers were slightly under-represented (Table 1). As noted, responses were weighted to national industry averages to yield more representative results.

Table 1: For-Hire Industry Sector Breakout

Industry Sector	ATRI Survey Respondents	U.S. Trucking Industry ⁶
Truckload	64%	52%
Less-Than-Truckload	16%	24%
Specialized	20%	24%

Where applicable, cost data were cross-tabulated by factors such as fleet size, operating sector, and operating region. Again, the data collected are presented in aggregate form in order to protect proprietary carrier information.

⁵ ATRI derived this speed using several datasets from the ATRI/Federal Highway Administration (FHWA) Freight Performance Measures (FPM) program. ATRI analyzed one full week of national FPM data in each of the four seasons in 2010 (February, May, August, October). This dataset consisted of over 110 million truck speed data points. The average speed figure was also validated by multiple motor carriers from various sectors of the industry. The 39.98 mph figure more accurately represents an average operational speed since it includes speeds in all types of operational conditions.

⁶ ATA. American Trucking Trends: 2005-2006. Arlington, VA. (2007)

SURVEY RESPONDENT DEMOGRAPHICS

In total, survey respondents operated 54,833 tractors and/or trucks, accruing an estimated 5.3 billion miles in 2014. These carriers also utilized 154,993 trailers in their operations. As previously noted, for-hire fleets were grouped into three major industry sectors; TL, LTL, and Specialized (see Glossary for sector descriptions). While respondents were generally representative of the for-hire segment, the aggregated data was weighted to the national industry average of 52 percent for TL, 24 percent for LTL, and 24 percent for Specialized.⁷ Additional sector analyses can be derived using the truck/trailer configuration data.

As shown in Figure 1, ATRI slightly modified the motor carrier revenue question on the 2015 data collection form. Previously, respondents were provided discrete revenue bins to choose from that most accurately reflect their revenue levels. On the 2015 data collection form, respondents were able to write in a revenue level allowing the research team to calculate more granular statistics utilizing revenue levels; Table 2 below displays the percentiles, and average, of reported revenues.

Table 2: Respondent Revenue Statistics

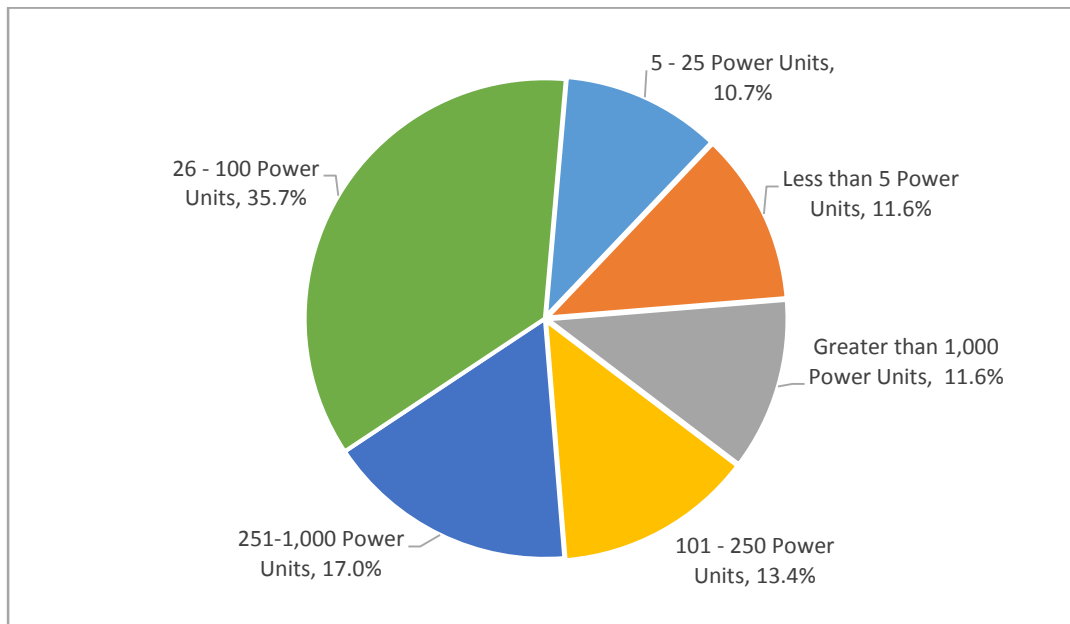
Percentile	Revenue
75th Percentile	\$62,372,000
50th Percentile (Median)	\$15,585,885
25th Percentile	\$6,685,960
Average (Mean)	\$136,978,608

With an average revenue much higher than both the median and the 75th percentile, ATRI's dataset is comprised primarily of small to mid-sized fleets, with several larger fleets skewing the average revenue upwards.

A review of ATRI's respondent fleet size validates the respondent mix. Figure 2 below shows the majority (71.4%) of respondents operated small to mid-sized fleets (less than 250 power units), with 28.6 percent operating larger fleets.

⁷ Ibid.

Figure 2: Respondent Fleet Size



Among survey respondents, the majority of fleets operated tractors, as opposed to straight trucks or other types of power units, and the most prevalent trailer types were 53- and 28-foot trailers (Table 3).

Table 3: Survey Respondent Truck/Trailer Type, Average Truck Age, and Average Miles Driven per Year per Truck

Equipment Type	Number of Trucks/ Trailers	Average Age (Years)	Average Miles Driven per Year per Truck
Straight Trucks	993	6.8	30,055
Truck-Tractors	53,819	4.7	97,566
Other Trucks	21	5.6	133,095
Total Trucks	54,833		
28' Trailers	35,915	6.9	
45' Trailers	4,633	9.9	
48' Trailers	18,550	10.0	
53' Trailers	87,867	7.4	
Other Trailers	8,028	8.1	

Interesting insight into the equipment characteristics of the survey respondents can be seen when evaluating reported equipment trade cycles. Table 4 shows that trailers are held an average of 11.8 years, while truck-tractors are replaced on average every 6.7 years. Additionally, respondents report an average of over 730,000 miles before replacing tractors. This represents a slight decrease in the trailer trade cycle from last year's 12.2 year average age, and a slight increase in the straight truck and truck-tractor trade cycle from the 2014 results of 9.0 years and 6.6 years, respectively.

Table 4: Survey Respondent Equipment Trade Cycle

Equipment Type	Average Number of Years Until Replacement	Average Miles Driven Until Replacement
Straight Trucks	9.5	433,333
Truck-Tractors	6.7	731,818
Trailers	11.8	

Additionally, survey respondents were asked to provide the number of vehicles that ran on an alternative fuel (i.e. a fuel other than diesel or bio-diesel blend). Approximately eight percent of respondents, a four percentage point increase from last year's study, reported fleets using alternative fuel vehicles, all of which ran on either compressed natural gas (CNG) or liquefied natural gas (LNG). Currently, natural gas, (CNG and (LNG) is the fastest growing fuel in the transportation sector, although total penetration is very low – primarily due to depressed diesel fuel costs. With medium- and heavy-duty vehicles projected to become the largest consumers of CNG and LNG by 2040⁸, the percentage of carriers operating alternative fuel vehicles will likely increase, albeit slowly, in subsequent years. Ultimately, diesel fuel prices will play a substantial role in future adoption rates of alt-fuel trucks.

The survey asked respondents to report on speed limiter use within their fleet. The majority of respondents (91.8%) reported use of speed limiters, with 84 percent utilizing speed limiters on 100 percent of their trucks while another six percent utilize the devices on 70 to 99 percent of their fleet. Similar to last year's results, the most common maximum speed setting was 65 MPH, although this figure sometimes varies within fleets based on operations and driver performance. Additionally, speed limiter usage had remained consistently high among survey respondents across the years this information was solicited (Table 5).

⁸ *Annual Energy Outlook 2014 with Projections to 2040*. U.S. Energy Information Administration, Office of Integrated and International Energy Analysis, U.S. Department of Energy. Washington D.C. (April 2013)

Table 5: Survey Respondent Speed Limiter Usage

Year	Percent
2014	91.8%
2013	86.8%
2012	86.0%
2011	93.2%

In advance of the Federal Motor Carrier Safety Administration (FMCSA) mandate on the use of Electronic Logging Devices (ELDs), survey respondents were asked whether or not their fleets utilized ELDs to manage driver hours-of-service (HOS). The percentage responding who did use ELDs increased 10 percentage points to 63 percent over last year's response when the question was first asked. It is assumed that this figure will continue to increase toward 100 percent as the industry responds to the upcoming FMCSA final rule on ELD use. Publication of the final rule expected at the end of September 2015.⁹

Participants were then asked to estimate the percentage of their drivers' trips across four different trip length categories. As shown in Table 6, average haul lengths were generally less than 500 miles per trip, with regional trips and local trips being the most common (40% and 28%, respectively). This represents a decrease in average trip lengths as respondents have indicated trips less than 500 miles have generally accounted for 55 percent of trips since 2011.

Table 6: Survey Respondent Trip Types

Trip Type	Survey Respondent Percent of Trips
Local pick-ups and deliveries (less than 100 miles)	28%
Regional pick-ups and deliveries (100-500 miles)	40%
Inter-regional pick-ups and deliveries (500-1,000 miles)	21%
National (over 1,000 miles)	11%

Operational costs can be impacted by the region of the country in which the fleet primarily operates. As such, survey respondents were asked to provide the percent of fleet Vehicle Miles Traveled (VMT) by region. Table 7 compares respondents' 2014 percentage of U.S. VMT by region to commercial truck registrations in the U.S. As can be seen, the Northeast and Southeast were slightly over-represented in the ATRI sample. The finding may relate to the common occurrence of base-stating fleets in certain areas for cost-saving purposes, independent of where the truck operates.

⁹ Dills, Todd. "ELD Mandate Poised to Begin Two-Year Countdown", OverdriveOnline. 2015 August 19. Available online: <http://www.overdriveonline.com/eld-mandate-poised-to-begin-two-year-countdown/>

Additionally, a small percentage of the total VMT reported by survey respondents (1%) was in Canada (data not included in Table 7), and a reported 18.6 percent of VMT were non-revenue earning or “empty” miles.

Table 7: Survey Respondent Truck VMT and National Truck Registrations by Region

Region	Survey Respondent Percent of Miles Traveled in U.S.	U.S. Percent of Truck Registrations
Midwest	27%	39%
Northeast	15%	8%
Southeast	31%	20%
Southwest	10%	13%
West	16%	20%

Finally, participants were asked to identify the primary commodities hauled. General freight accounted for over one-quarter of responses (28%), followed by manufactured goods (12%) and refrigerated food (9%) as the top three responses.

The surveys were completed by high level managers and executives who have extensive knowledge of the financial workings of the organizations, namely Presidents, Chief Financial Officers (CFOs), General Managers and fleet owners. The fleets represent long-haul to local pick-up and delivery, carrying a vast assortment of different commodities and operating across the U.S. Additionally, the fleets cover the continuum of fleet size and revenue levels. As such, ATRI considers the data to be an adequately representative sample of the industry population from which to draw current operational cost data.

COST CENTERS

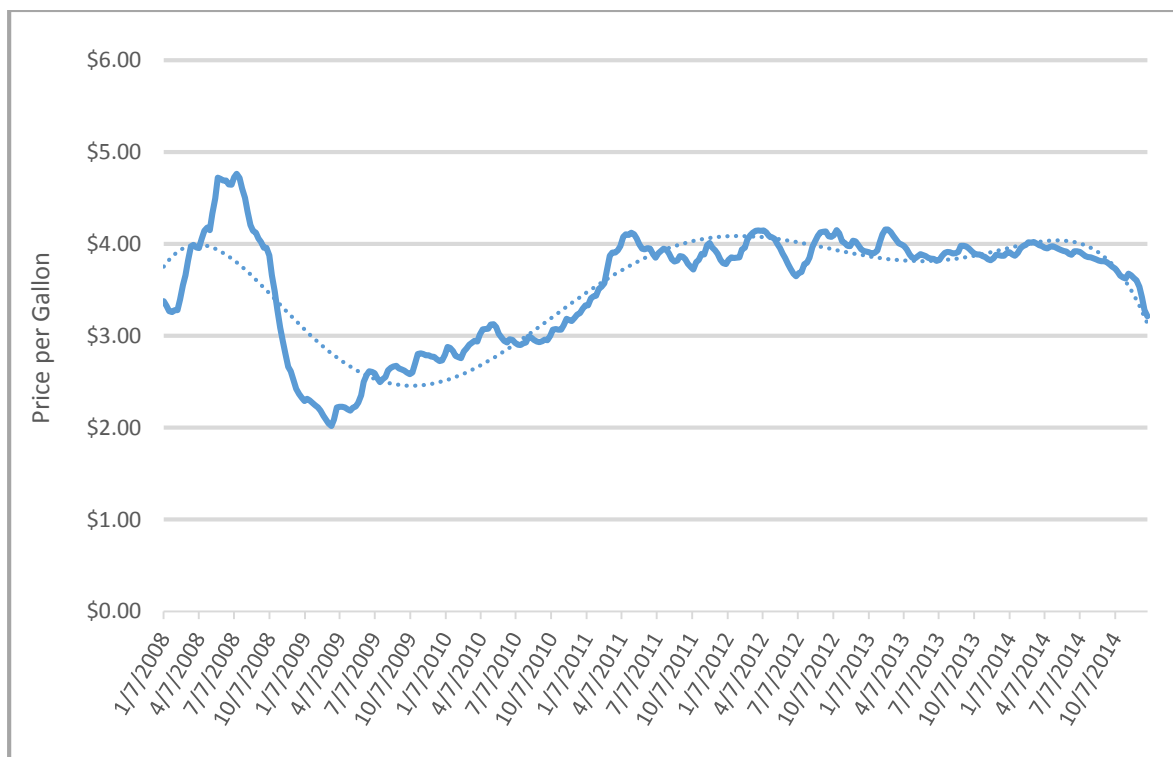
Motor carrier operational costs can be impacted by a number of underlying influences and externalities. As a result, some line-item costs are more easily measured than others. These may include fuel and tire costs. Alternatively, other costs, such as labor-related, can be impacted by driver experience, performance and differing compensation models. Finally, in several instances ATRI worked closely with carriers to refine certain costs that straddle both fixed and marginal metrics. For example, insurance is generally considered a fixed-cost, but is typically based on truck VMT as a measure of risk or exposure.

ATRI chose to document and analyze those cost centers most closely associated with driver and vehicle operations, effectively representing a motor carrier's marginal costs (MC).

Fuel

The past decade has seen significant fluctuations in petroleum prices. In July of 2008, for example, fuel reached over \$145 per barrel before decreasing dramatically in late 2008 with the start of the Great Recession. This translated to average U.S. diesel prices of well over \$4.50 during the summer of 2008 (Figure 3). However, by March of 2009 diesel prices had fallen to \$2.02 per gallon. Driven by an improving economy, prices rose steadily through 2010 before stabilizing in 2011 through 2013.¹⁰

Figure 3: Average U.S. On-Highway Diesel Prices, 2008 – 2014¹¹

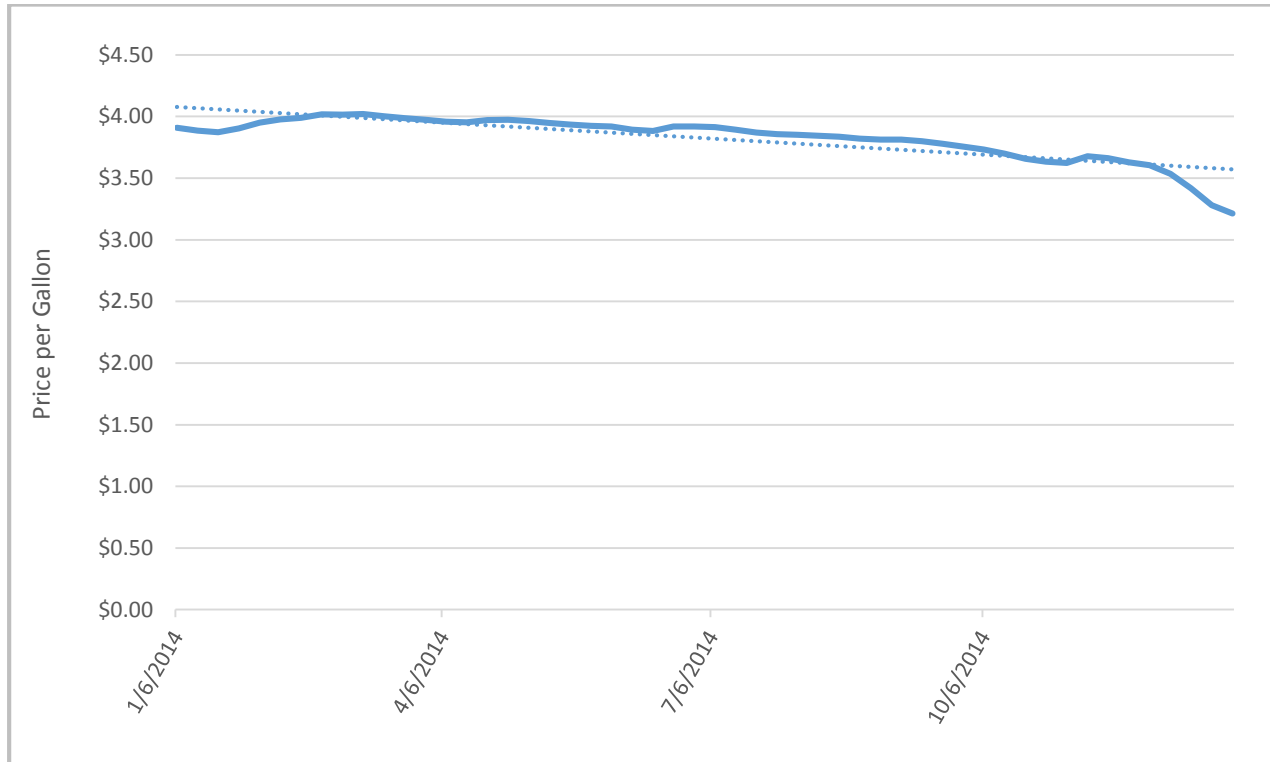


¹⁰ Gasoline and Diesel Fuel Update. U.S. Energy Information Administration. Available Online: <http://www.eia.gov/petroleum/gasdiesel>

¹¹ Gasoline and Diesel Fuel Update. U.S. Energy Information Administration. Available Online: <http://www.eia.gov/petroleum/gasdiesel>

The start of the year experienced the highest on-highway diesel prices in 2014 when it reached \$4.02 a gallon in March before falling steadily throughout the year. The final recorded diesel price of the year was in fact the lowest price for the year at \$3.21 a gallon¹² (Figure 4).

Figure 4: Average U.S. On-Highway Diesel Prices, 2014¹³



Fuel costs have consistently been the biggest MC influence across all of the years ATRI has conducted this research, and generally account for approximately 30 – 40 percent of a motor carrier's CPM.¹⁴ Due to the steady decline of diesel prices experienced throughout 2014, it is likely that average carrier fuel cost per mile would decrease in this year's analysis. Furthermore, the Energy Information Administration (EIA) forecasts a decline in diesel price through 2015, which will likely result in lower marginal fuel costs for carriers again next year.¹⁵

¹² Ibid.

¹³ Gasoline and Diesel Fuel Update. U.S. Energy Information Administration. Available Online: <http://www.eia.gov/petroleum/gasdiesel>

¹⁴ Torrey, W. Ford and Dan Murray. *An Analysis of the Operational Costs of Trucking: A 2014 Update*. American Transportation Research Institute. Arlington, VA. (2014)

¹⁵ Short-Term Energy Outlook. U.S. Energy Information Administration. Available Online: http://www.eia.gov/forecasts/steo/pdf/steo_full.pdf

Equipment

The age, type, and turnover of a motor carrier's equipment can affect a number of operating costs including lease and purchase payments, repair and maintenance, insurance premiums, permits and special licensure, and tire costs. This year's survey respondents accounted for approximately 55,000 trucks, 155,000 trailers, and over 5.3 billion vehicle miles traveled in 2014. Additionally, respondents appear to be holding their equipment for slightly more than 10 years on average, which will likely increase the repair and maintenance costs associated with maintaining an aging fleet.

With Class 8 truck orders totaling approximately 375,000 units in 2014, it was the second highest order year in history (with the first being 2004).¹⁶ This overall industry increase in new equipment will likely result in increased lease and purchase payment costs as well as insurance costs for the additional units.

Driver Pay

The trucking industry continues to experience a severe and growing shortage of qualified drivers. The American Trucking Associations (ATA) estimated a shortage of 30,000 drivers in 2014 with projections that the shortage could increase to 239,000 by 2020¹⁷.

One of the challenges facing the industry is the aging of its workforce. A 2014 ATRI study identified alarming demographic trends facing the industry, with 55.5 percent of its workforce 45 and older, and less than five percent of its workforce in the 20 to 24 year old age bracket.¹⁸ Additionally, the driver population is likely being impacted by strong housing and commercial real estate growth¹⁹, which provide an alternative job opportunity for individuals who may choose construction over truck driving as a career option.

Another challenge for the driver population was the changes made in July 2013 to the federal Hours-of-Service (HOS) rules, which had a documented impact on carrier productivity and driver earnings²⁰. In response, some carriers reported having to increase driver wages to offset the lost productivity experienced by drivers due to the more restrictive HOS rule provisions.²¹

¹⁶ Fleet Owner. "Class 8 Orders Remain Above 40,000 Units in December". 2015 January 8. Available Online : <http://fleetowner.com/equipment/class-8-orders-remain-above-40000-units-december>.

¹⁷ Figures produced by Bob Costello, Chief Economist, American Trucking Associations.

¹⁸ Short, Jeffery. *Analysis of Truck Driver Age Demographics Across Two Decades*. American Transportation Research Institute. Arlington, VA. (2014)

¹⁹ Carlyle, Erin. "2014 Housing Starts Hit Highest Level Since 2007". Forbes Magazine. 21 January 2015. Available online: <http://www.forbes.com/sites/erincarlyle/2015/01/21/2014-housing-starts-hit-strongest-finish-since-2007-as-single-family-construction-rises/>

²⁰ Short, Jeffery. *Assessing the Impacts of the 34-Hour Restart Provisions*. American Transportation Research Institute. Arlington, VA. (2013)

²¹ Short, Jeffery. *Operational and Economic Impacts of the New Hours-of-Service*. American Transportation Research Institute. Arlington, VA. (2013)

The combined impact of these forces in the industry will likely result in increased driver wage and benefit costs as fleets strive to keep their experienced workforce and recruit additional drivers.

FINDINGS

Average Marginal Costs

In order to remain consistent with the previous operational cost analyses, marginal costs were once again divided into two general categories, vehicle- and driver-based, which included the following line items:

- Vehicle-based
 - Fuel
 - Truck/Trailer Lease or Purchase Payments
 - Repair and Maintenance
 - Truck Insurance Premiums
 - Permits and Special Licenses
 - Tolls
- Driver-based
 - Wages
 - Benefits

Motor carrier operating costs generally behaved as expected when considering the operating environment of 2014. Table 8 displays the average cost per mile for all sectors based on the survey data. The analysis found that the average CPM was \$1.703, an approximate three cent increase over the 2013 figure. Table 9 displays the average annual cost per hour established by utilizing the 39.98 miles per hour assumption previously described, and amounts to a total of \$68.09 per hour. Both of these figures are above the six year medians of \$1.643 and \$65.68, respectively.

Table 8: Average Marginal Costs per Mile, 2008-2014

Motor Carrier Costs	2008	2009	2010	2011	2012	2013	2014
<i>Vehicle-based</i>							
Fuel Costs	\$0.633	\$0.405	\$0.486	\$0.590	\$0.641	\$0.645	\$0.583
Truck/Trailer Lease or Purchase Payments	\$0.213	\$0.257	\$0.184	\$0.189	\$0.174	\$0.163	\$0.215
Repair & Maintenance	\$0.103	\$0.123	\$0.124	\$0.152	\$0.138	\$0.148	\$0.158
Truck Insurance Premiums	\$0.055	\$0.054	\$0.059	\$0.067	\$0.063	\$0.064	\$0.071
Permits and Licenses	\$0.016	\$0.029	\$0.040	\$0.038	\$0.022	\$0.026	\$0.019
Tires	\$0.030	\$0.029	\$0.035	\$0.042	\$0.044	\$0.041	\$0.044
Tolls	\$0.024	\$0.024	\$0.012	\$0.017	\$0.019	\$0.019	\$0.023
<i>Driver-based</i>							
Driver Wages	\$0.435	\$0.403	\$0.446	\$0.460	\$0.417	\$0.440	\$0.462
Driver Benefits	\$0.144	\$0.128	\$0.162	\$0.151	\$0.116	\$0.129	\$0.129
TOTAL	\$1.653	\$1.451	\$1.548	\$1.706	\$1.633	\$1.676	\$1.703

Table 9: Average Marginal Costs per Hour, 2008-2014

Motor Carrier Costs	2008	2009	2010	2011	2012	2013	2014
<i>Vehicle-based</i>							
Fuel Costs	\$25.30	\$16.17	\$19.41	\$23.58	\$25.63	\$25.78	\$23.29
Truck/Trailer Lease or Purchase Payments	\$8.52	\$10.28	\$7.37	\$7.55	\$6.94	\$6.52	\$8.59
Repair & Maintenance	\$4.11	\$4.90	\$4.97	\$6.07	\$5.52	\$5.92	\$6.31
Truck Insurance Premiums	\$2.22	\$2.15	\$2.35	\$2.67	\$2.51	\$2.57	\$2.89
Permits and Licenses	\$0.62	\$1.15	\$1.60	\$1.53	\$0.88	\$1.04	\$0.76
Tires	\$1.20	\$1.14	\$1.42	\$1.67	\$1.76	\$1.65	\$1.76
Tolls	\$0.95	\$0.98	\$0.49	\$0.69	\$0.74	\$0.77	\$0.90
<i>Driver-based</i>							
Driver Wages	\$17.38	\$16.12	\$17.83	\$18.39	\$16.67	\$17.60	\$18.46
Driver Benefits	\$5.77	\$5.11	\$6.47	\$6.05	\$4.64	\$5.16	\$5.15
TOTAL	\$66.07	\$58.00	\$61.90	\$68.21	\$65.29	\$67.00	\$68.09

While marginal cost points can have variability from year to year, the respective cost share ratio of each of the line-items tends to remain relatively stable over time (Table 10). As discussed previously, fuel now consistently represents the largest share of total average marginal cost for motor carriers, followed by driver wages and equipment lease or purchase payments. Driver benefits, repair and maintenance, insurance premiums, permits and licenses, tires, and toll costs have each consistently represented 10 percent or less of average total marginal costs throughout the seven years of this research.

Table 10: Share of Total Average Marginal Cost, 2008-2014

Motor Carrier Costs	2008	2009	2010	2011	2012	2013	2014
<i>Vehicle-based</i>							
Fuel Costs	38%	28%	31%	35%	39%	38%	34%
Truck/Trailer Lease or Purchase Payments	13%	18%	12%	11%	11%	10%	13%
Repair & Maintenance	6%	8%	8%	9%	8%	9%	9%
Truck Insurance Premiums	3%	4%	4%	4%	4%	4%	4%
Permits and Licenses	1%	2%	3%	2%	1%	2%	1%
Tires	2%	2%	2%	2%	3%	2%	3%
Tolls	1%	2%	1%	1%	1%	1%	1%
<i>Driver-based</i>							
Driver Wages	26%	28%	29%	27%	26%	26%	27%
Driver Benefits	9%	9%	10%	9%	7%	8%	8%
TOTAL	100%	100%	100%	100%	100%	100%	100%

As previously noted, the analysis stratified motor carrier responses by operating sector where applicable. Given the different operating conditions and models for each sector, the total average marginal costs varied fairly significantly. Historically, LTL carriers have consistently had the highest CPM in this study. However, due to an increase in reported specialized truck and trailer lease and purchase cost per mile as well as insurance cost increases associated with these purchases, Specialized carriers edged out LTL carriers by two cents for the highest CPM in 2014 (Table 11). TL carriers saw a large drop in fuel costs per mile, taking the most advantage of the falling fuel prices of the sectors. LTL carriers reported a drop in fuel cost, but also reported a decrease in driver pay per mile. This led to very slight decreases in total cost per mile in these two sectors.

Table 11: Average Total Marginal Costs by Sector, 2008-2014

Sector	2008	2009	2010	2011	2012	2013	2014
LTL	\$1.81	\$1.43	\$1.76	\$1.93	\$1.79	\$1.84	\$1.83
Specialized	\$1.87	\$1.67	\$1.61	\$1.79	\$1.73	\$1.67	\$1.85
TL	\$1.48	\$1.36	\$1.43	\$1.57	\$1.51	\$1.60	\$1.58

Line-Item Cost Centers

Fuel Costs

In order to standardize the collection of fuel costs, respondents were asked to provide fuel cost data that excluded any revenue from fuel surcharges. Since fuel surcharges are negotiated as a fuel “subsidy” between two parties, excluding fuel surcharge reveals the actual dollar amount spent directly on fuel.

As previously discussed, petroleum prices rose to an unprecedented level in July 2008, reaching over \$145 per barrel before decreasing dramatically in late 2008. During the summer of 2008 on-highway diesel prices averaged more than \$4.50 per gallon nationally but by March 2009, prices had dropped to \$2.02 per gallon.²² Fuel prices have steadily increased since then, averaging \$2.47 per gallon in 2009, \$2.99 in 2010, \$3.84 in 2011, \$3.97 in 2012. Primarily with the advent of massive domestic oil production, fuel prices began to slowly decline, reaching an average of \$3.95 in 2013 and \$3.82 in 2014.²³

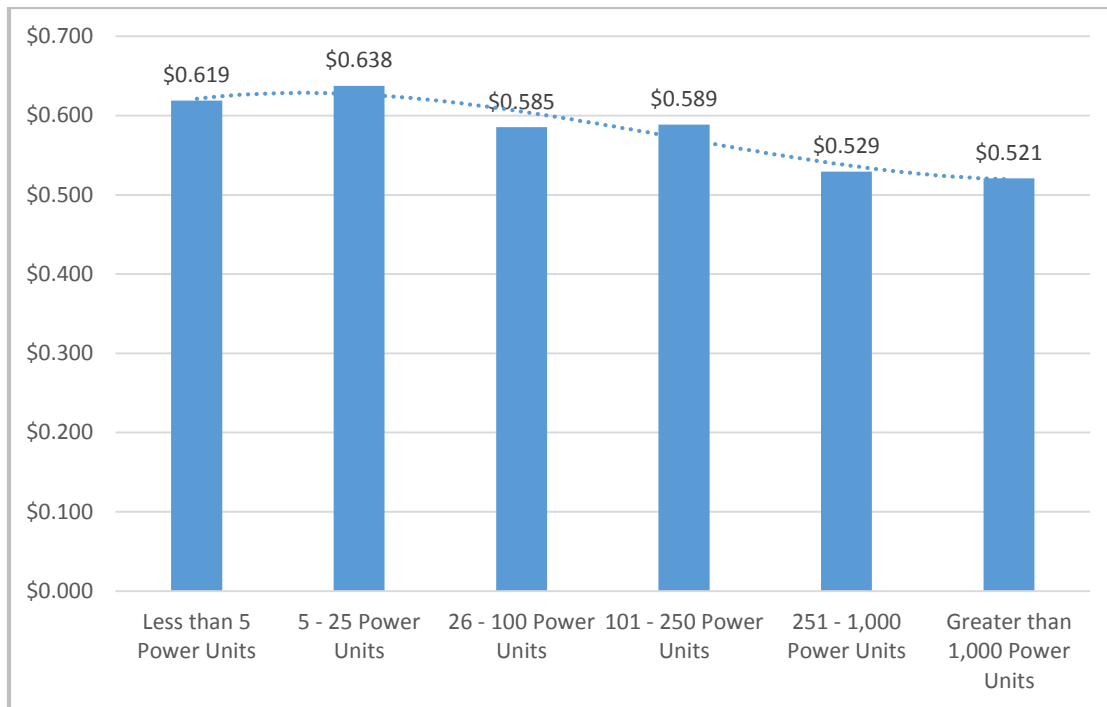
Consistent with the EIA data, survey respondents indicated that fuel costs fell significantly from 63.3 cents per mile in 2008 to 40.5 cents per mile in 2009; they were once again on the rise from 2010 to 2013. Calculated on an annualized basis, the average fuel CPM was 48.6 cents in 2010, 59.0 cents in 2011, 64.1 cents in 2012, 64.5 cents in 2013, and now 58.4 cents in 2014, which is the lowest reported figure since the 2010 study. Furthermore, fuel costs now account for 34 percent of total annual carrier costs, which is the lowest cost share since the 2011 study. Analyzed by sector, Specialized carriers reported the highest fuel CPM (61.5 cents), followed by LTL and TL carriers (60.5 and 55.8 cents respectively).

While fuel cost varies based on operating sector, fleet size also can affect fuel costs. Detailed in Figure 5 below, larger fleets reported lower fuel costs per mile on average than smaller fleets. This is due to larger companies having more diesel buying power, and more sophisticated price hedging strategies.

²² Gasoline and Diesel Fuel Update. U.S. Energy Information Administration. Available online: <http://www.eia.gov/petroleum/gasdiesel>

²³ Ibid.

Figure 5: Respondent Fuel Cost per Mile by Fleet Size



While it is difficult to predict future trends in fuel prices, primarily due to international political volatility, the EIA has indicated that fuel prices in the U.S. should decline through 2015²⁴ – driven in large part by the significant increase in domestic petroleum production and storage.

Equipment Lease or Purchase Payments

Truck and trailer payments were classified as a quasi-operational cost since many motor carriers purchase additional trucks and trailers in response to capacity constraints in strong economic periods, and those payments continue whether the truck is operated or not. Survey respondents indicated that truck/trailer lease or purchase payments rose in 2014 to 21.5 cents per mile. This rise in lease or purchase payments follows the previous year's Ops Cost report whereby an industry source noted that "a strong equipment replacement cycle should begin between 2014 and 2015"²⁵ – which resulted in a record number of Class 8 truck orders in 2014²⁶. Survey respondents operating in the Specialized sector of the industry corroborated this trend; experiencing the highest lease or purchase cost per mile of 24.5 cents, followed by the TL sector at 22.7, and the LTL sector at 15.8. While TL carriers also reported an increase in lease or purchase payments, the extra expense associated with specialized equipment

²⁴ Short-Term Energy Outlook (STEO). U.S. Energy Information Administration. Available online: <http://www.eia.gov/forecasts/steo/>

²⁵ Kilcarr, S. Fleets ready to begin Class 8 replacement cycle. Fleet Owner. July 29, 2013. Available online: <http://fleetowner.com/equipment/fleets-ready-begin-class-8-replacement-cycle>

²⁶ Fleet Owner. "Class 8 Orders Remain Above 40,000 Units in December". 2015 January 8. Available Online : <http://fleetowner.com/equipment/class-8-orders-remain-above-40000-units-december>

compared to regular dry vans caused Specialized carriers to see a higher increase in this line item.

Repair and Maintenance

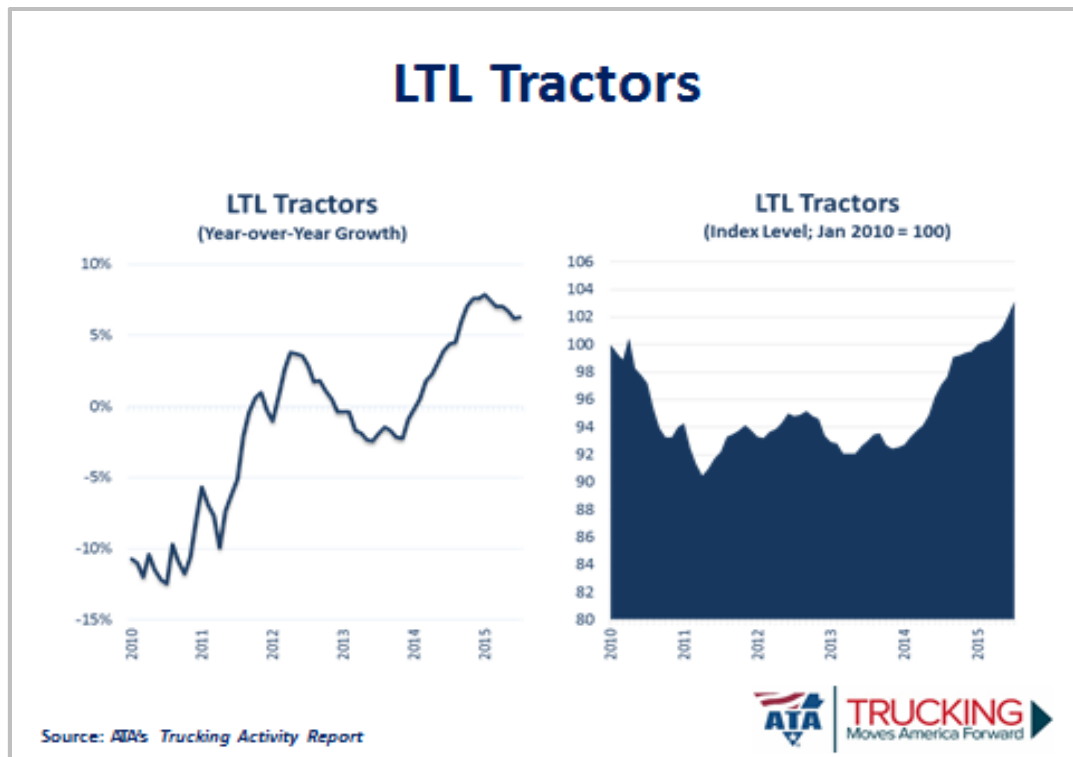
Several factors impact a carrier's repair and maintenance (R&M) costs, such as the age of the trucks and trailers, the vehicle configurations used, and the technologies that are installed on the trucks. Average R&M costs for survey respondents were 15.8 cents per mile in 2014, a slight to moderate increase from the 14.8 cents per mile reported in 2013. The increase in 2014 R&M costs is counterintuitive to an overall average fleet age decrease from 7.8 years in 2013 to 7.4 years in 2014. Anecdotal explanations for R&M costs increasing at the same time as fleet age decreases include newer equipment being far more complex and expensive to maintain, and the severe diesel technician shortage is likely driving up wages within the R&M line-item.

While Specialized carriers had reported the highest R&M costs in 2008, the LTL sector has reported the highest costs in 2009 through 2014 (Table 12). The higher costs experienced by LTL carriers are likely due to the extra wear on their vehicles associated with P&D operations in congested urban areas. It is likely this trend will reverse as the LTL sector has aggressively been purchasing new equipment (Figure 6).

Table 12: Repair and Maintenance Costs by Sector

Sector	2008	2009	2010	2011	2012	2013	2014
LTL	\$0.09	\$0.16	\$0.15	\$0.18	\$0.18	\$0.18	\$0.19
Specialized	\$0.12	\$0.14	\$0.14	\$0.16	\$0.14	\$0.13	\$0.18
TL	\$0.10	\$0.10	\$0.11	\$0.14	\$0.11	\$0.14	\$0.13

Figure 6: LTL New Equipment Purchases²⁷



Aside from strong general interest in ATRI's operational costs data, industry stakeholders have been particularly interested in repair and maintenance CPM figures stratified by fleet size. In response to these inquiries, in 2014 the research team was able to formulate a process to generate repair and maintenance CPM by fleet size (Figure 7).

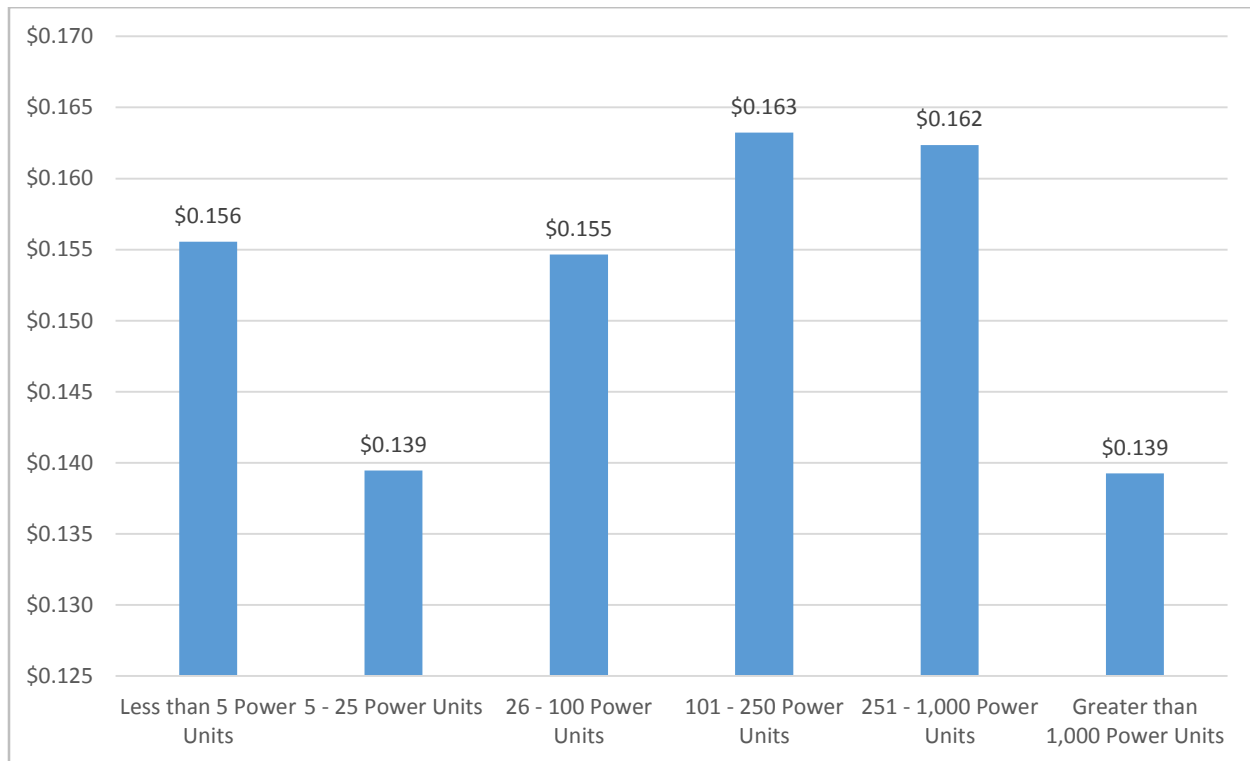
Several factors play into a carrier's R&M cost and fleet size is only one in a long list of related factors. Based on the 2014 data, fleet size does appear to have an impact on the variability in carrier R&M costs. Fleets operating 101 – 250 power units reported having the highest reported R&M CPM of 16.3 cents while fleets operating 5 – 25 and greater than 1,000 power units reported the lowest of 13.9 cents. While the recovering economy continues to increase demand for freight transportation, smaller carriers have reported that due to rising costs they are unable to meet demand.²⁸ As such, smaller carriers may be forgoing non-critical R&M tasks as a cost-saving strategy in order to stay competitive.

²⁷ Costello, Bob. ATA Economic Update Webinar. July 2015.

²⁸ Chao, Loretta. "Trucking Makes a Comeback, but Small Operators Miss Out". The Wall Street Journal.

²³ September 2015. Available online: <http://www.wsj.com/articles/trucking-makes-a-comeback-but-small-operators-miss-out-1443050680>

Figure 7: Respondent Repair and Maintenance Cost per Mile by Fleet Size



Truck Insurance Premiums

Another quasi-operational cost, truck insurance premiums can vary widely between carriers – particularly based on miles-traveled exposure. Many larger fleets self-insure or utilize umbrella policies which do not readily equate to per-truck unit costs. Additionally, property and liability insurance costs still apply while a truck is unoccupied and stationary.

Working with industry experts, ATRI ultimately determined that including insurance costs as a line-item in this analysis is appropriate since most insurance risk assessments are based on mileage exposure and vehicle replacement costs. Carriers often pay liability and cargo premiums by the mile (except for excess coverage). Since physical damage coverage is calculated by tractor/trailer value, the premium can be divided by the total miles traveled to obtain the cost per mile.

According to the motor carriers surveyed, commercial truck insurance premiums increased in 2014, averaging 7.1 cents per mile. Consistent with Specialized carriers reporting the highest truck/trailer lease or purchase payment CPM, Specialized carriers also reported the highest insurance CPM (9.0 cents), while LTL and TL carriers reported a similar average cost per mile of 6.7 and 6.5 cents, respectively.

Permits and Special Licenses

The average permitting and licensing CPM for all carrier respondents was 1.9 cents in 2014, which was 26 percent lower than the 2.6 cents found in 2013. Permit and licensing expenses have been the most volatile cost center for carriers over the past six years of this research. Since these costs are highly dependent on a carrier's type of operation and geographic coverage, a portion of these year-over-year fluctuations may be due to variability in survey respondent populations each year. In addition, it is assumed that government agencies can, and do, turn to these "user fees" as a revenue-generation tool when political forces preclude raising "taxes."

LTL and Specialized carriers reported essentially the same permit and licensing costs, averaging 2.1 and 2.0 cents per mile, respectively. TL carriers reported an average CPM of 1.7 cents.

Tires

Since tires are a petroleum-based product, tire costs generally respond to oil prices. However due to processing and production time, tire costs will likely lag behind increases or decreases in oil prices. A more direct factor in pricing is market demand. With the dramatic increase in truck and trailer orders and sales, pricing pressure on tires has increased considerably since the end of the Great Recession; after remaining relatively stable in 2008 and 2009 (3.0 and 2.9 cents, respectively), survey respondents reported that tire CPM increased beginning in 2010. Carriers indicated that tire CPM rose considerably to 3.5 cents in 2010, 4.2 cents in 2011, 4.4 cents in 2012, 4.1 cents in 2013, and increased slightly to 4.4 cents in 2014. In 2014, Specialized carriers paid the most per mile in tire costs (5.0 cents), followed by LTL carriers (4.4), and TL carriers (4.1).

Tolls

Tolls can be a significant cost for motor carriers, and toll costs are highly dependent on a carrier's region of operation. Many carriers and drivers attempt to avoid tolls whenever possible since shippers rarely reimburse a carrier for toll-related expenses. This year saw a 21 percent increase in average toll costs; moving from 1.9 cents per mile in 2013 to 2.3 cents per mile in 2014. Not surprisingly, motor carriers that operated in the Northeast had the highest average toll costs (4.4 cents per mile) while carriers that operated in the West had the lowest toll costs (1.3 cents per mile).

Driver Wages and Benefits

Most over-the-road or long-haul truck drivers are paid on a per-mile basis while LTL P&D drivers are generally paid by the hour. Survey respondents indicated that average truck driver pay per mile was 46.2 cents in 2014, which is a five percent increase over the 44.0 cents reported in 2013. In terms of hourly wages, the 2014 CPM figure translated to \$18.46. It is important to note that recent increases in (lower-paid) new entrant truck drivers somewhat masks moderate increases in existing driver wages; it is

anecdotally understood that veteran driver pay has increased in an effort to retain good drivers. This phenomenon was first identified in the 2012 analysis.

Across the three major industry sectors, driver wages mimicked sector trends in total costs for 2014; Specialized carriers reported the highest driver wages (51.6 cents per mile), followed by LTL carriers (50.3 cents per mile), and TL carriers reported the lowest (41.8 cents per mile).

The number of carriers utilizing team drivers, who alternate driving the same truck during a trip, increased to 25 percent in 2014 from the 2013 figure of 19 percent. Of those respondents, the average wage per mile for a company team driver was 34.8 cents in 2014.

The driver benefits CPM also remained relatively constant from 2013 to 2014 at 12.9 cents per mile. While reported benefits were unchanged from last year, the figure may increase in coming years. The continuing driver shortage coupled with an aging workforce will likely pressure employers to offer more competitive benefits in an effort to recruit new drivers, and retain their experienced drivers.

Cost Trends

After increasing by three percent from 2012 to 2013, the total average marginal costs increased by another two percent from 2013 to 2014 (Table 13). Rising lease and purchase payments, repair and maintenance costs, truck insurance premiums, tire costs, tolls paid, and driver wages slightly outweighed falling fuel and permit and licensing costs.

Table 13: Average Marginal Cost Trends

Motor Carrier Cost Centers	2008-2009 Change	2009-2010 Change	2010-2011 Change	2011-2012 Change	2012-2013 Change	2013-2014 Change
<i>Vehicle-based</i>						
Fuel Costs	-36%	20%	21%	9%	1%	-10%
Truck/Trailer Lease or Purchase Payments	21%	-28%	2%	-8%	-6%	32%
Repair & Maintenance	19%	1%	22%	-9%	7%	7%
Truck Insurance Premiums	-3%	9%	14%	-6%	2%	11%
Permits and Licenses	84%	39%	-4%	-43%	18%	-27%
Tires	-5%	24%	18%	5%	-6%	7%
Tolls	3%	-49%	39%	8%	3%	18%
<i>Driver-based</i>						
Driver Wages	-7%	11%	3%	-9%	6%	5%
Driver Benefits	-11%	26%	-6%	-23%	11%	0%
TOTAL	-12%	7%	10%	-4%	3%	2%

Table 14 shows the cost trends broken out by sector. As previously mentioned, Specialized carriers reported the only increase in cost from 2013 to 2014 led by an increase in truck/trailer lease and purchase payments. LTL and TL carriers reported a very slight one percent decrease driven by the steady decline in fuel prices seen in 2014.

Table 14: Average Marginal Cost Trends by Sector

Sector	2008-2009 Change	2009-2010 Change	2010-2011 Change	2011-2012 Change	2012-2013 Change	2013-2014 Change
LTL	-8%	5%	10%	-3%	3%	-1%
Specialized	-21%	23%	10%	-7%	-4%	11%
TL	-11%	-4%	11%	-3%	6%	-1%

Cost by Region

Average marginal costs were also calculated by region of operations in the U.S. (Table 15).²⁹ Carriers operating predominantly in the Midwest reported the lowest average cost (\$1.639), while carriers operating heavily in the Northeast reported the highest average (\$1.793).

Table 15: Average Marginal Cost per Mile by Region, 2014

Motor Carrier Cost Centers	Midwest	Northeast	Southeast	Southwest	West
<i>Vehicle-based</i>					
Fuel Costs	\$0.556	\$0.597	\$0.531	\$0.570	\$0.614
Truck/Trailer Lease or Purchase Payments	\$0.194	\$0.215	\$0.211	\$0.197	\$0.191
Repair & Maintenance	\$0.137	\$0.183	\$0.163	\$0.180	\$0.176
Truck Insurance Premiums	\$0.067	\$0.083	\$0.061	\$0.077	\$0.091
Permits and Licenses	\$0.019	\$0.021	\$0.013	\$0.020	\$0.022
Tires	\$0.041	\$0.045	\$0.044	\$0.043	\$0.050
Tolls	\$0.024	\$0.044	\$0.019	\$0.016	\$0.013
<i>Driver-based</i>					
Driver Wages	\$0.461	\$0.464	\$0.498	\$0.454	\$0.481
Driver Benefits	\$0.140	\$0.142	\$0.137	\$0.116	\$0.131
TOTAL	\$1.639	\$1.793	\$1.678	\$1.673	\$1.768

²⁹ See survey in Appendix A for regions; Canada was excluded from this analysis.

CONCLUSION

Using financial data provided directly by motor carriers throughout the country, ATRI has once again documented and updated the marginal operational costs that carriers experienced in 2014. This research continues to be an important benchmarking tool for carriers to discern their performance against others in the country, their region, and their sector of operation. Additionally, due to an increased response rate to this year's data collection, carriers can now compare select line-item cost to fleets of similar sizes. Beyond strictly serving as a motor carrier benchmarking tool, an additional objective of this research is to ensure that accurate, real-world data inputs are available for transportation planning and investment models in order to generate realistic costs and benefits that accrue to commercial vehicle operators on the nation's transportation system.

Based on data collected from motor carrier survey respondents, the average marginal cost per mile in 2014 was \$1.703 for the for-hire sector of the trucking industry, a 2.7 cent increase over the average cost per mile found in 2013. While fuel prices fell throughout the year – thus reducing the fuel cost per mile – the overall increase in CPM was led by reported increases in truck and trailer lease and purchase payments, as well as higher truck insurance premiums. This was especially true in the Specialized sector where carriers accounted for the higher cost of specialized equipment when expanding or replacing their fleets. Additionally, the growing driver shortage, along with an aging workforce, continues to drive labor costs up as motor carriers compete to recruit and retain drivers. This continuing trend was documented in the increase in reported driver pay for 2014.

Finally, fuel continues to be the largest CPM line-item even though 2014 saw on-highway fuel prices decreasing throughout the year. However, due to an economic-based freight demand increase, and growing repair and maintenance costs, carriers are moving quickly to replace older equipment. In turn, the additional insurance costs associated with those purchases, along with increasing driver pay to recruit and retain their drivers, it is likely that the trucking industry will continue to see overall operating costs rise in spite of projected fuel price decreases.

GLOSSARY

For-hire carrier – a motor carrier that offers freight transportation services to the general public.

Less-than-truckload carrier – hauls a quantity of freight less than that required for the application of a truckload rate, usually less than 10,000 pounds. Typically maintains a “hub and spoke” model whereby carriers pick up smaller shipments, often on a set route, and return to a base terminal where the packages are unloaded, sorted and consolidated with other shipments going to similar locations. Line haul drivers move the shipments between terminals while pick-up and delivery (P&D) drivers deliver shipments to their final destination.

Longer Combination Vehicle – a combination vehicle consisting of a power unit (tractor) pulling more than one trailer. Common trailer configurations include doubles (two 28 foot trailers), Rocky Mountain doubles (one 40 to 53 foot trailer and one 28 foot trailer) and turnpike doubles (two 33 to 53 foot trailers).

Higher Productivity Vehicle – includes combination vehicles that are longer or heavier than vehicle weight or dimension regulations typically allow.

Private carrier – companies whose primary business is not hauling freight for-hire but that own or lease a fleet of trucks in support of their primary business.

Shipper – a company that hires a transportation company to move its freight.

Specialized carrier – includes flatbed trailers, tank trucks and agricultural-based carriers as well as carriers dedicated to hauling government munitions, radioactive waste and carriers utilizing specially permitted oversize/overweight loads.

Straight truck – a vehicle with the cargo body and tractor mounted on the same chassis.

Tractor semitrailer – a combination vehicle consisting of a power unit (tractor) and a semitrailer.

Truckload carrier – hauls a quantity of freight that fills a semitrailer, usually more than 10,000 pounds. Generally hauls a dedicated load of freight for one customer (shipper) to one destination (consignee). Many TL carriers will specialize in moving a specific type of freight (e.g. refrigerated or hazardous materials).

APPENDIX A

OPERATIONAL COSTS OF TRUCKING SURVEY



OPERATIONAL COSTS OF TRUCKING SURVEY

The American Transportation Research Institute (ATRI) is conducting a strategic survey of **for-hire** motor carriers to update its previous reports on truck operational costs. ATRI is seeking those marginal costs associated with operating a truck in **2014**. The findings of this survey will be used in various research studies relating to industry productivity, driver issues and fuel efficiency.

In addition, ATRI will send all respondents an advance copy of the report.

Your survey responses will be kept completely CONFIDENTIAL. Due to the sensitivity of this research, under NO circumstances will we release any of your personal or organizational information. As needed, ATRI will sign a Non-Disclosure Agreement.

Please return the completed survey via fax (770-432-0638), email (ftorrey@trucking.org) or click [here](#) to submit your responses online.

If you have any questions, please contact Ford Torrey at ftorrey@trucking.org or 770-432-0628.

Please enter your contact information below. Occasionally ATRI will follow up with survey respondents to clarify answers. Your information will be kept strictly confidential.

Company	Contact Name	
Street Address	Position/Title	
City	State	Zip
Phone	Email	

2014 Demographics

1) What was your company's annual trucking-related revenue in 2014? *(Exclude brokerage/logistics revenue)*

\$_____

2) What is your **primary** for-hire business type? *(Select one)*

Truckload	<input type="checkbox"/>
Less-Than-Truckload	<input type="checkbox"/>
Specialized	<input type="checkbox"/>
Other (please specify):	<input type="checkbox"/>

3) What is the **primary** type of commodity that your company hauls? (While your company may haul multiple commodities, select only the most frequent type hauled)

- ☐ Agricultural Products
- ☐ Automotive Parts or Vehicles
- ☐ Construction/Building Materials
- ☐ Forest Products
- ☐ Garbage or Sanitation
- ☐ General Freight
- ☐ Hazardous Materials
- ☐ Heavy Machinery/Equipment
- ☐ Household Goods
- ☐ Industrial Gases
- ☐ Intermodal Containers
- ☐ Livestock
- ☐ Manufactured Goods

- ☐ Mine Ores
- ☐ Modular/Mobile Homes
- ☐ Paper Products
- ☐ Petroleum Products
- ☐ Refrigerated Food
- ☐ Retail Store/General Merchandise
- ☐ U.S. Mail/Parcel Service
- ☐ Other (please specify): _____
- ☐ Don't Know

4) What is your company's fleet size, average age and average number of miles (including owner operators) traveled in a year for each equipment type?

Equipment Type	Number of Assets	Average Age (in years)	Average Miles Per Year Per Unit
Straight Trucks			
Truck-Tractors			
28' Trailers			
45' Trailers			
48' Trailers			
53' Trailers			
Other (please specify):			

5) How long do you typically keep your equipment? (Specify years or miles)

Equipment Type	Avg. Trade Cycle	Years	Miles
Straight Trucks		<input type="checkbox"/>	<input type="checkbox"/>
Truck-Tractors		<input type="checkbox"/>	<input type="checkbox"/>
Trailers		<input type="checkbox"/>	<input type="checkbox"/>

6) Are any of the trucks in your fleet powered by an alternative fuel (i.e. do not run exclusively on diesel or gasoline)?

☐ Yes
 ☐ No
 ☐ Don't Know

If yes, please indicate the number of trucks in your fleet that use each of the alternative fuels listed below.

Alternative Fuel	Number of Trucks
Compressed Natural Gas (CNG)	
Liquefied Natural Gas (LNG)	
Electricity	
Hybrid engine	
Other (please specify):	

- 7) Does your company currently use Electronic Logging Devices (ELDs) for Hours-of-Service recordkeeping (also known as Electronic On-board Recorders, or EOBRs)?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Don't Know	<input type="checkbox"/>
-----	--------------------------	----	--------------------------	------------	--------------------------

If yes, what percentage of your company's trucks used ELDs in 2014?

% of trucks

- 8) Are any of the trucks in your fleet speed limited or governed?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Don't Know	<input type="checkbox"/>
-----	--------------------------	----	--------------------------	------------	--------------------------

If yes, please provide the maximum speed setting and the percent of your fleet governed at that speed.

Maximum Speed (mph)	Percent of Trucks

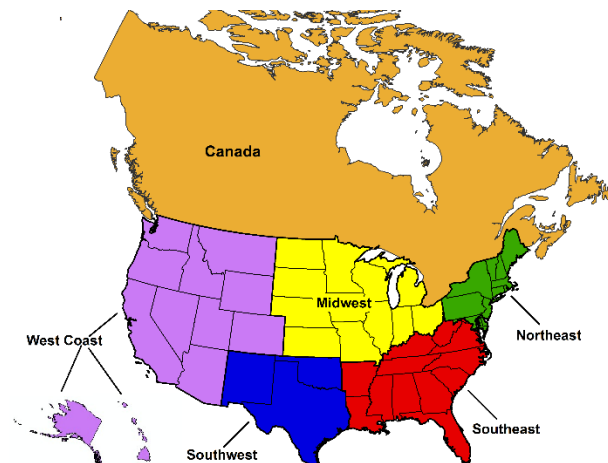
- 9) Based on your fleet's IFTA miles, what percentage of your drivers' trips are in the following categories in 2014?

(Total must sum to 100%)

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

- 10) Please estimate the percentage of miles traveled by your fleet (include owner operator miles) in the following regions during 2014. (Total must sum to 100%)

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



2014 Operational Costs

11) Please list the pay per mile (\$/mile) or pay per hour (\$/hour) for SINGLE drivers in 2014. (If there are multiple pay rates for the same type of driver please use the average pay rate.)

Type of Pay	Company Driver/ Company Truck	Leased 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.

12) Do you provide any additional financial incentives and/or bonus pay for SINGLE drivers that are not part of their regular wages?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Don't Know	<input type="checkbox"/>
-----	--------------------------	----	--------------------------	------------	--------------------------

If yes, what was the average incentive and/or bonus pay paid per driver in 2014? (Please report as an annual average paid per driver.)

\$	/ Average per Driver in 2014
----	------------------------------

13) Do you employ team drivers?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

If yes, please list the pay per mile (\$/mile) or pay per hour (\$/hour) rates for the following types of drivers who drove as part of a TEAM in 2014. (Please use the pay rate for each individual driver, not the team rate. If there are multiple pay rates for the same type of driver, please use the average pay rate.)

Type of Pay	Company Driver/ Company Truck	Leased 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.

14) Do you provide any additional financial incentives and/or bonus pay for TEAM drivers that are not part of their regular wages?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Don't Know	<input type="checkbox"/>
-----	--------------------------	----	--------------------------	------------	--------------------------

If yes, what was the average incentive and/or bonus pay paid per individual driver in 2014? *(Please report as an annual average paid per driver.)*

\$	/ Average per Driver in 2014
----	------------------------------

15) Please list your 2014 costs per mile for the following key cost centers, calculated using IFTA miles: *(If the amount equals zero, please enter 0. If the line item does not apply to your operation, please enter N/A.)*

Expense Type	2014 Cost per Mile
Repair & Maintenance (Include R&M costs 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 transportation fuel; do not include fuel surcharge revenue.)	\$
Truck Insurance Premiums (Include all liability, cargo and umbrella policy premiums.)	\$
Truck and Trailer Lease or Purchase Payments (Include all interest/fees associated with the payments; do not include depreciation tax benefits.)	\$
Tolls	\$
Permits & Special Licenses (Include oversize/overweight permits, HazMat, etc.)	\$
Other (please specify): _____	\$
Total	\$

16) What percent of your total annual miles were non-revenue/dead-head miles in 2014?

% of total 2014 miles

Thank you! We greatly appreciate your participation.

Please return completed survey to ATRI via fax **(770-432-0638)** or email (ftorrey@trucking.org)



950 N. Glebe Road
Arlington, VA
(703) 838-1966
atri@trucking.org
www.atri-online.org