CRITICAL ISSUES IN THE TRUCKING INDUSTRY – 2017

Presented to the
American Trucking Associations

Prepared by

The American Transportation Research Institute

October 2017

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Critical Issues in the Trucking Industry – 2017

The past year has seen continued legislative and regulatory activity affecting the trucking industry. However, unlike recent years, much of the regulatory activity in 2017 brought resolution to several critical industry challenges. Chief among these actions was a final determination on the Federal Motor Carrier Safety Administration (FMCSA) Hours-of-Service (HOS) provisions, the removal of the barriers toward the implementation of FMCSA's Electronic Logging Device (ELD) mandate, and a final rule on the minimum entry-level CDL training requirements.

In March of this year, FMCSA released findings from their study on the impacts of the HOS restart provisions as mandated by Congress in December 2014.[1] FMCSA's study "did not find that the requirement for at least two nighttime periods of rest and the prohibition on taking more than one restart per week provided a greater net safety benefit than the previous restart regulations…" while also finding that "the restarts benefitted the ability of drivers to recover from fatigue and sleep loss regardless of the restart provision used."[2] As such, the 34-hour restart rule was restored in full force, while the other restart provisions will not be enforced.[3]

FMCSA's ELD mandate also overcame several last-minute challenges to its implementation, ending a protracted process and ensuring that the mandate will go into effect on December 18, 2017. The Supreme Court denied the Owner-Operator Independent Drivers Association's request for a rejection of the rule on June 12, 2017.[4] A final effort to delay the ELD mandate by members of the U.S. House of Representatives also failed to pass in September of this year.[5]

FMCSA's Entry-Level Driver Training (ELDT) rule finally went into effect on June 5, 2017.[6] The rule, which has a compliance date of February 7, 2020, states that no entry-level driver can take a Commercial Driver License (CDL) skills test without first completing a mandatory knowledge and behind-the-wheel training program.[7] The three-year compliance window provides time for commercial driver training entities to come into compliance with the rule's requirements and be certified and listed on FMCSA's Training Provider Registry.

[1] "Frequently Asked Questions: Commercial Motor Vehicle (CMV) Driver Restart Study." Federal Motor Carrier Safety Administration. Washington DC. 8 March, 2017. Available online: https://www.fmcsa.dot.gov/research-and-analysis/research/frequently-asked-questions-commercial-motor-vehicle-cmv-driver
[2] Ibid.
[3] Ibid.
[4] "Supreme Court Denies Hearing on ELD Lawsuit." Transport Topics. 12 June, 2017. Available online: http://www.ttnews.com/articles/house-rejects-bid-delay-dec-18-eld-mandate
[5] Mulero, Eugene. "House Rejects Bid to Delay Dec. 18 ELD Mandate." Transport Topics. 7 September, 2017. Available online: http://www.ttnews.com/articles/house-rejects-bid-delay-dec-18-eld-mandate
[6] Cullen, David. "FMCSA Finally Releases Entry-Level Driver Training Rule." Truckinginfo. Available online: http://www.truckinginfo.com/channel/drivers/news/story/2017/06/fmcsa-finally-releases-entry-level-driver-training-rule.aspx.
[7] "Frequently Asked Questions: Entry-Level Driver Training Final Rule." Federal Motor Carrier Safety Administration. Washington DC. 3 February, 2017. Available online: https://www.fmcsa.dot.gov/registration/commercial-drivers-license/eldt/faqs

In addition to the legislative and regulatory changes that took place in 2017, issues internal to the industry continue to impact fleet operations. The causes that underpin the growing shortage of commercial drivers and diesel technicians remained firmly in place over the past year, as viable solutions to the pervasive trucking industry staffing challenges have yet to emerge.

Given these and numerous other issues impacting the nation's freight system, the American Trucking Associations (ATA) and its Federation partners in the State Trucking Associations (STA) continually seek opportunities to identify and prioritize the industry's most pressing concerns. For the past 13 years, the industry has relied on the American Transportation Research Institute's (ATRI's) annual industry survey to better understand trucking's most critical issues as well as to identify preferred strategies for addressing these issues.

ATRI's Top Industry Issues report is based on a robust survey methodology. The issues and potential strategies were first identified by ATRI in collaboration with various trucking stakeholder groups. ATRI then conducted a large-scale survey distribution using its own contact database, ATRI's regular Sirius/XM radio show, major trucking industry trade press, and through the 50 State Trucking Associations.

Survey respondents were asked to select their top three choices from the aforementioned list, and subsequently rank their top three preferred strategies corresponding to each selected issue.

As evidence of the numerous and varied challenges currently facing the industry, this year's survey generated 1,557 responses. Respondents represented industry stakeholders across North America, including the U.S., Canada, and Mexico. A majority of respondents were motor carriers (50.4%), with commercial drivers making up 35.7 percent of the respondent pool, and other industry stakeholders accounting for 13.9 percent. Recognizing that the top industry issues impact motor carriers and commercial drivers differently, this year's report includes separate "Top Ten" lists specific to commercial drivers and motor carriers, in addition to the overall ranking.

This report presents the findings of the 2017 annual survey and analysis, and compares the findings of previous years' results (Table 3) – providing insight into both the changing and emerging priorities of the trucking industry.

Top Issues Summary

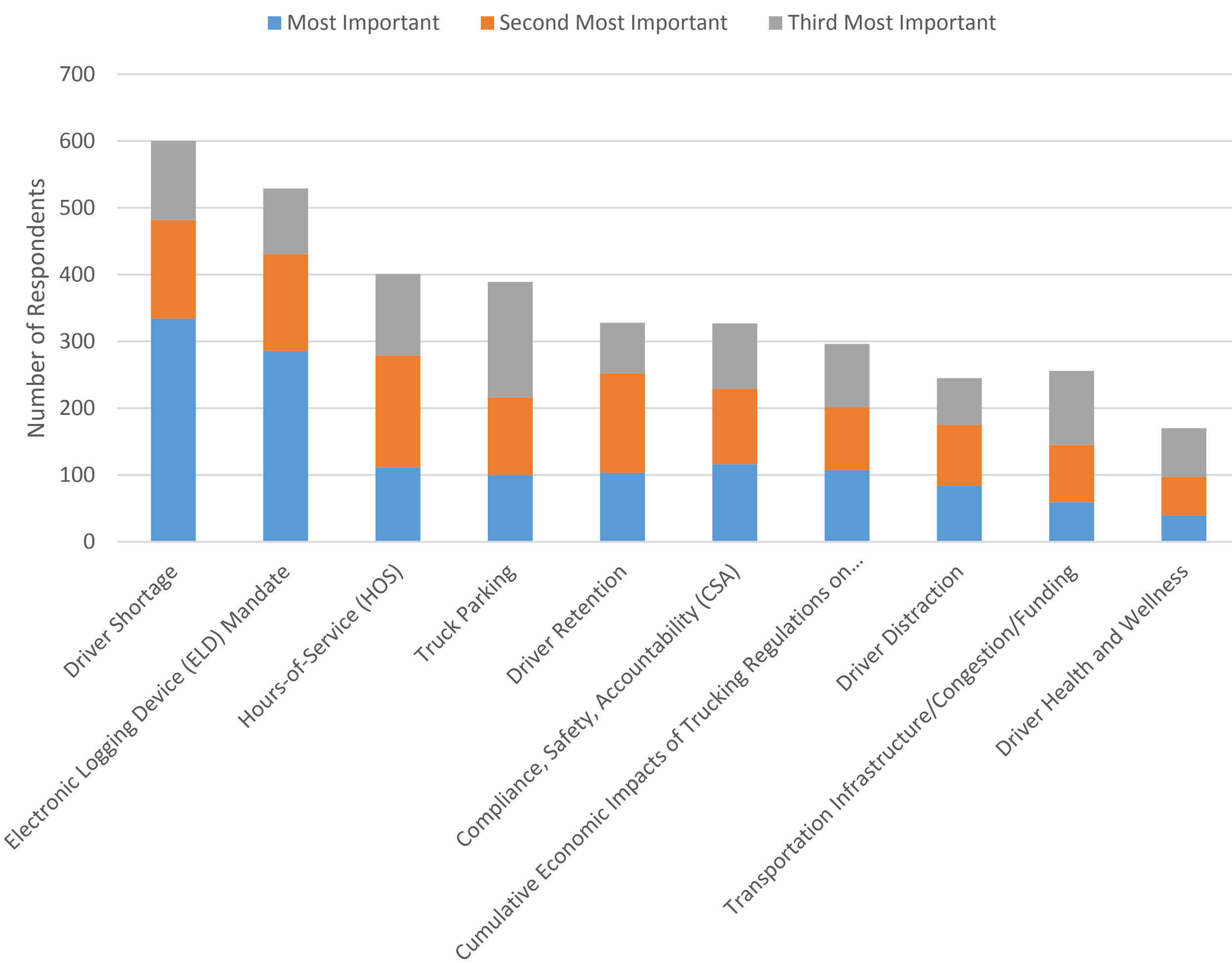
Among all respondents, the Driver Shortage surged six spots to top this year's list of industry concerns, surpassing the ELD mandate which fell to second position and the HOS rules which moved down to the number three issue. The lack of available safe parking for trucks held steady as the fourth-biggest industry issue, while further concern over high levels of industry turnover caused Driver Retention to climb three positions and round out this year's top five issues.

ATRI develops the "Top Ten" list using a formula assigning quantitative values to respondents' rankings of issues facing the industry. An issue that is ranked by a respondent as most important receives three points, while an issue ranked second receives two points and an issue ranked third receives one point. Issues that were not ranked by respondents do not receive any points.

The total number of points is then added together to generate a prioritized list of industry concerns. The issue with the highest number of points is, of course, identified as the top industry issue. An Industry Concern Index (ICI) is presented to illustrate the relative level of concern from one issue to the next. The Top Industry Issue receives an ICI of 100, and then all other issues are indexed against this value. For example, if an issue receives an ICI of 50, it was calculated to have half the level of concern as the top issue.

Each respondent was then asked to rank three strategies to address each of the issues they selected in the previous step. These strategies were previously identified by stakeholders for their potential to address or mitigate the issues. Values are then assigned to respondents' rankings for each of the three strategies and an average score is calculated based on all of the rankings to determine the most preferred strategy.

Figure 1: Distribution of Industry Issue Prioritization Scores



1. Driver Shortage

Ranked 1st	Ranked 2nd	Ranked 3rd	Total Share	**Industry Concern Index**
21%	10%	8%	39%	**100**

Though it is a perennial top industry issue, the Driver Shortage ranked as the top concern this year for the first time since 2006. An optimistic trucking industry outlook, based on improving economic growth in the United States, has many in the industry concerned that the demand for truck drivers will further outpace the supply of qualified drivers. To this end, the American Trucking Associations (ATA) estimates a shortfall of 48,000 drivers, with projections that the shortage could increase to 175,000 by 2025.[8]

Proposed Strategies (in rank order):

a) *Advocate for state and federal authorities to develop a graduated CDL program to attract safe younger drivers to the industry.* The aging demographic of the trucking industry's workforce remains a significant structural issue affecting the available pool of qualified truck drivers. A demographic analysis conducted by ATRI in 2014 showed that more than one in four truck drivers are 55 years and older.[9] To combat the pending wave of driver retirements, 60 percent of respondents indicated that the industry must work with state and federal authorities to attract a new generation of qualified drivers to the industry. To this end, ATRI is already in the early stages of research to create an assessment tool to identify the safe, younger drivers the industry needs.[10]

b) *Partner with the U.S. Department of Labor to formalize a national truck driver recruitment program.* With truck driving projected to be one of the occupations with the most job growth between 2014 and 2024, recruiting a steady flow of new drivers into the industry workforce will prove essential in the years ahead.[11] Further corroborating the industry's significant recruiting needs is the estimated 890,000 truck drivers that will be needed over the next decade to *maintain* the existing workforce.[12] As such, 24 percent of respondents believe that the industry must develop a national recruiting program in conjunction with the U.S. Department of Labor to meet the industry's growing workforce needs.

c) *Work with the U.S. Department of Transportation and the Department of Defense to equalize and streamline licensing requirements between DOT and DOD.* Given the persistence and severity of the trucking industry's driver shortage, some in the industry are looking to the U.S. DOT and DOD to create a simplified and consistent set of

[8] Costello, Bob. "ATA's Trucking Economic Review". Volume 17, Issue 4. 23 December 2015.
[9] Short, Jeffery. *Analysis of Truck Driver Age Demographics Across Two Decades*. American Transportation Research Institute. Arlington, VA. December 2014.
[10] Boris, Carolina and Monica Luciana. "Developing a Younger Driver Assessment Tool Technical Memorandum #1." American Transportation Research Institute. Arlington, VA. August 2017.
[11] "Occupations with the Most Job Growth." United States Department of Labor. 14 April, 2017. Available online: https://www.bls.gov/emp/ep_table_104.htm
[12] Costello, Bob and Rod Suarez. "Truck Driver Shortage Analysis 2015." American Trucking Associations. Arlington, VA. October 2015.

licensing requirements. Reducing the red tape and complexity of obtaining a Commercial Driver's License (CDL) would serve to remove a potential barrier of entry for prospective truck drivers.

2. Electronic Logging Device (ELD) Mandate

Ranked 1st 18%	Ranked 2nd 9%	Ranked 3rd 6%	Total Share 34%	**Industry Concern Index 88**

As previously discussed, two final efforts to delay the ELD Mandate's implementation at the end of 2017 failed to achieve their objective. While some groups continue to push for regulatory relief from the Trump administration, the compliance date of December 2017 is quickly approaching. Given that the ELD Mandate ranked as the second-biggest issue facing the industry in 2017, it is clear that many in the industry remain concerned about the costs associated with deploying ELDs, what deployment will mean for industry productivity, and how the data collected will be used beyond HOS compliance, while others are concerned that the implementation window will be further extended.

Proposed Strategies (in rank order):

a) *Research and quantify industry impacts on safety and productivity from full deployment of ELDs.* Selected by a majority (50.8%) of respondents again in 2017, the industry's belief that research is needed to quantify the costs and benefits of ELDs indicates that significant uncertainty remains about the impacts of industry-wide ELD deployment. While ELD costs vary, the fixed costs of an ELD can range from $170 to over $1,500 per unit.[13] Research also predicts that implementation of the mandate will result in productivity losses of 3 to 5 percent.[14] Yet in its Regulatory Impact Analysis, FMCSA projects that the industry will save $2.44 billion in administrative costs.[15]

b) *Assess the landscape of appropriate and inappropriate uses of newly available ELD data.* Given the scope of information that ELDs are capable of tracking and the scale of their pending adoption, concern remains regarding how this information will be used beyond the stated purpose of logging HOS. Despite avenues written into FMCSA's final rule for drivers to file a complaint regarding harassment,[16] a quarter of respondents (26%) again indicated a desire to establish limitations on the use of ELD-generated data.

c) *Ensure that the implementation window is not extended beyond December 2017.* As more fleets make the ELD investments in advance of the mandate, an even greater proportion of 2017 respondents (24.2%) indicated that they do not want the implementation window to be extended past the current two-year period due to the

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[13] Dills, Todd. "ELD Buyers' Guide: The price of compliance." Commercial Carrier Journal, Fleet Management Magazine. Available online: http://www.ccjdigital.com/eld-buyers-guide/

[14] Kilcarr, Sean. "ELDs: Predicting the Productivity Losses." Fleet Owner. 11 March, 2016. Available online: http://fleetowner.com/regulations/elds-predicting-productivity-losses

[15] Dills, Todd. "ELD Mandate: Is Drivers' Time Saved by E-logs Worth Near $2 Billion Annually?" Overdrive Online. 18 February 2016. Available online: http://www.overdriveonline.com/eld-mandate-is-drivers-time-saved-by-e-logs-worth-near-2-billion-annually/

[16] "Electronic Logging Devices and Hours of Service Supporting Documents." Federal Motor Carrier Safety Administration. Washington DC. 16 December, 2015. Available online: https://www.gpo.gov/fdsys/pkg/FR-2015-12-16/pdf/2015-31336.pdf

unfair competitive advantages that fleets using paper logs could have over early ELD-adopting fleets.[17] By comparison, a small portion of respondents (10.7%) selected this strategy in 2016.

[17] American Trucking Associations. *Comments of The American Trucking Associations on Electronic On Board Recorders and Hours of Service Supporting Documents.* Arlington, VA. June 26, 2014.

3. Hours-of-Service (HOS)

Ranked 1st 7%	Ranked 2nd 11%	Ranked 3rd 8%	Total Share 26%	**Industry Concern Index 55.9**

FMCSA's issuance of a final ruling on the 34-hour restart provisions brought final resolution to one of the most challenging of the industry's top issues. Achieving this outcome was the top strategy selected by respondents in the 2016 survey. However, HOS remains in the top three industry issues for the seventh consecutive year in 2017 due in large part to the industry's desire for increased flexibility in the rules, which may be underscored once all drivers are on electronic logs.

Proposed Strategies (in rank order):

a) *Continue to push for increased flexibility in the current sleeper berth provision.* Added flexibility in the current sleeper berth rule was selected as the top strategy by a majority (52%) of respondents. The current rule specifies that drivers using the provision must take at least eight consecutive hours in the sleeper berth, plus a separate two hours either in the sleeper berth, off duty, or any combination of the two.[18] Additional flexibility in the rule would allow drivers to rest when tired and would provide an opportunity for drivers to adjust their driving schedules to avoid some of the worst congestion chokepoints; the latter being the focus of one of ATRI's top research priorities for 2017. An FMCSA pilot study to assess the benefits of allowing split-sleep in conjunction with a fatigue management program began in July 2017.[19]

b) *Research and quantify the true safety and economic impacts of customer detention on truck drivers and trucking operations.* Concern over the adverse safety and economic impacts of driver delays at customer facilities resulted in 37 percent of respondents selecting this as the top strategy. The U.S. DOT Office of Inspector General (OIG) initiated an audit of customer detention impacts in June 2016 but the results have not yet been released.[20]

c) *Analyze how highly automated technologies could affect the HOS rules and identify what research and data would be necessary to justify future rules changes.* While Congress debates trucking's future role among self-driving vehicles, 13.3 percent of respondents recognized the importance of assessing how the potential adoption of

[18] Federal Motor Carrier Safety Administration. *Summary of Hours of Service Rules*. Last updated December 18, 2014. Available online: https://www.fmcsa.dot.gov/regulations/hours-service/summary-hours-service-regulations
[19] "Flexible Sleeper Berth Pilot Program." Federal Motor Carrier Safety Administration. Washington DC. 4 October, 2017. Available online: https://www.fmcsa.dot.gov/research-and-analysis/research/flexible-sleeper-berth-pilot-program
[20] Audit Announcement – Commercial Motor Vehicle Loading and Unloading Delays. Office of Inspector General, Office of the Secretary of Transportation, U.S. Department of Transportation. 15 June 2016. Available online: https://www.oig.dot.gov/sites/default/files/FMCSA%20Loading%20and%20Unloading%20Delays%20Announcement%5E-6-15-16.pdf

automated technology by the trucking industry could affect HOS rules.[21] The current rules were developed to ensure adequate off-duty time for truck drivers operating large vehicles requiring full driver attention.[22] However, further research is needed into how these rules could be evolve to allow for increased flexibility as more advanced automated technologies are adopted.[23]

[21] Mulero, Eugene. "Senate Committee Approves Self-Driving Vehicles Bill Without Trucking Policy." Transport Topics. 4 October, 2017. Available online: http://www.ttnews.com/articles/senate-committee-approves-self-driving-vehicles-bill-without-trucking-policy

[22] Short, Jeff and Dan Murray. "Identifying Autonomous Vehicle Technology Impacts on the Trucking Industry." American Transportation Research Institute. Arlington, VA. November 2016.

[23] Ibid.

4. Truck Parking

Ranked 1st 6%	Ranked 2nd 7%	Ranked 3rd 11%	Total Share 25%	**Industry Concern Index 49.8**

The growing scarcity of available truck parking creates a dangerous and costly situation for truck drivers who are often forced to drive beyond allowable HOS rules or park in undesignated and, in many cases, unsafe locations. It has been two years since the Federal Highway Administration (FHWA) released its Congressionally mandated *Jason's Law Truck Parking Survey Results and Comparative Analysis*, which confirmed that truck parking continues to be a major issue in the United States, and the results of this year's top industry issues survey corroborate the challenges, with truck parking holding firm as the fourth-biggest industry issue in 2017.[24] As later noted, among truck drivers, truck parking is now the second biggest issue in their professional life.

The truck parking issue may gain greater attention once the ELD mandate is in effect. In ATRI's truck parking diary research, released in 2016, commercial drivers who were already using electronic logs were nearly twice as likely to spend more than 30 minutes looking for available parking as drivers who were using paper logs.[25] In that research, ATRI cites one driver who commented, "ELD leaves no room for dealing with full truck stops making it nearly impossible to preplan."[26]

<u>Proposed Strategies (in rank order):</u>

a) *Support and encourage investment in new truck parking facilities.* A large majority of survey respondents (64.9%) have continued to indicate that increasing truck parking capacity is their preferred strategy for addressing the pervasive shortage of truck parking. However, funding for truck stops and rest areas is usually one of the first items cut during periods of state budget shortfalls, as evidenced by trends over the past several years.[27] There is often the sticky and confounding debate between using limited public funding for truck parking versus highway infrastructure. ATRI's "Highway Funding Analysis" report documents that an adequate increase in the federal fuel tax would go far in addressing both truck parking and good roads.[28]

Re-opening shuttered parking facilities and investing in new facilities are the most direct strategies aimed at alleviating the chronic and growing shortage of truck parking. New

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[24] Federal Highway Administration and Department of Transportation. *Jason's Law Truck Parking Survey Results and Comparative Analysis*. August 2015. Available Online: http://www.ops.fhwa.dot.gov/freight/infrastructure/truck_parking/jasons_law/truckparkingsurvey/jasons_law.pdf
[25] Boris, Caroline and Rebecca Brewster. "Managing Critical Truck Parking Case Study – Real World Insights from Truck Parking Diaries." American Transportation Research Institute. Arlington, VA. December 2016.
[26] Ibid.
[27] Boris, Caroline and Matthew Johnson. *Managing Critical Truck Parking Tech Memo #1: Commercial Driver Perspectives on Truck Parking*. American Transportation Research Institute. Arlington, VA. September 2015.
[28] Short, Jeff. "Highway Funding Analysis: Update 2017." American Transportation Research Institute. Arlington, VA. Expected release November 2017.

research is also exploring the potential for repurposing vacant urban and suburban land parcels for truck parking.[29]

b) *Educate the public sector on the safety consequences resulting from closing public parking facilities and failing to expand truck parking availability.* The Jason's Law Report first brought attention to the safety risks commercial drivers face as a result of the truck parking shortage, and more recent research continues to quantify the safety impacts of an inadequate supply of truck parking.[30] ATRI's truck parking diary research quantified how frequently drivers are forced to park in undesignated/unauthorized truck parking locations like highway shoulders or ramps, with 48.7 percent of drivers reporting that the parking shortage leads them to do so from three to seven times per week.[31] As such, this is the preferred strategy for 29 percent of respondents, indicating that many in the industry hope that educating state and local officials on the critical need for safe truck parking facilities could lead to new investments.

c) *Research the role and value of real-time truck parking information availability and truck parking reservation systems.* Leveraging technological advancements to develop real-time truck parking solutions was the preferred strategy for a small percentage (7.2%) of respondents. However, this is a strategy where there is considerable public sector interest and investment. ATRI initially designed the Truck Parking Information Management System (TPIMS) used by the MN Department of Transportation, and it later expanded to the Mid America Association of State Transportation Officials (MAASTO) Truck Parking Information Management Systems (TPIMS), which was funded through a $25 million TIGER grant. When fully deployed, the MAASTO TPIMS will deliver real-time truck parking availability information to commercial drivers in eight Midwest states.[32]

[29] Perry, Earnest et al. "An Evaluation of Vacant Urban Land for Truck Parking." Mid-America Freight Coalition. February 2017. Available online: http://midamericafreight.org/wp-content/uploads/MAFC-White-Paper_Truck-Parking.pdf
[30] Hernandez, Salvador and Jason Anderson. "Truck Parking: An Emergency Safety Hazard to Highway Users." Oregon State University. July 2017. Available online: https://ntl.bts.gov/lib/62000/62200/62247/SPR783_TruckParkingHaz.pdf
[31] Boris, Caroline and Rebecca Brewster. "Managing Critical Truck Parking Case Study – Real World Insights from Truck Parking Diaries." American Transportation Research Institute. Arlington, VA. December 2016.
[32] MAASTO Regional Truck Parking. *Truck Parking Information Management Systems*. Available online: http://www.maasto.net/documents/TPIMS-Summary.pdf

5. Driver Retention

Ranked 1st 7%	Ranked 2nd 10%	Ranked 3rd 5%	Total Share 21%	**Industry Concern Index 48.2**

Although somewhat related to the driver shortage, Driver Retention remains a separate issue and top priority for the trucking industry. Driver turnover surged through the first half of 2017 after falling for the duration of 2016, indicating that the driver market has tightened considerably over the year.[33] To combat driver churn, which dramatically increases recruitment and training costs, motor carriers have begun to compete with one another using sign-on/stay-on bonuses.[34] As such, it was not surprising to see Driver Retention move up three spots in 2017, ranking as the fifth-biggest industry facing the trucking industry.

Proposed Strategies (in rank order):

a) *Study the effectiveness of carrier retention programs that financially incentivize drivers for driving performance in the areas of safety, fuel economy, and trip productivity.* Financial incentive systems that award the safest and productive drivers in a fleet may potentially boost driver retention. To this end, ATRI estimated that motor carriers paid drivers an average of $1,500 in safety bonuses in 2016.[35] These bonuses may also serve to improve overall fleet safety and productivity as more truck drivers in a fleet work toward receiving the bonuses. 45.9 percent of respondents believe that understanding the role of such bonuses in driver retention is an important first step in mitigating driver churn.

b) *Research the relationship between driver compensation models and driver productivity.* While driver pay is only part of the equation, it appears to play a leading role in maintaining and/or enhancing driver satisfaction. However, understanding the various truck driver compensation models and their relationship to driver productivity and retention is a necessary first step in advancing the most successful compensation schema. 34.7 percent of respondents believe an analysis of driver compensation approaches would be beneficial to the industry.

c) *Create an online compendium of retention strategies and best practices, customizable by carrier fleet size and sector.* Once research into the effectiveness of carrier retention programs and compensation models has been completed, it will be important to establish a centralized repository for this information to facilitate the ultimate adoption of the best retention strategies and practices. Accordingly, just under one-fifth of respondents (19.6%) indicated that compiling the results of this research was their preferred strategy to address the Driver Retention problem.

[33] Bearth, Daniel P. "Turnover Surges in Second Quarter." Transport Topics. 18 September, 2017. Available online: http://www.ttnews.com/articles/turnover-surges-second-quarter
[34] Ibid.
[35] Hooper, Alan and Daniel Murray. "An Analysis of the Operational Costs of Trucking: 2017 Update." American Transportation Research Institute. Arlington, VA. October 2017.

6. Compliance, Safety, Accountability (CSA)

Ranked 1st 7%	Ranked 2nd 7%	Ranked 3rd 6%	Total Share 21%	**Industry Concern Index 47.5**

After falling out of the top five issues in 2016, CSA held steady as the sixth-ranked issue facing the trucking industry in 2017. FMCSA initiated its crash accountability pilot program that allows carriers to request a review of potentially non-preventable crashes that occur on or after June 1, 2017.[36]

Proposed Strategies (in rank order):

a) *Actively monitor deployment of FMCSA's crash accountability pilot program to evaluate success in removing non-preventable crashes from carrier scores.* ATRI's crash accountability research quantified how carrier crash BASIC scores can be impacted once non-preventable crashes are removed from the calculation, and industry interest is high in ensuring that FMCSA's pilot program delivers similar results.[37] As such, over half of respondents (50.2%) want to closely monitor the deployment of this pilot program as their top CSA strategy for 2017. This follows from last year's report, where a majority of respondents indicated that having a credible process for removing non-preventable crashes from the Crash BASIC calculation was viewed as the most important step to improving how CSA measures safety performance.[38]

b) *Work with FMCSA to ensure that the recommendations of the Congressionally-mandated National Academies of Sciences review of CSA are successfully implemented.* The 132-page NAS study provided FMCSA with multiple recommendations to improve how carrier safety performance is evaluated.[39] Chief among these recommendations is a call for adopting a more data-oriented Item Response Theory model over a two-year period.[40] As such, 29.7 percent of respondents indicated that it was vital for the industry to remain actively involved as FMCSA begins to address and implement the NAS recommendations.

c) *Advocate for CSA score reductions in existing BASICs rather than a new BASIC for carriers who choose to participate in FMCSA's Beyond Compliance program.* As proposed by FMCSA, motor carriers participating in the Beyond Compliance program would voluntarily implement programs that exceed regulatory requirements to reduce

[36] "Crash Preventability Demonstration Program." Federal Motor Carrier Safety Administration and U.S. Department of Transportation. Docket No. FMCSA-2014-0177. 27 July, 2017. Available online: https://www.gpo.gov/fdsys/pkg/FR-2017-07-27/pdf/2017-15833.pdf
[37] Boris, Caroline and Dan Murray. "Assessing the Impacts of Non-Preventable Crashes on CSA Scores." American Transportation Research Institute. Arlington, VA. November 2015.
[38] "Critical Issues in the Trucking Industry – 2016." American Transportation Research Institute. Arlington, VA. October 2016.
[39] Miller, Eric. "FMCSA Outlines Plans for Public Meeting on CSA Study." Transport Topics. 25 August, 2017. Available online: http://www.ttnews.com/articles/fmcsa-outlines-plans-public-meeting-csa-study
[40] Ibid.

both the number and severity of crashes.[41] The program was modeled after ATRI's "Alternative Compliance" research from 2011, which listed among the potential incentives a reduction in corresponding CSA BASIC scores for participating carriers.[42] However, the agency may incorporate this credit into a newly created BASIC. As such, 20.3% of respondents indicated that they would like to see the credit as a reduction in existing BASICs as opposed to creating a new BASIC.

[41] "Beyond Compliance Program." Federal Motor Carrier Safety Administration and U.S. Department of Transportation. Docket No. FMCSA-2015-0124. 23 April, 2015. Available online: https://www.gpo.gov/fdsys/pkg/FR-2015-04-23/pdf/2015-09463.pdf

[42] Murray, Daniel C. et al. *Assessing the Benefits of Alternative Compliance*. American Transportation Research Institute. Arlington, VA. January 2011.

7. Cumulative Economic Impacts of Trucking Regulations on the Industry

Ranked 1st 7%	Ranked 2nd 6%	Ranked 3rd 6%	Total Share 19%	**Industry Concern Index** **42.7**

After breaking into the top 10 in 2016 and coming in as the third most pressing concern for the industry, the financial and productivity impacts generated by the vast array of truck industry regulations dropped to seventh place this year. This drop in rank is likely attributable to the industry's sense that a change in administrations holds hope for reduced regulatory activity, including the White House Executive Order requiring federal agencies to remove two regulations for each new regulation proposed.

Nonetheless, the costs associated with regulations continues as a top 10 concern for the industry and was identified as a top research priority for 2017 by ATRI's Research Advisory Committee.[43] ATRI's study is identifying and quantifying the costs and resources attributed to specific regulatory compliance activities. The research will also review the Regulatory Impact Analysis methodologies employed by federal agencies in evaluating the costs and benefits of proposed regulations on trucking.

Proposed Strategies (in rank order):

a) *Evaluate the government's projected industry costs found in federal agency regulatory impact analyses against real-world industry costs that accrue from the new regulations.* A majority of respondents (55.9%) indicated a desire to benchmark the actual costs of new industry regulations against those projected by the regulatory agencies. This research will serve the purpose of assessing the accuracy of the projections published by federal agencies, and will ensure that the actual costs of new regulatory actions are quantified and disseminated throughout the industry. As an example, ATRI conducted research in 2013 that found a $322 million difference between FMCSA's projected benefits and the industry's costs associated with the more restrictive 34-hour restart provisions.[44] Given the substantial regulatory impact costs identified by ATRI, and FMCSA's own study that found that the more restrictive provisions did not provide a net safety benefit over the previous restart regulations, these restrictive provisions were permanently rescinded.[45] As can be seen from this example, there are tangible benefits to conducting these types of analyses.

b) *Quantify cumulative regulatory net costs incurred by the trucking industry over the past decade, broken out by each federal agency promulgating the regulations.* As

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[43] 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.

[44] Short, Jeffery. *Assessing the Impacts of the 34-Hour Restart Provisions*. American Transportation Research Institute. Arlington, VA. June 2013.

[45] "Frequently Asked Questions: Commercial Motor Vehicle (CMV) Driver Restart Study." Federal Motor Carrier Safety Administration. Washington DC. 8 March, 2017. Available online: https://www.fmcsa.dot.gov/research-and-analysis/research/frequently-asked-questions-commercial-motor-vehicle-cmv-driver

confirmation of the ATRI RAC priority research topic to study the economic impacts of trucking regulations, 30.3 percent of respondents believe that this research is a critical strategy. Given the myriad federal regulatory agencies with purview over trucking including FMCSA, FHWA, NHTSA, EPA, PHMSA, DOL, DOD, FDA, DHS, and HHS, it is clear that assessing the cumulative effects of these regulatory obligations remains of critical interest to the industry at large.

c) *Develop recommended industry metrics and an improved Regulatory Impact Analysis model for future rulemakings to better project industry costs.* A small portion of respondents (14%) would like to see a standardized methodology developed to allow for comparable projections of the costs incurred by the trucking industry due to new regulations. Adopting a standard, scientifically-rigorous approach to these calculations will serve to drive broader acceptance of these findings outside of the industry.

8. Driver Distraction

Ranked 1st 5%	Ranked 2nd 6%	Ranked 3rd 4%	Total Share 16%	**Industry Concern Index 35.6**

Distracted driving and its impact on highway safety remained a key priority for the trucking industry in 2017. 3,450 people were killed in motor vehicle crashes involving distracted drivers in 2016, and although this represents a 2.2 percent decrease from the previous year, the issue of distracted driving remains a significant safety issue for all motorists.[46] To this end, ATRI's RAC identified driver distraction as a top research priority for 2017. This research will examine the impact of technology deployment inside the truck on driver distraction, as well as look into the role of car driver distraction on trucking industry crash involvement.

Proposed Strategies (in rank order):

a) *Encourage harsher penalties and more aggressive enforcement of distracted driving violations for drivers of all vehicle types.* Although all 50 states have some form of restriction on the use of mobile phone usage while driving, there are significant differences in how states define and enforce these provisions. States may only ban use for novice drivers, while other states classify it as a primary or secondary citable offense.[47] Overall, 47.7 percent of respondents would like to encourage harsher penalties and more aggressive enforcement of existing laws as a means of reducing distracted driving.

b) *Advocate for a national standard for distracted driving laws for all motorists.* With varying definitions and enforcement strategies employed at the state-level, over one-quarter (28.6%) of respondents indicated a desire to develop a national standard for distracted driving laws. Uniformity in laws across state lines would reduce motorist confusion and promote more uniform enforcement.

c) *Recognizing the growing role of onboard technologies, identify solutions that support safe technology usage in the cab.* Given the proliferation of in-cab technology and applications, 24.9 percent of respondents recognized the need for the safe deployment of technology in the cab. It would be counterproductive for technology aimed at streamlining decision-making and enhancing vehicle safety to ultimately add another layer of distraction for truck drivers. Alternatively, newly emerging "autonomous vehicle technologies" may make it safe to be temporarily distracted from primary driving tasks. As such, it will be crucial to identify solutions that maintain this tenuous balance between technology-related safety and operational efficiency.

[46] "2016 Fatal Motor Vehicle Crashes: Overview (Traffic Safety Facts Research Note No. DOT HS 812 456)." National Highway Traffic Safety Administration. Washington DC. October 2017. Available online: https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812456
[47] Governors Highway Safety Association. "*Distracted Driving Laws*". Washington, D.C. September 2016. Available online: http://www.ghsa.org/html/stateinfo/laws/cellphone_laws.html

9. Transportation Infrastructure / Congestion / Funding

Ranked 1st 4%	Ranked 2nd 6%	Ranked 3rd 7%	Total Share 16%	**Industry Concern Index 32.5**

Given that the trucking industry hauls a majority of freight in the United States, accounting for 66 percent of the nation's freight tonnage and 73 percent of freight value, the state of the nation's roadways is a critical issue confronting the industry.[48] Poorly maintained roads and traffic congestion create wear and tear on vehicles, waste fuel and increase emissions, create additional stress for drivers, and negatively impact industry productivity. ATRI research estimates that congestion-related delays cost the trucking industry $63.5 billion in 2015.[49] ATRI also has pending research that details significant and growing shortfalls to the Highway Trust Fund Highway Account, resulting in a serious deterioration of the nation's road network.[50] Even with the December 2015 passage of the FAST Act, which allocated $225 billion to the highway program over a 5-year period, significant work must be done in order to resolve this long-standing industry issue.[51] Furthermore, emerging autonomous vehicle technologies are all heavily reliant on high-performing infrastructure -- accentuating the interdependent relationship between infrastructure and other top industry issues.

Proposed Strategies (in rank order):

a) *Continue to advocate for long-term highway funding through an increase in the fuel tax or other user fees, and prevent additional diversion of revenue to non-highway projects.* The persistent shortfall of highway funding in the United States is due, in part, to an erosion of federal motor fuels tax revenue. This erosion can be attributed to improvements in fuel economy and stagnant fuel tax rates,[52] a fact many in the industry find troubling given research that has demonstrated the administrative efficiency of the fuel tax.[53] In fact, over half of respondents (53.5%) selected an increase in the fuel tax or other user fees as their top strategy to improve the nation's surface transportation infrastructure.

b) *Create a new funding program to focus federal resources on truck bottlenecks on major freight routes.* Another solution to address the broad range of transportation infrastructure issues is to target funding on transportation bottlenecks along major

[48] 2016 Freight Quick Facts Report." Federal Highway Administration, United States Department of Transportation. Washington DC. 1 February, 2017. Available online: https://ops.fhwa.dot.gov/publications/fhwahop16083/ch1.htm#t1
[49] Torrey, W. Ford, "Cost of Congestion to the Trucking Industry: 2017 Update." American Transportation Research Institute. Arlington, VA. May 2017.
[50] Short, Jeffrey. "Highway Funding Analysis: Update 2017." American Transportation Research Institute. Arlington, VA. Expected release October 2017.
[51] *Summary of FAST Act Issues of Interest to ATA Members*. American Trucking Associations. Arlington, VA. December, 2015. Available online: http://www.trucking.org/ATA%20Docs/News%20and%20Information/Testimony%20and%20Comments/12%2002%2015%20--%20Highway%20Bill%20Comprehensive%20Issues%20Summary%2012%202.pdf
[52] Short, J. et al. (2007). *Defining the Legacy for Users: Understanding Strategies and Implications for Highway Funding*. American Transportation Research Institute. Arlington, VA.
[53] Ibid.

freight routes. This strategy was selected by 25.2 percent of respondents. To this end, ATRI monitors congestion at 250 freight-significant locations and produces an annual ranking of top truck bottleneck locations as a means for prioritizing infrastructure investments.[54] For example, the Jane Byrne Interchange (formerly Circle Interchange) in Chicago is now the focus of a $450 million reconstruction effort to improve truck freight mobility as a direct result of ATRI's bottleneck research.[55]

c) *Utilize the Congressionally-mandated National Freight Policy and National Freight Network as tools to ensure adequate investment in critical highway infrastructure.* As part of the MAP-21 authorization passed in 2012, Congress mandated that the U.S DOT develop a National Freight Policy and National Freight Network to assist with long-term infrastructure planning and investment prioritization. Additionally, the FAST Act apportioned up $10.8 billion to improvement projects taking place on the National Freight Highway Network.[56] 21.8 percent of respondents considered this the best strategy for dealing with infrastructure funding.

[54] "2017 Top 100 Truck Bottleneck List." American Transportation Research Institute. Arlington, VA. January 2017. Available online: http://atri-online.org/2017/01/17/2017-top-100-truck-bottleneck-list/

[55] http://circleinterchange.org/about/. Accessed September 21, 2016.

[56] *Summary of FAST Act Issues of Interest to ATA Members*. American Trucking Associations. Arlington, VA. December 2015. Available online: http://www.trucking.org/ATA%20Docs/News%20and%20Information/Testimony%20and%20Comments/12%2002%2015%20--%20Highway%20Bill%20Comprehensive%20Issues%20Summary%2012%202.pdf

10. Driver Health/Wellness

Ranked 1st 3%	Ranked 2nd 4%	Ranked 3rd 5%	Total Share 11%	**Industry Concern Index 21.6**

Driver Health and Wellness moved back into the top 10 in 2017, rounding out the year's top issues. Many in the industry continue to recognize the critical connection between improved driver health and wellness and the industry's ability to retain qualified drivers, as roughly 20 percent of drivers that leave their jobs cite health problems as a factor in their decision.[57] In addition to obvious lifestyle benefits, an improvement in driver health may also have positive implications for industry safety as research has identified a positive correlation between driver health and driver safety.[58]

Proposed Strategies (in rank order):

a) *Encourage increased availability of exercise facilities and healthy food choices at truck stops/travel plazas.* Encouraging more exercise facilities and healthier food choices at truck stops remained the top strategy selected by respondents to address the issue of Driver Health and Wellness for the fifth consecutive year in 2017. To this end, a majority of all respondents (56.5%) believe that healthier food options and exercise facilities will help mitigate the impacts of a sedentary occupation. This strategy ranked even higher among driver respondents, with 70 percent of drivers selecting it as the preferred approach for addressing driver health and wellness concerns. As the industry continues to push for solutions to the truck parking shortage, it will also be important to ensure that parking facilities are equipped with amenities that address driver health and wellness concerns.

b) *Continue industry data collection and analysis on driver health-related issues to ensure that any future regulatory actions are based on recent and best available data.* Just under one-quarter of respondents (24.1%) believe that up-to-date data and analysis on health-related issues will prove essential in guiding and improving the efficacy of future regulatory actions on the trucking industry. FMCSA's permanent suspension of the restrictive HOS restart provisions in light of data showing that they did not lead to improved safety outcomes is an example of how real-world industry data should be used to guide regulatory decisions.

c) *Undertake research that quantifies the return-on-investment potential of driver health and wellness programs.* Similarly, many in the industry also want to utilize data to measure the effectiveness of driver health and wellness programs. 19.2 percent of respondents indicated this to be their preferred strategy to address the issue of Driver Health and Wellness.

[57] "One in Five Truck Drivers Leaves Job Because of Health Issues, Survey Finds." Transport Topics. 11 May, 2016. Available online: http://www.ttnews.com/articles/one-five-truck-drivers-leaves-job-because-health-issues-survey-finds
[58] *Research on the Health and Wellness of Commercial Truck and Bus Drivers: Summary of an International Conference*. Transportation Research Board. November 8-10, 2010.

Emerging Issues

Each year ATRI also tracks the emerging issues which are those that generate industry interest but fall just outside of the top 10 (Table 1). This analysis can be insightful on those issues that could emerge as a top industry issue in future years.

Table 1: Issues 11 – 13

Rank	Issue	ICI
11	Economy	17.9
12	Autonomous Vehicles	16.5
13	Diesel Technician Shortage	11.7

Now entering its ninth year, the U.S. economy is currently experiencing the second-longest expansion in its history, with signs that global economic growth will continue to improve in 2017.[59] Moreover, the trucking industry has rebounded from the soft economy that commenced in the second half of 2015.[60] As a result, the Economy has dropped out of the top 10 after first showing up in the midst of the Great Recession in 2008. With the U.S. economy continuing to exhibit steady growth into the last quarter of 2017, the trucking industry's concern with the U.S. economy may drop further over the next year.

For the first time this year, Autonomous Vehicles are ranked as one of the industry's emerging issues among all respondents. Driver-assistive technologies have seen increased deployment in recent years and high profile test runs of autonomous trucks have generated significant attention among industry stakeholders.[61] Given its emergence as number 12 on the overall list and its ranking on the commercial driver top 10 list (below), it is likely that Autonomous Vehicles will break into the top 10 list overall in the near future.

Although a significant amount of the industry's attention has been directed at the structural shortage of qualified truck drivers, the shortage of diesel technicians emerged as a critical issue facing the trucking industry in 2017 as well. According to the BLS, trucking will require 67,000 new technicians by 2022, in addition to the more than 75,000 new diesel engine specialists the industry will need in that same time period.[62] To address this issue, respondents would like to improve technician training and placement through greater collaboration between motor carriers, community colleges, and tech schools.

[59] "World Economic Outlook Update, July 2017." International Monetary Fund. Available online: http://www.imf.org/en/Publications/WEO/Issues/2017/07/07/world-economic-outlook-update-july-2017
[60] Costello, Bob. "ATA's Trucking Economic Review." American Trucking Associations. Arlington, VA. Volume 19, Issue 2. 18 August, 2017.
[61] Issac, Mike. "Self-Driving Truck's First Mission: A 120-Mile Beer Run." New York Times. 25 October 2016. Available online: https://www.nytimes.com/2016/10/26/technology/self-driving-trucks-first-mission-a-beer-run.html
[62] "ATA Urges Focus on Critical Shortage of Truck Technicians." American Trucking Associations. Arlington, VA. 21 September, 2015. Available online: http://www.trucking.org/article/ATA-Urges-Focus-on-Critical-Shortage-of-Truck-Technicians

Commercial Driver and Motor Carrier Issue Rankings

The Top Industry Issues report details the results of the overall industry survey given to industry stakeholders including company and independent drivers, motor carriers, and to a lesser degree, industry suppliers. However, each of the stakeholder groups surveyed have different levels of involvement in and perspectives on the trucking industry. As a result of these varied experiences, the selection and ranking of issues will differ across these groups. To account for the wide-ranging experiences of the ATRI survey sample, particularly those between commercial drivers and motor carriers, ATRI has started to examine just how these rankings differ (Table 2).

Table 2: Commercial Driver and Motor Carrier Issues

Rank	Commercial Drivers	Motor Carriers
1	Electronic Logging Device (ELD) Mandate	Driver Shortage
2	Truck Parking	Electronic Logging Device (ELD) Mandate
3	Hours-of-Service (HOS)	Driver Retention
4	Cumulative Economic Impacts of Trucking Regulations on the Industry	Compliance, Safety, Accountability (CSA)
5	Driver Distraction	Hours-of-Service (HOS)
6	Compliance, Safety, Accountability (CSA)	Cumulative Economic Impacts of Trucking Regulations on the Industry
7	Driver Health and Wellness	Transportation Infrastructure/ Congestion/Funding
8	Driver Retention	Driver Distraction
9	Transportation Infrastructure/ Congestion/Funding	Truck Parking
10	Autonomous Vehicles	Tort Reform

By far the biggest difference in the rankings between commercial drivers and motor carriers relates to the issue of driver shortage. For motor carriers, the issue remains firmly at the top of their list of key industry issues, while the issue doesn't even make the top 10 for commercial drivers. The divergence of opinions on this issue is to be expected: as a major stress point for motor carriers, the shortage may actually benefit commercial drivers. The constrained supply of qualified truck drivers has generated a financial benefit to the existing pool of commercial drivers, with driver wages and benefits continuing to increase according to ATRI's most recent analysis of motor carrier cost data.[63] Additionally, motor carriers have also had to start offering sizable sign-on bonuses to attract new drivers.[64]

A further indication of how different operational perspectives can influence industry rankings is seen in the relative ranking of the truck parking issue. Commercial drivers selected Truck Parking as the second-biggest issue facing the trucking industry, as it clearly impacts their day-to-day operations in myriad ways. On the other hand, motor carriers ranked truck parking 8th overall.

That being said, there were several instances in which the perspectives of commercial drivers and motor carriers aligned – the ELD Mandate and Hours-of-Service ranked as top-five issues for both groups. Mutual concern over how the ELD mandate will affect driver productivity and influence hours-of-service have kept the issue high on their respective lists of top industry issues.

Cumulative Economic Impacts of Trucking Regulations on the Industry, Driver Retention, Driver Distraction, and Transportation Infrastructure/Congestion/Funding round out the remaining similarities between the respective top ten lists compiled by commercial drivers and motor carriers.

For drivers, the potential of job-changing impacts from greater deployment of autonomous technologies is creating concern.[65] ATRI's autonomous technologies research documented potential impacts on a number of industry issues, including what truck drivers might expect from increased deployment of driver-assistive technologies.[66] While ATRI's study highlights that drivers will have a critical role in the trucking industry, this issue nonetheless generates some level of uncertainty among drivers and as such is number 10 overall on their top issues list.

[63] Hooper, Alan and Daniel Murray. "An Analysis of the Operational Costs of Trucking: 2017 Update." American Transportation Research Institute. Arlington, VA. October 2017.
[64] Bearth, Daniel P. "Turnover Surges in Second Quarter." Transport Topics. 18 September, 2017. Available online: http://www.ttnews.com/articles/turnover-surges-second-quarter
[65] Keen, Judy. "Self-driving big-rig technology moving quickly down the on-ramp." Minneapolis Star-Tribune. 8 October 2017. Available online: http://www.startribune.com/self-driving-big-rig-technology-moving-quickly-down-the-on-ramp/449916023/
[66] Short, Jeffrey and Dan Murray. "Identifying Autonomous Vehicle Technology Impacts on the Trucking Industry." American Transportation Research Institute. Arlington, VA. November 2016.

Table 3: Top Industry Issue Rankings, 2005 – 2017

	Issue Rank									
	1	2	3	4	5	6	7	8	9	10
2017	Driver Shortage	ELD Mandate	Hours-of-Service	Truck Parking	Driver Retention	CSA	Cumulative Impacts of Regs.	Driver Distraction	Infrastr./ Congestion/ Funding	Driver Health/ Wellness
2016	ELD Mandate	Hours-of-Service	**Cumulative Impacts of Regs.**	Truck Parking	Economy	CSA	Driver Shortage	Driver Retention	Infrastr./ Congestion/ Funding	Driver Distraction
2015	Hours-of-Service	CSA	Driver Shortage	Driver Retention	Truck Parking	ELD Mandate	Driver Health/ Wellness	Economy	Infrastr./ Congestion/ Funding	Driver Distraction
2014	Hours-of-Service	Driver Shortage	CSA	Driver Retention	ELD Mandate	Truck Parking	Infrastr./ Congestion/ Funding	Driver Health/ Wellness	Economy	**Driver Distraction**
2013	Hours-of-Service	CSA	Driver Shortage	Economy	ELD Mandate	Truck Parking	Driver Retention	Fuel Supply/ Fuel Prices	Infrastr./ Congestion/ Funding	Driver Health/ Wellness
2012	CSA	Hours-of-Service	Economy	Driver Shortage	Fuel Supply/ Fuel Prices	**ELD Mandate**	Driver Retention	**Truck Parking**	**Driver Health/ Wellness**	Congestion/ Truck Bottlenecks
2011	Economy	Hours-of-Service	Driver Shortage	CSA	Fuel Issues	Congestion	Transportation Funding	Tort Reform	Onboard Truck Technology	Truck Size and Weight
2010	Economy	**CSA**	Government Regulation	Hours-of-Service	Driver Shortage	Fuel Issues	Transportation Funding/ Infrastr.	Onboard Truck Technology	Environmental Issues	Truck Size and Weight
2009	Economy	Government Regulation	Fuel Issues	Congestion/ Highway Infrastr.	Hours-of-Service	Commercial Driver Issues	Environmental Issues	Tolls/ Highway Funding	**Truck Size and Weight**	Onboard Truck Technology
2008	Fuel Costs	**Economy**	Driver Shortage/ Retention	Government Regulation	Hours-of-Service	Congestion	Tolls/ Highway Funding	Environmental Issues	Tort Reform	Onboard Truck Technology
2007	Hours-of-Service	Driver Shortage	Fuel Issues	Congestion	Government Regulation	Tolls/ Highway Funding	Tort Reform/ Legal Issues	Truck Driver Training	Environmental Issues	**Onboard Truck Technology**
2006	Driver Shortage	Fuel Issues	Driver Retention	Hours-of-Service	Congestion	Government Regulation	Highway Infrastr.	Tort Reform	Tolls/ Highway Funding	Environmental Issues
2005	Fuel Costs	Driver Shortage	Insurance Costs	Hours-of-Service	Tolls/ Highway Funding	Tort Reform/ Legal Issues	Government Regulation	Congestion	Environmental Issues	Truck Security

Note: **Bold** indicates first year in top ten.