

# **OOIDA Foundation**

RESEARCH • SAFETY • ECONOMICS

## **WHITE PAPER** **The Case Against FMCSA**

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## Introduction

The Federal Motor Carrier Safety Administration (FMCSA), which is an offshoot government Agency within the Federal Highway Administration, became a separate administration on January 1, 2000 with the enactment of the Motor Carrier Safety Improvement Act of 1999.

From its emergence from the Interstate Commerce Commission (ICC), critics of FMCSA have accused the Agency of trying to destroy the small business operator systematically through regulations and guidance, which have appeared to be big carrier and vendor driven. Unfortunately, the pressure to continuously reduce accidents and fatalities on the roadway has created a systemic infection within the Agency where bureaucratic government employees, with no transportation experience, make policy and oversee the Agency's agenda. Regardless of whether it is a systematic attack on small entities or a systemic disease that infects the Agency, the results are the same for small business truckers who make up the vast majority of fleets on the road.

It is time that a realistic examination of FMCSA be conducted in order to stop the zealous self-aggrandizement that will force the small business-trucking firm out of business. The Government Accountability Office (GAO), or perhaps the Inspector General (IG), must conduct an analysis and report on FMCSA's following practices:

- Manipulation and falsification of data to justify programs;
- Adherence to and expansion of failed or failing programs;
- Non-competitive grant programs awarded for research with preconceived outcomes; and
- Selection bias in choosing Congressional mandates for implementation.

The following white paper will demonstrate a number of regulations, failed programs, and initiatives where FMCSA has utilized the aforementioned practices to justify them. In addition, a new direction for the FMCSA will be suggested based on successful initiatives by other government agencies involved in transportation.

## Manipulation and Falsification of Data: Compliance, Safety, and Accountability Program and Assumption Science

The primary mission of the FMCSA is to reduce crashes, injuries, and fatalities involving large trucks and buses. The Research Division of FMCSA describes their mission to reduce the number and severity of commercial motor vehicle (CMV)-involved crashes and enhance the safety and efficiency of CMV operations by:

1. Conducting systematic studies directed toward fuller scientific discovery, knowledge, or understanding;
2. Adopting, testing, and deploying innovative driver, carrier, vehicle, and roadside best practice and technologies; and

3. By expanding the knowledge and portfolio of deployable technologies and innovations, the Research Division will help FMCSA reduce crashes, injuries, and fatalities and will deliver a program that contributes to a safe and secure commercial transportation system.

The Agency's first mission implies a non-bias and systematic study directed toward fuller scientific discovery, knowledge, or understanding. However, we need only to examine a few programs under FMCSA to see that the data being used is not based on a systematic study, nor is it directed toward fuller scientific discovery, knowledge, or understanding, but on the assumption that simple compliance to the regulations will reduce crashes, injuries, and fatalities involving large trucks.

FMCSA has recently supported the Compliance, Safety, and Accountability (CSA) Program as the defining program to achieve their mission statement. Interestingly, the Agency had the initial support of the trucking industry, including the Owner-Operator Independent Drivers Association (OOIDA), in introducing a safety program that promised to improve large truck and bus safety and ultimately reduce crashes. The argument that the crash reduction rate had slowed over recent years helped to promulgate the program.<sup>1</sup> Thus, a new program entitled Comprehensive Safety Analysis 2010 (CSA 2010), the predecessor to CSA, was undertaken as an operational model that was supposed to be characterized by the following:

- A more comprehensive measurement system;
- A proposed safety fitness determination methodology that is based on performance data; and
- A comprehensive intervention process designed to more efficiently and effectively correct safety problems.

Historically there has been a decline in large truck crashes over the last several years prior to 2010, and in fact, Dr. Ralph Kraft of the FMCSA's Office of Analysis, Research and Technology, noted that large truck crashes and fatalities dropped dramatically in 2008-2009. One of the major reasons given for the reduction was the enforcement and outreach efforts increased by FMCSA.<sup>2</sup> While the Agency has often taken credit for the drop in the number of crashes and fatalities, since the introduction of CSA, the number of large truck fatalities has increased each year between 2010 and 2013, reversing the steady decline of the past several years. In 2013, the National Highway Traffic Safety Administration (NHTSA) reported that fatalities in crashes involving large trucks had increased 2 percent between 2010 and 2011, while injury crashes had increased 10 percent.<sup>3</sup> It is important to note that NHTSA also indicated fewer vehicle miles traveled during this period.

**Table 1: Large Truck Crashes, 2010-2013**

Year	Fatal Crashes	Injury Crashes	PDO Crashes
2010	3,271	56,000	207,000
2011	3,365	60,000	210,000
2012	3,486	73,000	241,000

<sup>1</sup> FMCSA web site, 2010.

<sup>2</sup> Ralph Kraft, *2009: Historic Truck Crash Declines*, Analysis Division FMCSA (2010).

<sup>3</sup> *Traffic Safety Facts: 2011 Data*, NHTSA (April 2013).

2013	3,554	69,000	254,000
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Source: FMCSA *Large Truck and Bus Crash Facts 2013*

FMCSA has yet to show that CSA will fulfill the Agency's stated mission of reducing crashes and fatalities involving large trucks. The operational methodology for CSA 2010 was to obtain enough data on motor carriers via roadside inspections that a profile could be created based on a carrier's "performance" in seven categories, called the Behavioral Analysis and Safety Improvement Categories (BASICS). Furthermore, CSA 2010 was designed to identify the motor carriers that were in need of greater regulatory attention. The seven BASICS were originally:

- Unsafe Driving
- Fatigue (hours-of-service)
- Driver Fitness
- Controlled Substances and Alcohol
- Vehicle Maintenance
- Cargo Related
- Crash History

CSA gave an impression of a logical approach to combat and fulfill the mission of reducing large truck crashes and fatalities, so what went wrong? After spending an untold number of hours on research, and millions of dollars on statistics, FMCSA ignored their own data and reverted to leaning on enforcement of regulations to assure compliance.

The FMCSA methodology and formulas have been criticized from a number of credible research groups, such as the GAO and Wells Fargo Securities. As stated above, data has shown crashes and fatalities to be on the rise in the last few years. These combined facts should have raised some warning flags for FMCSA to consider. Instead, FMCSA has remained adamant in their defense of a program that they continue to believe just needs a "few tweaks," while at the same time have seemingly ignored or overlooked research relevant to the *causation* of crashes.

An abundance of information and data focused on the *cause*, not the correlation, of truck accidents has been examined by a multitude of federal, state, and independent associations and research institutions. FMCSA has awarded grants to various groups for data and research, including the following:

- The American Transportation Research Institute (ATRI), which has conducted recent research on large truck crashes. ATRI has released a report, entitled "Predicting Truck Crash Involvement," both in 2005 and 2011.
- The University of Michigan Research Institute (UMTRI) conducted a post fatality analysis of factors that lead to fatal crashes.

- The Mid-America Transportation Center at Kansas State University recently published “Characteristics and Contributory Causes Related to Large Truck Crashes (Phase I)-Fatal Crashes.”<sup>4</sup>

In addition, the Office of Analysis, Research and Technology for FMCSA has also provided data and conclusions on the cause of large truck accidents. In fact, FMCSA has published a list of the top ten factors that lead to fatal crashes, and has spent a great deal of resources completing their own definitive study of large truck crashes, called the Large Truck Crash Causation Study (LTCCS). Most of these reports share common conclusions and factors on what increases the risk of crashes and fatalities involving large trucks.

It seems evident that FMCSA would use this vast array of data to build their Safety Management System (SMS) and to consign a greater emphasis on those risk factors that are more likely to lead to crashes. We will demonstrate however that this has not been the case, and call into question the purpose of CSA and the scoring and weighting system used to evaluate carriers.

The top ten factors routinely listed as the contributing factors leading to a greater likelihood of an accident are:<sup>5</sup>

- Failure to keep in proper lane (6.5%)
- Speeding (includes driving too fast for conditions) (7.3%)
- Inattention (5.7%)
- Failure to yield right of way (3.5%)
- Failure to obey traffic signal (2.0%)
- Following improperly (1.3%)
- Improper turn (1.0%)
- Erratic or reckless driving
- Overcorrecting (1.8%)
- Drowsy, asleep and or fatigued (1.4%)

In order to evaluate motor carriers through CSA, FMCSA collects information from roadside inspections to assign a composite score in the seven categories, or BASICS. Every BASIC includes several different violations, each of which is prescribed a severity weight. The cumulative of these weights results in a percentile score for each category. Interestingly enough, eight of the ten factors listed above are covered in the Unsafe Driving BASIC under CSA. Since the research has shown that these factors are higher contributors to a crash, it would be logical to assume that the weighted scores for these factors would be high in comparison to other violations.

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<sup>4</sup> Sunanda Dissanayake, *Characteristics and Contributory Causes Related to Large Truck Crashes (Phase 1) - Fatal Crashes*, Mid-America Transportation Center (June 2010).

<sup>5</sup> 2009: *Historic Truck Crash Declines*.

CSA however has prescribed a severity weighting of five (out of a possible 10) for each violation of improper lane change, following too close, improper turns, and failure to yield right of way. Whereas, under the Hours of Service BASIC, which includes 26 violations that account for less than one percent of the contributing factors to a crash, have weighted scores of seven or more (there have been some recent changes to the weightings). The undertaking of CSA is to improve safety and reduce crashes and fatalities, but perhaps it would be more fitting to change the name from CSA (Compliance, Safety, and Accountability) to “Enforcement of Compliance of Regulations.”

CSA ignores the true “performance” of a motor carrier when it attempts to break down the safety measure of a carrier into BASICS. While it may be true that each individual BASIC tells something about the carrier, it does not define the carrier because the parts need to be viewed in terms of how they function as a whole.

### Adherence to Failed Programs

One of the major criticisms of CSA has continued to be the methodology and science behind it. Wells Fargo Securities, whom has performed a number of studies on the program, has stated “we examined the correlation between BASIC scores and accident incidence, which we measured on the basis of number of power units and million miles driven. We found no meaningful statistical correlation between BASIC scores and accident incidence.”<sup>6</sup>

To understand why CSA has no correlation to crash risk, it is important to comprehend the makeup of the trucking industry, where over 80 percent of the more than one million motor carriers are identified as operations with three or fewer trucks. Dr. James Gimpel, of the University of Maryland, has said, “To say that the trucking industry has been dominated by small business is a serious understatement.”<sup>7</sup>

A serious issue of CSA is the scientific law of large numbers. The majority of small carriers have not been subject to inspections, thereby creating an underrepresentation of small carriers, while at the same time, over representing large carriers. The law of large numbers indicates that in order for CSA percentile scores to be reliable, a motor carrier would need more than 20 inspections. This is problematic for small carriers and creates selection bias in the methodology.

Research groups, including the OOIDA Foundation, have discovered little or no correlation with crash risk and a number of the BASICS. In 2014, the Foundation examined and analyzed publicly available data on CSA, while also utilizing MCS-150 information as a supplementary resource.

As part of the analysis, the OOFI examined the CSA SMS scores of large carriers that had both electronic logging devices (ELDs) and speed limiters (SLs) installed, as well as those carriers that did not have these devices installed, which OOFI separated into two cohorts (asset carriers and non-asset carriers). OOFI reviewed the following data in order to identify the correlation between ELD and speed limited

<sup>6</sup> Equity Research, *CSA: Another Look With Similar Conclusions*, Wells Fargo Securities (July 2012), pg. 2.

<sup>7</sup> James Gimpel, *Continuing Issues in the Carrier Safety Measurement System of the FMCSA: The Perspective of Small Carriers*, OOIDA (May 2013), pg. 1.

equipped fleets with improved safety in HOS compliance, in speeding violations, and in crashes when compared to non-ELD equipped and non-speed limited fleets. The examined data included:

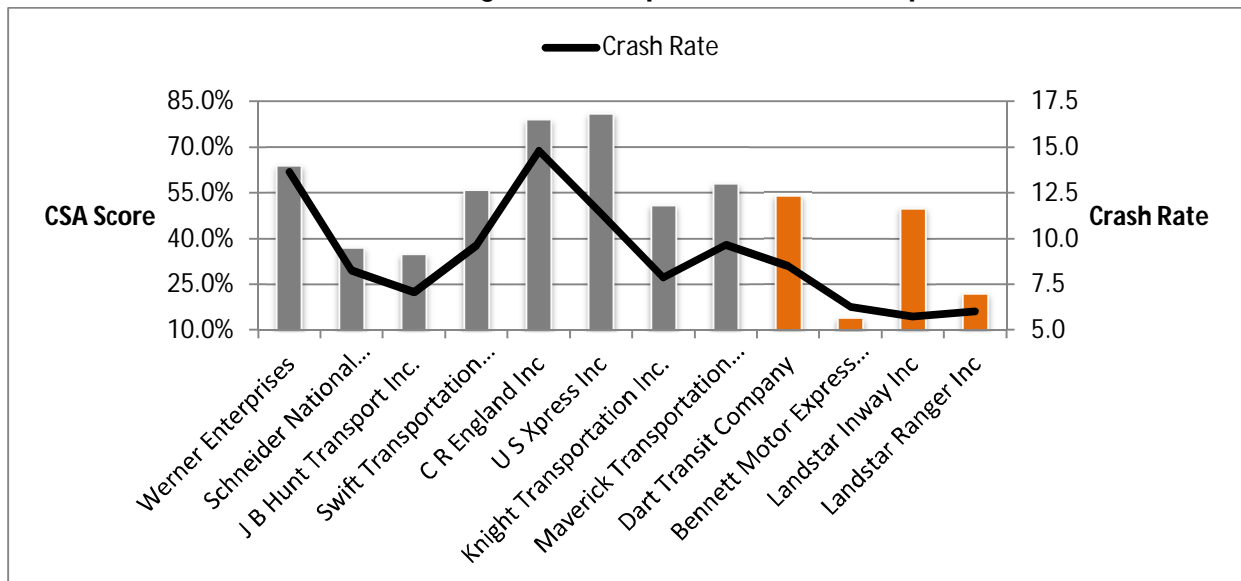
- Percentages of Crashes per 100 power units (PU)
- Percentage of Crashes per 100 of drivers
- Percentage of Crashes per 100 million vehicle miles travelled (VMT)

In 2014, FMCSA updated the CSA SMS webpage so that the BASICs appear from left to right based upon their correlation to crash risk. The first four categories are Unsafe Driving, Crash Indicator, HOS Compliance, and Vehicle Maintenance. The Crash Indicator BASIC is not made public.

Upon examining the data from the CSA SMS webpage, the Unsafe Driving BASIC unveiled that non-asset carriers have a better safety performance, which is also confirmed by the actual crash rate. Conversely, the HOS Compliance and the Vehicle Maintenance BASICs both indicated that asset carriers have a higher safety rating, but yet asset carriers have a higher crash rate. The data highlights serious concerns about the accuracy of the CSA SMS scores.

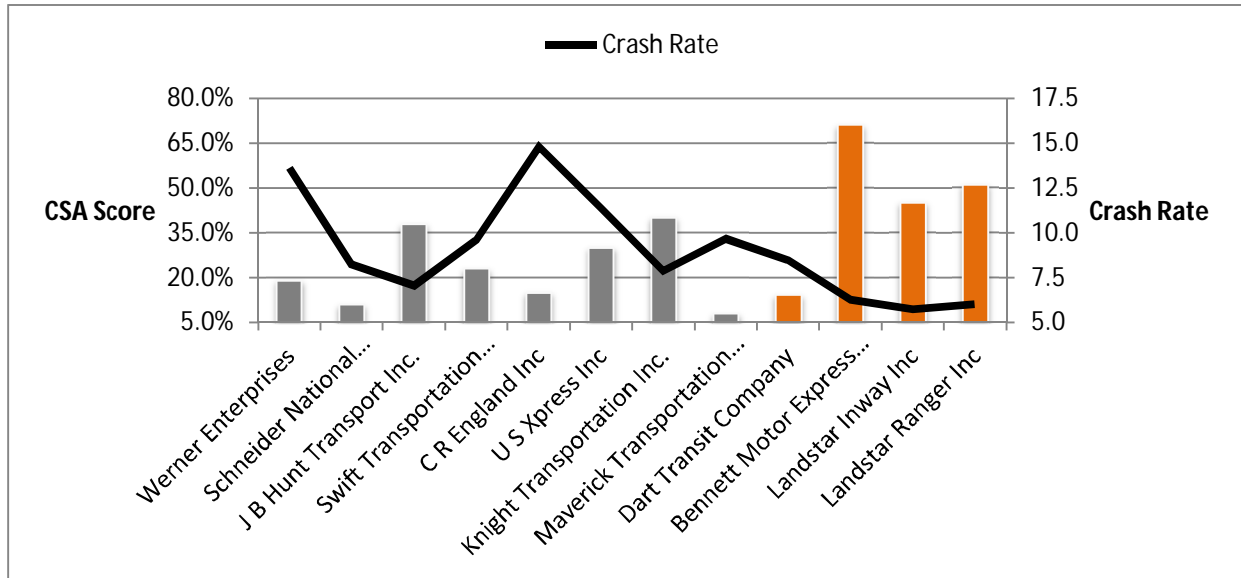
The following charts show the CSA SMS percentile score for each carrier compared to the actual crash rate per 100 PUs. For the charts, OOFI focused on three of the first four BASICs, Unsafe Driving, HOS Compliance, and Vehicle Maintenance. The Crash Indicator BASIC was not examined because, as previously mentioned, its score is not made public.

**Chart 1: Unsafe Driving BASIC compared to crash rate per 100 PUs**

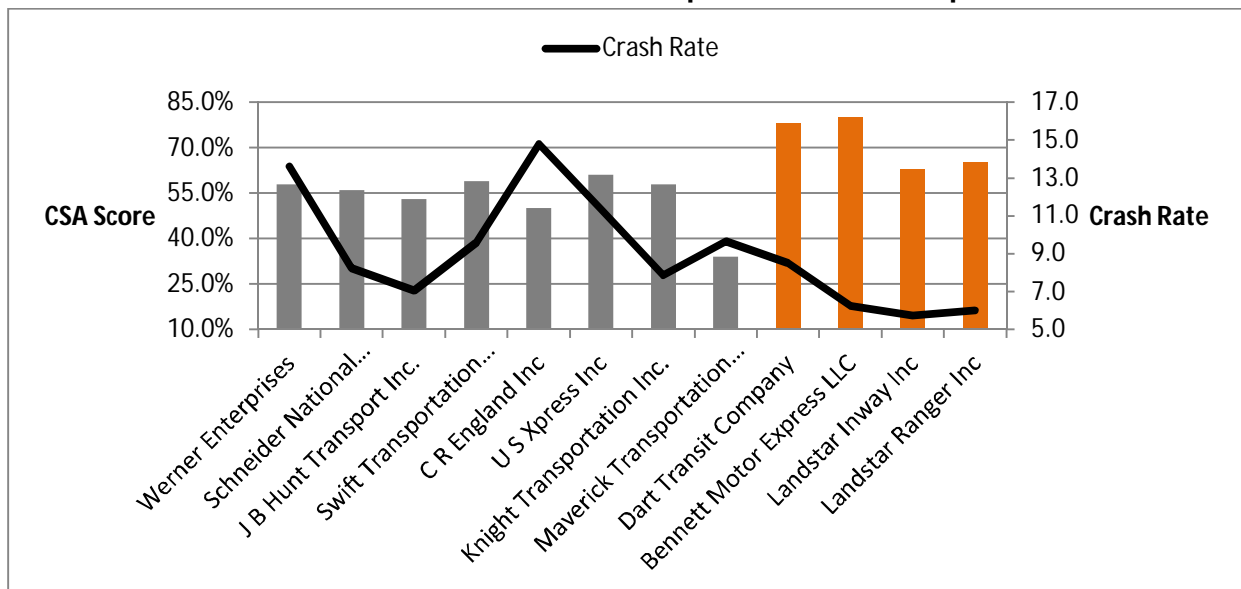




**Chart 2: HOS Compliance BASIC compared to crash rate per 100 PUs**



**Chart 3: Vehicle Maintenance BASIC compared to crash rate per 100 PUs**



In reaction to the criticism of CSA, the Agency released an update in December 2012 titled, “Carrier Safety Measurement System Methodology,” Version 3.0 (Volpe Center 2013). However, while some of these modifications were important concessions to truck industry concerns, none has gone to solve the major problems with the methodology that industry critics have identified.<sup>8</sup>

FMCSA has also received criticism for stating that the scoring methodology for CSA was developed by factoring violations of the regulations into weighted scores for a supposed direct correlation to crash risk. The Agency claimed to consult and work with “subject matter experts” to formulate the SMS, but

<sup>8</sup> Ibid, pg. 2.

the Agency has never identified who these experts were. Under subsequent research by outside firms, FMCSA has had to admit that many of the weighted scores and violations were not directly correlated to crash risk.

A report published by ATRI in October 2012, titled "Compliance, Safety, Accountability: Analyzing the Relationship of Scores to Crash Risk," stated that FMCSA's severity weighting methodology places too much weight on safety-irrelevant violations and too little weight on safety-critical violations.<sup>9</sup> It is also important to note that the inclusions of accidents that are not at the fault of the carrier in CSMS is probably its single greatest flaw and continues to be one of the major concerns among the industry. FMCSA's official statement has been that they are looking at the issue of at-fault crashes, but that they have yet to determine a method of measuring fault.

### **"We Believe" Science**

Unfortunately, the practice of "we believe" science has been evident in a number of FMCSA studies and research. The issue of "we believe" science, outdated information, and the Agency's reliance on their "judgment and knowledge of the industry," can be seen in a report published by Edgeworth Economics, entitled "Review of FMCSA's Regulatory Impact Analysis for the 2010-2011 Hours of Service Rule." The report revealed data manipulation conducted by the Agency and stated that, "many of FMCSA's new approaches rely on miscalculation of available data, use of outdated information, or lack empirical evidence support entirely. FMCSA also makes a number of errors in its calculations which serve to further overstate its findings."<sup>10</sup>

The Agency's 2010 proposal included many key changes to the HOS regulations, such as a restriction of daily on-duty time to a maximum of 13 hours, a reduction of daily driving time to a maximum of 10 hours, and a requirement that the "restart" period include two consecutive off-duty periods from 12 am to 6 am. FMCSA estimated the proposal would generate net benefits of \$380 million annually. The Edgeworth research however found that FMCSA overstated the net benefits of the proposed rule by approximately \$700 million annually. The report determined that proposal would not generate a net benefit, but a net cost of \$320 million annually.<sup>11</sup>

### **Continued Poor Practices**

The Agency's practice of utilizing outdated information, unproven assumptions, and miscalculation of data is evident in FMCSA's attempt to justify the electronic on-board recorder (EOBR) mandate. For many years, FMCSA has pushed for technology as a catalyst to prevent crashes and fatalities, even when those technologies have no correlation to safety. Studies published by OOIDA Foundation and J.P. Morgan have used FMCSA's own data to prove that more technology does translate to more safety.

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<sup>9</sup> Micah D. Lueck, *Compliance, Safety, Accountability: Analyzing the Relationship of Scores to Crash Risk*, American Transportation Research Institute (October 2012), pg. viii.

<sup>10</sup> Edgeworth Economics, *Review of FMCSA's Regulatory Impact Analysis For the 2010-2011 Hours of Service Rule*, American Trucking Associations (Feb 2011), pg. 2.

<sup>11</sup> *Ibid*, pg. 1-3.

Werner Enterprises was one of the first carriers to use EOBR technology in their trucks in order to monitor the HOS regulations of their drivers. In fact, FMCSA entered into a Memorandum of Understanding (MOU) with Werner Enterprises (Werner) in June of 1998. Werner devised their own software package in conjunction with Qualcomm, and was the only motor carrier to enter into a MOU with the FMCSA for a test program.

The program was to become permanent after 18-months. Instead, however, a new MOU with Werner had to be signed because the program did not show any success. Under the new MOU with Werner, the following conditions were mentioned for improvements:

- When the truck was stationary, the EOBR recorded the time as off-duty not driving.
- Movements of the truck of less than 2 miles were not listed as driving time.
- Driving less than 10 mph was shown as either off-duty not driving or on-duty not driving.
- Loading and unloading times were often listed as off-duty or could be manipulated as off-duty by the driver or the carrier.
- It was found that the GPS system was underestimating the number of miles the driver drove.
- Werner was also requiring certain drivers to drive yard trucks in certain terminals, which was not recorded as driving time.

Obviously, the one major pilot program failed. Until there has been a successful pilot program conducted, or several successful pilot programs, why would FMCSA even consider requiring EOBRs on all CMVs?

As previously mentioned, the OOIDA Foundation conducted an analysis of large carriers that had installed on-board safety systems, such as EOBRs and speed limiters, with similar sized carriers that did not have safety systems installed. The study found that while Werner had one of the lowest HOS BASIC percentile rankings, they had the highest percentage of crashes per 100 power units, while also having the lowest average number of miles between crashes. Furthermore, J.P. Morgan released a report titled "Trucking Industry: Comprehensive Analysis of CSA Scores," that researched the CSA safety scores of 22 large truckload motor carriers. In the study, Werner had a crash ratio per driver worse than 16 of the 22 reviewed carriers.

Undeterred by the data, FMCSA continues to acclaim that EOBRs/ELDs and other on-board technologies will have a great effect on safety performance.

### **Continued Manipulation of Data**

The OOIDA Foundation has stated serious concerns about the misuse or the manipulation of data by FMCSA in order for the Agency to advocate for a technological solution to achieve their mission of zero fatalities. In 2010, FMCSA released a notice of proposed rulemaking (NPRM) to mandate that truck drivers with habitual violations of the HOS regulations install EOBRs on their trucks.

In the NPRM, the Foundation found blatant misuse of data and non-scientific methodology in FMCSA's rationalization for showing that EOBRs had safety benefits. The first observation of this continued practice was the Agency's use of outdated information from before the 2004 HOS regulation. It is difficult to validate the conclusions of any study with such obsolete data, yet the Agency has done so in their pursuit of an EOBR mandate.

In addition to the outdated information, FMCSA has altered data on fatigue to better suit their purpose. In the Agency's regulatory impact analysis (RIA) for the NPRM, FMCSA stated that fatigue is a factor in 13 percent of crashes. However, it is important to note that the Agency revised the actual percentage of crashes that are fatigue related because "the 7% limited the attainable safety benefits from any changes in the HOS rules or improved enforcement of those rules."<sup>12</sup> In other words, the fact that 7 percent of crashes were fatigued related did not meet FMCSA's criteria, so they raised the percentage of fatigue to 13 percent. The Agency attempted to justify the alteration by saying it was based on data from the LTCCS and public comments, but the LTCCS showed that only 2 percent of large truck drivers were judged to be fatigued at the time of the crash.

Further, it needs to be noted that FMCSA clearly stated, "The LTCCS is essentially a collision-avoidance or crash prevention study," and is not a causation study. In fact, the cause was never assigned. Another quote from FMCSA on the LTCCS stated, "Sensitive variables, such as whether or not the truck driver was in violation of the FMCSA Hours-of-Service (HOS) rules, are likely to be both incomplete and highly biased."

After using outdated data and altering percentages to justify the rulemaking, FMCSA also declared, "There is little research on the effectiveness of EOBRs in reducing crashes and HOS violations." In fact, studies done by Cambridge Systematics, Inc. at the request of FMCSA concluded:

- There have been no documented improvements in compliance or safety in carriers that use EOBRs.
- "Even the most effective on-board technology will not enable regulators to determine how drivers have conducted themselves while they are off duty and/or on duty, not driving. Most on-board devices were not developed to provide this functionality; however, this is critical because research suggests that the amount and/or quality of sleep that drivers get while they are off duty is a key safety factor."

Further, although FMCSA estimated that driver fatigue occurs in 13 percent of crashes, the Agency failed to establish how EOBRs would relieve or stop fatigue. In fact, FMCSA admitted that EOBRs could only eliminate 1.5 percent of total crashes by eliminating all crashes that occur during illegal driving times. However, the LTCCS showed only 2 percent of crashes occur after 10 hours of driving, and roadside inspection data indicated that only 0.9 percent of all violations in 2009 were for driving beyond the allowed 11 hours.

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<sup>12</sup> FMCSA Analysis Division, *Electronic On-Board Recorders and Hours-of-Service Supporting Documents Preliminary Regulatory Evaluation*, Federal Motor Carrier Safety Administration (2011), pg. 54.

To determine the effectiveness of the NPRM, FMCSA chose to utilize data taken from carriers who had been required to use EOBRs because of their continual HOS violations, thereby creating a bias that skewed the true effectiveness of the technology. FMCSA further manipulated their conclusions by adjusting for “form and manner” violations. The RIA stated, “The Agency is uncertain about the degree to which “form and manner” violations are the result of simple negligence or mask other time limit violations, but believes the latter reason is prevalent enough to justify its adjusting the estimate of EOBR effectiveness upward slightly.<sup>13</sup>” Therefore, the Agency changed the overall effectiveness of EOBRs from 34 percent to 40 percent when “form and manner” violations were added. It is important to note that an uptick of 6 percent is not considered slight in terms of scientific research.

The Agency has stated previously that the Fatality Analysis Reporting System (FARS) is the best source of fatal crash data. Nevertheless, FMCSA has failed to notice that according to FARS, only 1.4 percent of fatalities in large truck crashes are fatigue related. Furthermore, the Motor Carrier Management Information System (MCMIS) Crash File has shown that merely 1.3 percent of all truck crashes were fatigue related.

Regardless of the facts presented to FMCSA, the Agency has chosen the information that best supports their mandate. Instead of looking at their studies, FMCSA turned to research conducted by Dr. Richard Hanowski titled “The Impact of Local/Short Haul Operations on Driver Fatigue.” In the study, fatigue was determined to be a contributing factor in 20.8 percent of crashes where the driver was judged to be at fault due to inattention, not fatigue.

In addition, FMCSA sourced Police Accident Reports (PARs) for a portion of their data in the NPRM. However, the Agency also “believed” that the PARs were underestimating rather than overestimating fatigue involvement in large truck crashes, therefore, the Agency added to the number by assigning part of driver inattention crashes as fatigue-related.

### Non-Competitive Grant Awards

Unfortunately, it appears that almost all grants awarded by FMCSA have been on a non-competitive basis. Certainly, the advantage that FMCSA has in distributing funds allocated to the Agency for research purposes is a powerful incentive for research organizations, which can be problematic.

For an example illustrating the problem of non-competitive grants, we can examine the publication in the Federal Register for comments on the Agencies new “Information Collection Request: Driver and Carrier Survey Related to Electronic On-Board Recorders (EOBRs) and Potential Harassment Deriving from EOBR Use.” FMCSA stated in the Information Collection Request (ICR), “The purpose of this task order is to obtain research support services in support of the Federal Motor Carrier Administration’s Electronic On-board Recorder (EOBR) rule [emphasis added].”

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<sup>13</sup> Ibid, pg. 58.

Looking from the viewpoint of a research-consulting firm that relies upon funding from agencies like FMCSA, it is evident to see that such a company is incentivized to find data to support FMCSA's predetermined conclusion. The organization picked to lead the survey team for the above-mentioned ICR was in fact a college professor. However, he has worked almost exclusively with Schneider National, a leading carrier pushing for the EOBR mandate.

Further evidence of the Agency's non-competitive grants can be found by looking at MainWay Services, which is headed by Gene Bergoffen, who is the former head of the Private Truck Council and has relied heavily on government funding. Numerous grants have been awarded to MainWay, who in turn often enlists ATRI, which is funded by large carriers and is influenced by their agenda.

When FMCSA pushed for research for a potential mandate on speed limiters for commercial motor vehicles in 2010, the Agency turned to MainWay Services. The findings in the speed limiter study however were not to FMCSA's satisfaction. In fact, in the conclusion the study stated:

"However, because of data limitations and data quality, the research team could not definitively attribute the effect to the presence of an active SL. Several confounding factors distorted true safety benefits of SLs. Although the data set provided by carriers was limited and the analyses were confounded by several variables that precluded the research team from attributing the safety benefits to SLs, the safety benefit (per the SL-relevant crash rate) was so robust that something was responsible for the difference between the SL and non-SL cohorts"

The result was not what FMCSA wanted, therefore, MainWay released a second final draft in 2012 utilizing the *exact same data*, but with some manipulation in the study, the conclusion was changed to state:

"The results across analyses indicated a strong, positive safety benefit for SLs."

The Foundation has found no competitive bid process for funding by FMCSA, while the Agency usually grants awards to MainWay, Ron Knippling, John A. Volpe National Transportation Systems Center, or Virginia Tech Transportation Institute.

### **Selection Bias in choosing Congressional Mandates**

Congress has mandated FMCSA on several occasions to implement a program for training of Commercial Drivers but the Agency has largely ignored those mandates. One of the primary arguments opposing mandatory requirements is the fact that there has been little or no research that indicates that specific driver training reduces crash risk. Of course, this is a Catch-22 because there are no specific requirements for Certified Driver License (CDL) training. Therefore, no research can study drivers that have undergone training.

It is time to initiate a new approach to driver training as a method of reducing crash risk. While the Foundation is sure that entry-level driver training will not replace the reactive enforcement orientation of CSA, it may provide a better and more educated approach than what is currently in place.

### **Project Initiation and mind set change:**

FMCSA should use its research program utilizing FMCSA, NHTSA and TIFA data on crashes and the leading causes of initial events leading up to a crash, in developing an educational program that will be used to create a standardized commercial driver qualification curriculum. Additionally, FMCSA needs to interact with real drivers, who have two million or more miles in safe driving, and not “subject matter experts.”

According to the OOIDA's surveys of its membership, the average owner-operator has more than 20 years of driving experience, and less than 1 percent of them have ever been involved in a Department of Transportation (DOT) reportable accident. These may not be “subject matter experts” but they are expert drivers. In addition, it is imperative that FMCSA does not turn to safety managers and CEOs who may never have driven a truck, instead of turning to drivers. The Agency needs to consider the following:

- Ride along with drivers who have demonstrated safe driving skills for millions of miles and listen, observe, and record.
- Look for the positive driving skills that they have developed, and focus on the positive actions of the good drivers.
- Re-examine the tapes of drivers where the Agency looked for fatigue, accidents, etc., and record the good driver actions that helped them avoid a crash.
- Accentuate the positive traits of good drivers and develop best practices. Best practices are not based on what not to do, but what is the safe and prudent thing to do.
- Understand that to develop good drivers, we want to emphasize good driving habits and skills, once again teach the positive.
- Do not automatically turn to technology to attempt to mitigate poor driving skills, but rather search for what preventative countermeasures safe drivers utilize and how those countermeasures might be incorporated into a skills program for entry-level drivers seeking their CDL license.
- Instead of developing a portfolio of technologies that are designed to mitigate the effects of poorly trained drivers be proactive and develop a required curriculum emphasizing those countermeasures learned from safe drivers.



- FMCSA should examine the Transportation Research Board's Highway Safety Manual (HSM) methodology, which involved understanding the factors contributing to crashes across the location, corridor or system. Furthermore, the HSM focused on highway safety, but recognized the importance of the vehicle, of human factors, and of the interventions of education, enforcement, and emergency medical services.

FMCSA spends a considerable amount of money, which is channeled through various research programs and organizations, to gather data and analyze the results. It is important to note that many of these organizations are highly regarded and offer outstanding analysis. In addition, FMCSA has its own internal department of Analysis, Research and Technology. However, by visiting FMCSA's website, the problems become apparent. The Research Division of FMCSA describes their mission to reduce the number and severity of commercial motor vehicle (CMV)-involved crashes and enhance the safety and efficiency of CMV operations by:

1. Conducting systematic studies directed toward fuller scientific discovery, knowledge, or understanding
2. Adopting , testing, and deploying innovative driver, carrier, vehicle, and roadside best practice and technologies
3. By expanding the knowledge and portfolio of deployable technologies and innovations, the Research Division will help FMCSA reduce crashes, injuries, and fatalities and will deliver a program that contributes to a safe and secure commercial transportation system.

The Agency's mission statement is broad, vague, and has no grounding in practicality. Instead of implementing countermeasures to crash risk, FMCSA are looking at a "fuller scientific discovery, knowledge, or understanding." However, it should be noted that FMCSA, in their response to the courts on researching the possible harassment of drivers using EOBRs, worded the survey and research in such a manner as to influence the granted research group to move in a particular direction. This is not looking at "fuller scientific discovery," but instead is looking at its own form of coercion to support FMCSA's predetermined agenda. The title of the survey for the EOBR Harassment Survey research as aforementioned is, "Survey Research to Support Revisions to the Agency's Electronic Onboard Recorder (EOBR) Rule."

Rather than looking for **innovative** driver, carrier, vehicle roadside best practices and technologies, the Agency should be looking at driving behaviors of good drivers that have millions of miles of driving without an accident. In fact, the average owner-operator has two million miles over the course of their career without a reportable accident.<sup>14</sup> Instead of reinventing the wheel, the Agency should build on what is already available, and then expand technologies and best practices based on good drivers. Instead of "expanding the knowledge and portfolio of deployable technologies and innovations," FMCSA needs to examine their own wealth of data to find countermeasures that may or may not be dependent upon a "portfolio of deployable technologies."

<sup>14</sup> *Owner-Operator Member Profile Survey 2012*, OOIDA Foundation AVAILABLE: <http://www.oida.com/OOIDA%20Foundation/RecentResearch/OOIDP.asp>



For an example, FMCSA's own research shows that 70-80% or more of all crashes involve driver error and they even drill down to specific errors, but instead of looking at preventive countermeasures to those errors, they look to technology to solve the problems. If human errors are the problem in 70-80% of crashes, then there needs to be countermeasures to those driver errors. Instead of looking for countermeasures to lane change errors, which has the highest percentage of fatalities attributed to drivers (12%), FMCSA focuses on EOBRs to remove drowsy, asleep, sleepy and/or fatigued drivers (2%). "Tools do not create the road safety future—trained professionals do."<sup>15</sup>

### Precedent for challenging FMCSA and their statistics

There is precedent in challenging FMCSA, as this was done in 2004 when Representative Tom Petri from Wisconsin requested that the DOT Inspector General audit FMCSA's Motor Carrier Safety Status Measurement System (SafeStat). The Inspector General chose Oak Ridge National Laboratory to do the audit and research.

The story of SafeStat is similar to CSA, and further demonstrates that FMCSA refuses to recognize their shortcomings and continues to use methodology and third parties that will give them the answers that they have predetermined are correct.

SafeStat was developed by the Volpe National Transportation Systems Center in the mid-1990's to measure the relative safety fitness of commercial motor vehicle operators and to guide the deployment of resources to focus on carriers posing the greatest safety risk. SafeStat combined information on crashes, roadside inspections, traffic violations and compliance reviews from the previous 30 months of data in order to produce an overall SafeStat score for carriers with sufficient safety data.<sup>16</sup>

Volpe updated their evaluation in 1998 and confirmed that the SafeStat system successfully identified high-risk carriers. According to Volpe's study, carriers that were initially identified as at-risk by SafeStat, experienced a 112% higher crash rate in the follow up period when taken as a group, than the carriers not identified as "at-risk." Nonetheless, the Oak Ridge National Laboratory study, using the same data, showed that 90% of the carriers identified as "at-risk" by the Volpe SafeStat algorithm did not have a high crash risk in the follow up period.<sup>17</sup>

Oak Ridge made the following comment on Volpe's methodology, "Statistical models can be used to select coefficients (weights) for various measures based on the relationship to collision risk in the historical data. **This approach would replace expert judgment with objective statistical methods"** (Emphasis added).<sup>18</sup> Remember FMCSA used "subject matter experts" in determining weightings of violations and categories of violations.

<sup>15</sup> Ezra Hauer, *Creating Our Safety Future*, TR News, Department of Civil Engineering, University of Toronto.

<sup>16</sup> Ken Campbell et al., *Review of the Motor Carrier Safety Status Measurement System (SafeStat)*, Center for Transportation Analysis Oak Ridge National Laboratory (Oct 2004).

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

The Oak Ridge study found the following problems with the Volpe's SafeStat evaluation:

1. The Oak Ridge evaluation showed that 90% of the carriers identified as "at-risk" by the Volpe SafeStat algorithm did not have a high crash risk in the follow-up period.
2. They state that the SafeStat algorithm is about twice as effective as random selection in identifying high-risk carriers.
3. Oak Ridge concluded that the Volpe SafeStat algorithm does not adequately address the inherent variability in the scores when identifying high risk carriers.
4. Small carriers are statistically more variable and thus have a tendency to have both higher and lower crash rates merely because of random variation.
5. Large carriers represent greater potential for reducing crash frequency.

One of Oak Ridge's suggestions was that if public dissemination of SafeStat results is to continue, the data must meet higher standards for completeness, accuracy and timeliness. The trucking industry has also advocated that the CSA scores be used internally and not shared with the public, at least until all the "tweaking is done."

Further criticism of Volpe and SafeStat was, "[h]owever, as a result of weaknesses in the data reported by states, SafeStat rankings are geographically biased against carriers operating in states that provide more complete data, while weaknesses in the data provided by carriers can produce errors in SafeStat calculations and cause high-risk carriers to be missed." The Foundation shares this same criticism of CSA. There are certain states that have different objectives, such as a truck driver in a probable cause state might be more likely to have a speeding violation. Again, from the audit, "[be]cause carrier safety data and the model's rankings are publicly disclosed, a higher standard of quality must be met to ensure fairness to motor carriers who may lose business or be placed at a competitive disadvantage by inaccurate SafeStat results. FMCSA will need to demonstrate timely improvements if it to continue to publicly disclose carrier results across all SafeStat categories."<sup>19</sup>

Instead of making improvements to SafeStat, FMCSA unveiled CSA 2010, which has the same reoccurring problems, and instead of learning from the mistakes of SafeStat, the Agency encouraged shippers and brokers to look at faulty data in making choices on carriers.

Interestingly enough, Volpe did an evaluation years later that included some of the previous missing data, while also correcting some of the statistics and findings from their original study. This evaluation and subsequent correction was related to Compliance Reviews (CR) conducted in 2001 and 2002 by the Volpe Center.

One of their findings was quite telling. The analysis examined the relationship between crash rate change following a CR and carrier size. The pre-CR average crash rate was inversely related to the carrier size. In other words, as carrier size increased, the pre-CR average crash rate decreased. The smaller carriers (20 or fewer power units) had the greatest reduction in average crash rates, as well as

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<sup>19</sup> Ibid.

the largest number of estimated crashes avoided as a result of the CR. So why the intensity of a Safety Audit when the Safety Audit for all intense and purposes is a CR and the post-CR statistic for small carriers is very positive? It was the Oak Ridge study that essentially forced FMCSA to put the caution statement on the use of the SafeStat Data and the removal of the Accident Safety Evaluation Area and overall SafeStat Score.

OOIDA made mention of this study in their comments concerning the proposal that all new owner-operators undergo a Safety Compliance Audit within the first 18 months of operation (now 12 months). Volpe's earlier research indicated that new motor carriers were far more likely to have a crash than larger and older carriers were. The evidence again did not support this, but FMCSA used the same faulty methodology to continue to mandate safety audits for new carriers. Unfortunately, like much of FMCSA's research, the damage has already been done and it is often quoted as if it is still relevant.

OOIDA firmly believes that FMCSA needs to be challenged and their algorithms evaluated. At the very least, the "we believe" and the "we estimate" false science should be brought to light for review. Further, OOIDA would still like to know who these "subject matter experts" were that determined the CSA weightings and violation categories.

### **New Direction Needed for FMCSA**

Now let us examine the Mission statement of another safety agency, the National Highway Traffic Safety Administration (NHTSA), which is to "save lives, prevent injuries, and reduce economic costs due to road traffic crashes."

In determining priorities for the agency, NHTSA looked at several perspectives:

- Vehicle type
- Crashworthiness-- what part of vehicle was struck first
- Crash Avoidance—rear-end; lane change etc.
- Crash type—what did the vehicle impact
- Body region injured and societal costs

Moreover, NHTSA have Priority Programs and Projects in four distinct categories:

1. The size of the target population;
2. The effectiveness of countermeasures and their potential to save lives;
3. The availability and practicability of these countermeasures; and
4. The potential that countermeasures could be developed in the future that could be reasonably effective against a large target population.

Note the mention of countermeasures rather than regulations, violations, or technology. While NHTSA may recommend technology, their first consideration is countermeasures that are available and practical. In comparison, FMCSA takes a reactive, after-the-fact, enforcement approach to road safety that offers punishment for violations, which has effectively become their image.

The FMCSA on the other hand have some broad and vague Priority Programs and Projects. The Research Division of FMCSA describes their mission: to reduce the number and severity of commercial motor vehicle (CMV)-involved crashes and enhance the safety and efficiency of CMV operations by:

1. Conducting systematic studies directed toward fuller scientific discovery, knowledge, or understanding
2. Adopting , testing, and deploying innovative driver, carrier, vehicle, and roadside best practice and technologies
3. By expanding the knowledge and portfolio of deployable technologies and innovations, the Research Division will help FMCSA reduce crashes, injuries, and fatalities and will deliver a program that contributes to a safe and secure commercial transportation system.

FMCSA supposedly accomplishes their mission statement through their Analysis—Research---Technology divisions. However, as stated previously, the mission statement is too broad, too vague, and has no grounding in practicality. For an example, what exactly does FMCSA mean by “directed toward fuller scientific discovery, knowledge, or understanding?” Further, instead of examining innovative technologies, the Agency should be examining what is going on in the industry with drivers, carriers, and vehicles, and develop best practices and technologies based on what is already available. Again, OOIDA would ask FMCSA what is “expanding the knowledge and portfolio of deployable technologies and innovations?”

FMCSA priorities seem to be based on philosophical rhetoric, while NHTSA bases their priorities on examining what is available and what is happening currently, and trying to discover countermeasures.

It is evident that FMCSA relies on their CSA data to develop their “crash risk” scenarios for most of their regulations. The Agency has a wealth of data from their Analysis division and through their relationships with UMTRI, VTTI, VOLPE, and other research groups. However, it appears that this vast amount of information is largely ignored when trying to fulfill their mission statement.

For an example, FMCSA’s own research shows that 70-80% or more of all crashes involve driver error and they even drill down to specific errors, but instead of looking at preventive countermeasures to those errors, they look at technologies such as EOBRs to enforce HOS, despite the fact that only 1% of all citations issued are for driving over the prescribed limits.

The very definitive TIFA studies show that lane changes cause the majority of accidents so with that knowledge, what countermeasures can FMCSA take to mitigate that real and verifiable risk? The answer is not to develop a CSA safety score that could lead to a compliance review, but to develop preventative countermeasure and entry-level driver training to combat driver error.

Ultimately, the big difference between FMCSA and other agencies is that other agencies are looking at the actual causes for problems and seeking countermeasures, whereas FMCSA looks to enforcement and punishment to prevent crashes.

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