OOIDA Foundation

RESEARCH · SAFETY · ECONOMICS

Research PAPER

Review of NHTSA and FMCSA's Speed Limiting Devices Notice of Proposed Rulemaking

10/3/2016

Table of Contents

List of Tables

List of Figures

List of Graphs

Introduction

On September 7, 2016, the National Highway Traffic Safety Administration (NHTSA) and the Federal Motor Carrier Safety Administration (FMCSA) issued a joint notice of proposed rulemaking (NPRM) that would require vehicles with a gross vehicle weight rating of more than 26,000 pounds to be equipped with a 60 mph, 65 mph, or 68 mph speed limiting device. The rule would also require interstate motor carriers to maintain a functional speed limiter for the service life of the vehicle. According to the agencies, the basic premise for the proposal is that travel speeds have a direct relationship with crash severity and that the impact force during a crash is related to vehicle speed. Thus by reducing a heavy vehicle's travel speed the agencies assumed that crash severity would also be reduced, thereby preventing fatalities, injuries, and property damage.

While analyzing the NPRM however, the Owner-Operator Independent Drivers Association Foundation (OOFI), which is the research and educational arm of OOIDA, the largest non-profit association representing the interests of more than 158,000 owner-operators and independent truck drivers, discovered numerous flaws in the agencies' interpretations, science, and reasoning behind the NPRM. Namely, the agencies' ostrich head in the sand approach toward prevailing research concerning speed limiters and safety (some of which was conducted by NHTSA and FMCSA), lack of data on the actual speed of the heavy vehicles in their analysis, the unknown number of vehicles that were already speed limited, demographics and who was at fault for the crashes.[1]

Crash Severity

In their argument for speed limiters reducing crash severity, the agencies chose to utilize a study conducted by Dr. Steven L. Johnson at the Mack-Blackwell Transportation Center as their principal centerpiece in justifying a mandate. The agencies appeared however to select those portions of Johnson's study which best suited their purposes. For example, the NPRM quotes, "Additionally, higher speeds extends the distance necessary to stop a vehicle and reduce the ability of the vehicle, restraint device, and roadway hardware such as guardrails, barriers, and impact attenuators to protect vehicle occupants in the event of a crash.[2]" Nevertheless, the agencies failed to present the overall findings of the research which was that speed limiters create speed differentials which is more likely to lead to a crash, as the study states that "on a highway with a posted uniform speed limit of 70 mph for both automobiles and trucks, the frequency of interactions with other vehicles by a vehicle traveling 10 mph below the posted speed limit (60 mph) is 227% higher than moving at traffic speed.[3]" The study concluded that the greater the number of interactions between vehicles, the greater the likelihood that a crash will occur, either fatal or non-fatal.

[1] While the agencies filtered the GES and FARS databases by striking vehicle, this does not necessarily mean that the striking vehicle was at fault for the crash.

[2] "Federal Motor Vehicle Safety Standards; Federal Motor Carrier Safety Regulations; Parts and Accessories Necessary for Safe Operation; Speed Limiting Devices; Proposed Rule," NHTSA and FMCSA (2016), pg. 6.

[3] Johnson and Pawar, *Cost-Benefit Evaluation of Large Truck-Automobile Speed Limits Differentials on rural Interstate Highways*, Mack-Blackwell Rural Transportation Center (2005), pg. 98.

In its previous study concerning speed limiters in 1991 entitled *Commercial Motor Vehicle Speed Control Devices*, NHTSA evaluated "speeding related crashes" for heavy duty trucks traveling at speeds in excess of 65 mph. NHTSA concluded that combination trucks tended to travel at speeds just over the speed limit and that "there is not sufficient justification to consider requiring all heavy trucks to be so equipped [with speed limiters].[4]"

It is important to also note that the study found that "the estimated absolute numbers of crashes and fatal crashes involving truck speeding and speeding in excess of 65 mph (or in excess of 70 mph) are small, particularly when viewed in the context of the overall truck crash picture (e.g., all truck crash involvements) or in the context of the overall ***speeding*** safety problem when all vehicle types are considered. For example, there are an estimated 30 fatal crash involvements (resulting in 39 fatalities) annually involving combination-unit trucks speeding in excess of 70 mph. This represents only 1 of every 135 combination-unit truck fatal crash involvements at all speeds (0.74%) and only about 1 of every 120 speeding > 70 mph-related crash involvements of all vehicle types combined (0.83%).[5]"

During the study, NHTSA was unable to determine whether the reduction in travel speeds of heavy vehicles would actually reduce crash risk (or resulting fatality risk) significantly, since other, non-speed related factors might still have occurred to cause similar crashes and injuries.[6] This fact, coupled with the Agency's estimate of 39 fatalities at travel speeds above 70 mph, stands in direct contrast with the current NPRM where the agencies estimated there were 9,896 fatal crashes involving heavy vehicles on speed limited roads above 55 mph between 2004 and 2013, equating to nearly a 1,000 fatal crashes annually. OOFI also questions what transpired with the other non-speed related factors which ultimately influenced the cause of the crash, whereas NHTSA previously concluded that a reduction in travel speed would not likely reduce the risk of a fatality or injury, the agencies now claim that between 63 and 214 lives will be saved, 70 to 236 serious injuries will be prevented, and 1,299 to 4,535 minor injuries will be prevented with a 65 mph speed limiter.

Although NHTSA claims that several factors have changed since the submission of the 1991 report, they admit that they have no plans to prepare an updated study given their limited resources. Without an up-to-date study on speed limiters, it appears that the only justification for a rulemaking is that the American Trucking Association and Road Safe America petitioned NHTSA and FMCSA to do so. The agencies' estimates concerning the safety benefits associated with the proposal, such as 162 to 498 lives saved annually with a 60 mph speed limiting device, vary so widely as to make them useless. Without knowing the number of heavy vehicles that are speed limited and the actual travel speed of the vehicles prior to the crash, as well as a multitude of other factors which are involved in any specific collision, the agencies' safety estimates represent assumed causes that have not been verified by research.

The fact remains regardless that a speed limiter mandate will have very little positive impact, if any, on safety as a majority of crashes and fatalities occur on roadways below 55 mph. According to the Fatality

[4] *Commercial Motor Vehicle Speed Control Devices*, NHTSA (1991).
[5] Ibid., pg. 3-14
[6] Ibid., pg. 6-3

Analysis Reporting System (FARS), 80 percent of the crashes in which the travel speed of a heavy vehicle was recorded occurred below 55 mph in 2015.

Table 1: Fatal Crashes involving heavy vehicles by travel speed, 2015 FARS database

Travel Speed	Combination Truck	Single-Unit Truck	Buses	Total	Percentage
Stopped Mot. Veh. In Tran.	242	40	25	307	**21%**
0-30 MPH	158	55	29	242	**16%**
31-35 MPH	48	13	8	69	**5%**
36-40 MPH	56	14	3	73	**5%**
41-45 MPH	118	25	5	148	**10%**
46-50 MPH	8	2	4	14	**1%**
51-55 MPH	297	54	5	356	**24%**
61-65 MPH	152	10	2	164	**11%**
66-70 MPH	73	2	0	75	**5%**
71-75 MPH	15	1	0	16	**1%**
76-80 MPH	3	0	1	4	**0%**
81-85 MPH	1	0	0	1	**0%**
86-90 MPH	0	0	0	0	**0%**
91 MPH or greater	2	0	0	2	**0%**
Total Reported	1,173	216	82	1,471	**100%**
Not Reported	1,529	224	97	1,855	**51%**
Unknown	149	58	21	229	**6%**
Total	2,933	510	201	3,651	**100%**

NHTSA offered comments in the NPRM made by the Governors Highway Safety Association that large trucks are over-represented in motor vehicle crashes, stating that large trucks accounted for 3 percent of registered vehicles and represented about 8 percent of total miles traveled nationwide, but yet were involved in 12 percent of traffic fatalities. OOFI questions however why NHTSA would utilize such outdated information when more recent data is readily available. Although it is often quoted that large trucks represent a disproportionate percentage of fatalities, injuries, and property-damage-only (PDO) crashes, the facts clearly demonstrate that this is not a true statement. FMCSA's *Large Truck and Bus Crash Facts 2014*[7] acknowledged that large trucks accounted for 4% of all registered vehicles, 9% of all vehicle miles traveled (VMT), 11% of all vehicles involved in fatal crashes, 5% of all vehicles involved in injury, and 7% of all vehicles involved in PDO crashes.

Focusing only on the percentage of registered vehicles that large trucks represent and their subsequent involvement in the percentage of fatal crashes would appear at first glance to be an indictment against large truck drivers. Nevertheless, a number of variables must be considered first in order to verify the truth of this statement. First, it is vital to understand the fact that all trucks with a GVWR of 10,000 pounds or more are included in this statistic rather than only including Class 7 and 8 trucks, which predominately make up the large truckload segment of the industry, thereby skewing the results.

[7] FMCSA Analysis Division, *Large Truck and Bus Crash Facts 2014*, FMCSA (2016)

Table 2: Passenger Vehicle and Large Truck Crash Statistics, 2014

Statistic	Passenger Vehicles	Large Trucks	Total	Percentage of Trucks
Registered Vehicles	240,155,238	10,905,956	260,350,938	4%
Million Vehicle Miles Traveled	2,710,556	279,132	3,025,656	9%
Total Crashes	5,876,000	411,424	6,287,424	7%
Total Fatalities	26,000	3,424	29,989	11%
Total Injuries	1,585,000	82,000	1,648,000	5%
Total PDO	4,265,000	326,000	4,387,000	7%

The Class 3 through 6 trucks are often referred to as single-unit trucks (SUTs) or straight trucks opposed to Class 7 and 8 trucks which are called combination trucks (CTs). According to FMCSA, when considering all truck fatalities in 2014, SUTs were involved in 29 percent of fatal crashes, 52 percent of injury crashes, and 51% of PDO crashes. Therefore SUTs, which are primarily short haul operations who frequently operate in dense urban centers, represent over 50 percent of all crashes attributed to "large trucks."

Table 3: Combination and Single-Unit Trucks Crash Statistics, 2014

Statistic	Combination Trucks	Single-Unit Trucks (SUTs)	Total	Percentage of SUTs
Registered Vehicles	2,577,197	8,328,759	10,905,956	76%
Million Vehicle Miles Traveled	169,830	109,301	279,132	39%
Total Crashes	211,474	209,003	411,424	51%
Total Fatalities	2,474	1,003	3,424	29%
Total Injuries	42,000	43,000	82,000	52%
Total PDO	167,000	165,000	326,000	51%

Furthermore, a variety of sources, including the University of Michigan Transportation Research Institute, the Commercial Vehicle Safety Alliance, NHTSA, the AAA Foundation for Traffic Safety, and FMCSA's *Large Truck Crash Causation Study*, have demonstrated that the passenger vehicle is attributed with fault in most fatal accidents involving trucks and passenger vehicles. According to FMCSA's *Large Truck and Bus Crash Facts 2014*, the passenger vehicle was coded with the driver-related factor in 86% of fatal crashes involving trucks in which there was a driver-related factor recorded.[8] If a conservative figure of 65 percent was applied to number of fatal crashes involving CTs only (2,474), the number of fatal crashes attributed to CTs would decrease to 866.

Second, it is crucial to focus on the number of miles traveled per truck and the fatality rate per 100 million vehicle miles traveled (MVMT). According to the Federal Highway Administration (FHWA), there were approximately 2,577,197 CTs in 2014 which each averaged 65,897 miles per year, equaling 169.8

[8] Ibid, pg. 77

billion miles traveled annually[9] (2,577,197 CTs X 65,897 average miles traveled = 169,829,550,709 miles annually) with a fatality rate of 1.46 per 100 MVMT (2,474 crashes ÷ 169,829,550,709 miles X 100,000,000 = 1.46). Nonetheless, by subtracting the passenger at fault crashes from the equation, the fatality rate decreases to 0.51 per 100 MVMT (866 crashes ÷ 169,829,550,709 miles X 100,000,000 = 0.51). Interestingly, this fatality rate is less than half of what is normally attributed to heavy trucks in transportation statistics (1.23 fatal crashes per 100 MVMT).

OOFI then considered the risk of being involved in a fatal crash for trucks as compared to passenger vehicles, meaning the risk attributed to exposure. OOFI found that the average passenger vehicle travels 11,244 miles per year,[10] whereas stated previously, the average combination truck averages 65,897 miles per year. Hence, the crash risk exposure in miles alone for large trucks is five times greater than for the passenger vehicle.

Other statistics that must be considered when examining various factors associated with crashes are blood alcohol concentration levels, distraction, careless driving, and other driver and road-related factors. It is incorrect to assume that a simple reduction in speed will have any effect on the reduction of crash severity without actual research.

Enforcement of the Rule

In conjunction with NHTSA, FMCSA would be responsible for enforcing the proposed rule by reading the speed limiter setting for a heavy vehicle via an on-board diagnostic (OBD) connection during a roadside inspection. In order to connect with the OBD and gain access to the appropriate information however the roadside inspector would need to enter in the proper code, which has traditionally been proprietary information of the engine manufacturer. The agencies are suggesting then that the engine manufacturers give up these codes in order for enforcement personnel to verify the previous two speed limit settings. This part of the proposal is somewhat confusing as the electronic control module would be the most logical location to gain this information rather than an OBD.

In addition to the two previous speed limiter settings, the agencies are potentially considering other components such as tire size, gear ratios, and other dynamics that would influence the speed limiter setting to be included as part of the OBD readout. To OOFI's knowledge however no such diagnostic program exists today.

Although the agencies did not attribute any costs to the OBD connection, it is important to understand that such a requirement is not without its price. The agencies also failed to take into account the added expense to a driver or motor carrier to change the tire size and/or gear ratio of their truck and adjust the OBD parameters accordingly. OOFI questions whether enforcement personnel would have the expertise to understand the relationship between tire size, gear ratio, horse power, etc., and their impact on the speed limiter. It is therefore reasonable to assume that extensive training would be needed for many roadside inspectors, which is not considered in the agencies' preliminary regulatory impact analysis

[9] http://www.fhwa.dot.gov/policyinformation/statistics/2014/vm1.cfm
[10] Ibid.

(PRIA). Other expenses which were not included are the cost of the diagnostic tool, the computer or tablet needed in order for the inspectors to connect to the OBD, and additional roadside inspections.

Regarding enforcement, the agencies state that "if the vehicle is observed to be operating in excess of a posted speed limit greater than the maximum specified set speed, and the vehicle was manufactured on or after the effective date of the proposed rule, the speeding violation would then serve as prima facie evidence that the speed limiting device was inoperative, or the setting altered.[11]" OOFI questions whether the agencies have a real understanding of how truck drivers and their trucks operate. It appears from the NPRM that the agencies believe that a truck set at a certain speed limit cannot exceed the established setting. However, a driver traveling downhill, especially on grades of 5% or higher, can simply push in the clutch or shift into neutral gear in order to allow the truck to gain momentum and speed, also referred to as coasting, regardless of a speed limiter. Therefore the observed speed faster than the speed limit setting is not a prima facie for a non-operable speed limiter.

If heavy vehicles were not allowed to increase their speed while traveling downhill, there would be a growth in the amount of exhaust emissions, as the vast majority of experienced truck drivers build up momentum by coasting down the grade so that they can utilize higher gears which requires less torque, thus less emissions and fuel, to travel up the next grade. If speed limiters are mandated in such a way to prevent drivers from using this technique, there will be an increase in fuel consumption and greenhouse gas (GHG) emissions. The agencies have not addressed or considered these issues. Hence before they can complete their rulemaking, the agencies must modify their GHG emission and fuel savings estimates with the following facts in mind.

Negative Externality

The agencies assumed as a basis of their proposal that the trucking industry matched the definition of a negative externality, meaning the benefits are enjoyed by one party while the cost associated with that benefit are imposed on another. In other words, the agencies were essentially allowed to conduct a benefit-cost analysis by examining the impacts to the society as a whole. For example, regardless of whether a crash involved a truck or passenger vehicle, the general public is ultimately affected by overall traffic delays, congestion, increased pollution, etc. The agencies believe that crashes involving heavy vehicles at higher travel speeds will not only increase the severity of the collision, but also the externalities. Thus while the cost of excess fuel consumption would be borne by the vehicle fleet operators, the resulting fatalities, injuries, property damage, and greenhouse gases (GHG) would be imposed on the society.

There is an externality however that the agencies did not consider, and one that stands in direct contrast to ATA's petition to initiate a speed limiter rulemaking, that being the increased congestion due to slower travel speeds and increased delivery times. To suggest that traveling slower than the flow of traffic will somehow decrease congestion, as put forward by ATA, is contradicted by the fact that the heavy vehicles, especially CTs, will be forced to be out on the roadways for longer periods of time.

[11] NPRM, pg. 65

Moreover, additional trucks will be needed on the highways in order to cover the delays in delivery time. This will ultimately result in more vehicles being on the road as well as longer queue lengths, increased high-risk passing behaviors, and increased road rage.

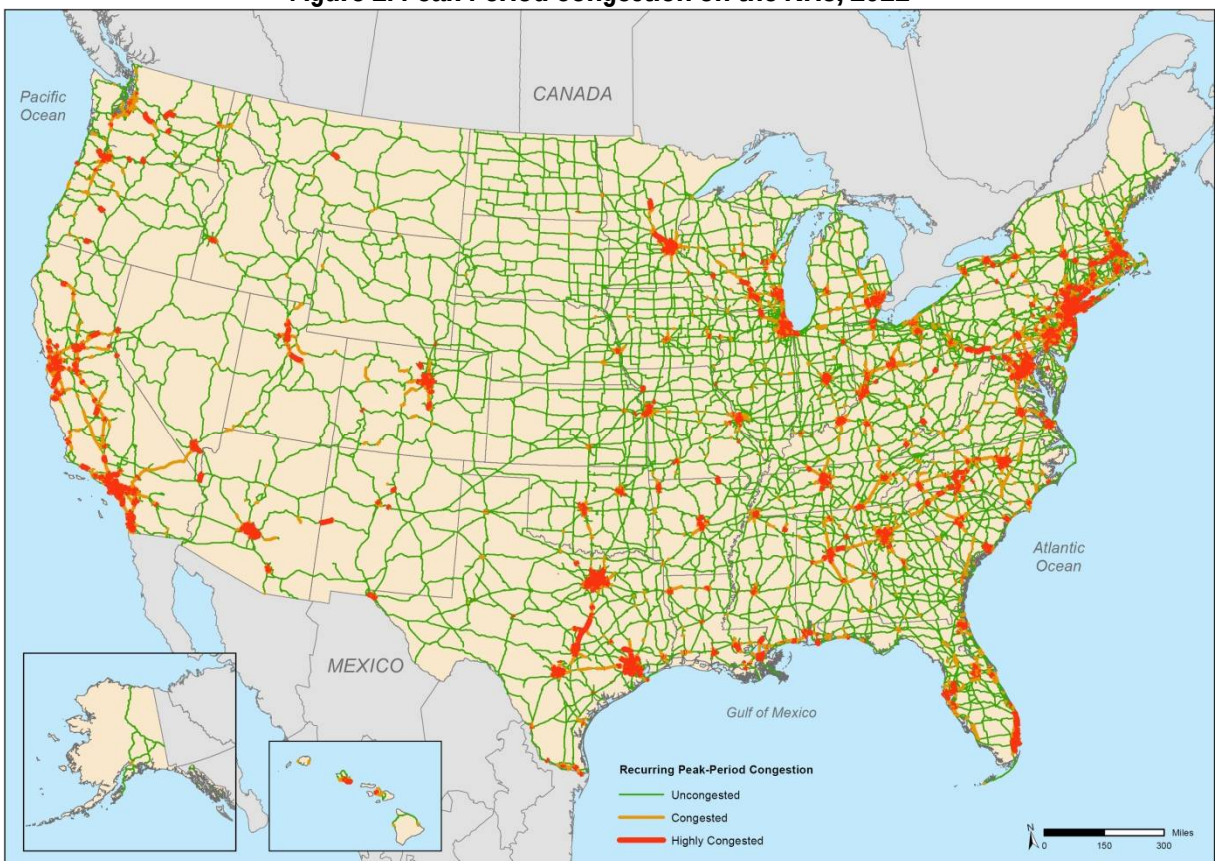
In 2015, the United Kingdom increased the speed limit for heavy goods vehicles on certain portion of the highway system in order to reduce risky overtakes by frustrated car drivers. "The Government feels that this will boost the economy by around 11 million pounds and reduce the amount of injudicious overtakes that frustrated drivers make when behind a vehicle that is traveling at 40 mph in national speed limit.[12]" If an increase of just 10 mph boosted the United Kingdom's economy by 11 million pounds, or $14.3 million U.S. dollars, how will a decrease in heavy vehicle speed on most major highways in the U.S. affect the nation's economy?

The FHWA warned that peak period congestion in 2011 resulted in the slowing of traffic below posted speed limits on 13,500 miles of the National Highway System (NHS) and created stop-and-go conditions on an additional 8,700 miles. Assuming no increase in network capacity, FHWA forecasted truck and passenger vehicle traffic to expand in areas of recurring peak-period congestion to 34 percent of the NHS in 2040 compared to 10 percent in 2011. This would slow traffic on 28,000 miles of the NHS and create stop-and-go conditions on an additional 46,000 miles.[13] These facts coupled with the increase in congestion and traffic delay due to both slower moving heavy vehicles and the subsequent additional number of trucks that will be needed to move existing freight, will exponentially grow the externality cost associated with a speed limiter mandate.

[12] "Faster HGVs could cut dangerous overtakes," Spalding Today (April 2015), http://www.spaldingtoday.co.uk/news/faster-hgvs-could-cut-dangerous-overtakes-1-6674323

[13] http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/data_and_statistics/by_subject/freight/freight_facts_2015/chapter4

Figure 1: Peak-Period Congestion on the NHS, 2011[14]

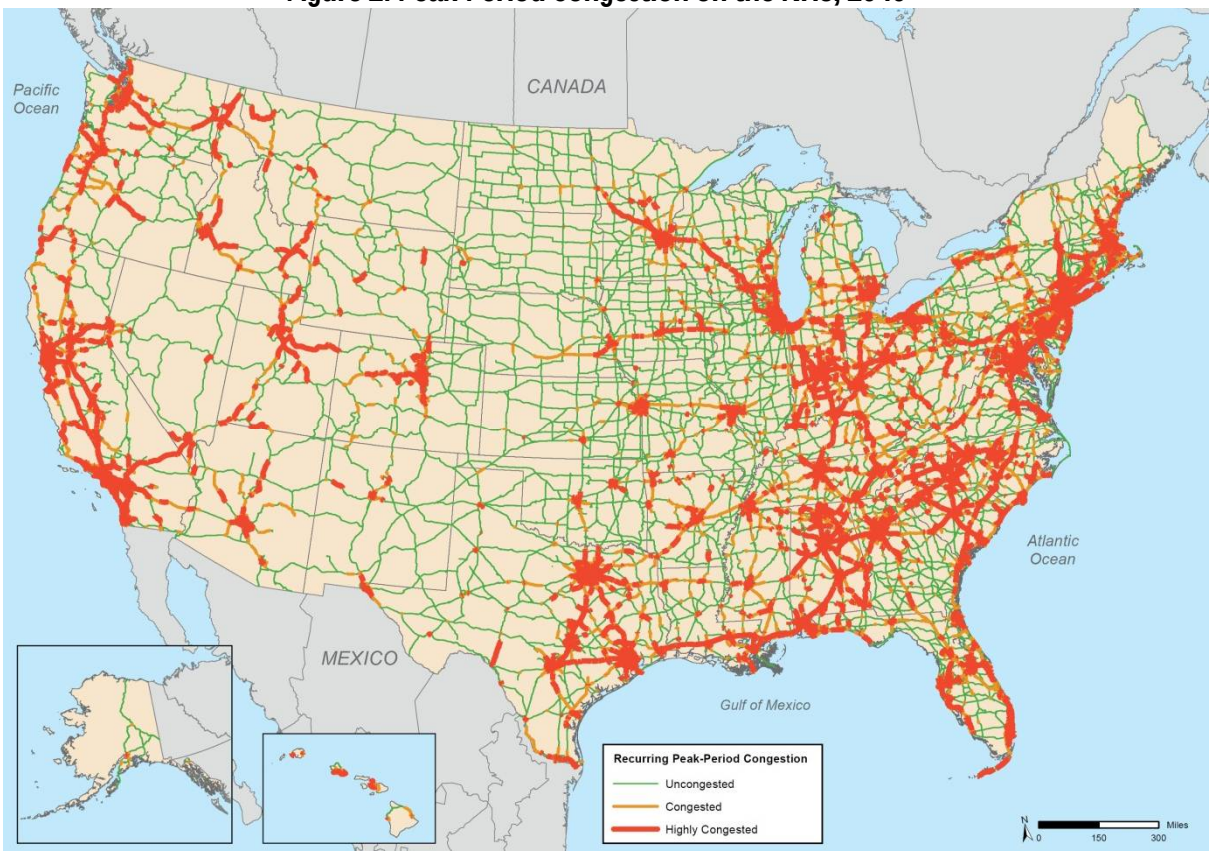


In 2011, the Victoria Transport Policy Institute (VTPI) released a guidebook entitled *Transportation Cost and Benefit Analysis: Techniques, Estimates and Implications* that examined twenty-three different transportation costs across North America, Europe, Australia, New Zealand, and Japan. The report found that traffic congestion costs consist of incremental delay, driver stress, vehicle costs, crash risk and pollution resulting from interference between vehicles in the traffic stream.[15] VTPI also stated that:

- Each additional vehicle in the traffic stream can interfere with other road users, which imposes an incremental delay and crash risk;
- Increasing travel speeds by 15 mph would reduce delays by about 30% and conversely decreasing travel speeds would increase delays;
- Larger and heavier vehicles cause more congestion than smaller, lighter vehicles, because they require more space and are slower to accelerate; and
- Vehicle fuel consumption increases approximately 30% under heavy congestion.

[14] http://www.ops.fhwa.dot.gov/freight/freight_analysis/nat_freight_stats/docs/13factsfigures/figure3_16.htm
[15] Todd A. Litman, *Transportation Cost and Benefit Analysis: Techniques, Estimates and Implications*, Victoria Transport Policy Institute (2011), http://vtpi.org/tca/

Figure 2: Peak-Period Congestion on the NHS, 2040[16]



The agencies have made no attempt to examine the externalities of a speed limiter mandate other than to evaluate the societal costs incurred at the event of a heavy vehicle crash, whereas congestion costs are largely omitted. Accounting for costs such as wasted fuel, decreased productivity, and higher prices for goods, Seattle-based INRIX and London-based Centre for Economics and Business Research discovered that the United States experienced $124 billion in direct and indirect losses due to traffic congestion in 2013. After considering population growth, the two research firms stated that congestion costs will rise to $186 billion in 2030.[17]

More recent research completed by the American Transportation Research Institute in conjunction with FHWA in 2014 reported that traffic congestion resulted in more than 728 million hours of lost productivity, or $50 billion in operational costs, equating to 264,000 commercial trucks sitting idle for a working year. The impact of congestion cost per truck averaged nearly $27,000 for those travelling 150,000 miles annually.[18]

[16] http://www.ops.fhwa.dot.gov/freight/freight_analysis/nat_freight_stats/docs/13factsfigures/figure3_17.htm
[17] Federico Guerrini, "Traffic Congestion Costs Americans $124 Billion A Year, Report Says," Forbes (Oct 2014), http://www.forbes.com/sites/federicoguerrini/2014/10/14/traffic-congestion-costs-americans-124-billion-a-year-report-says/#10cb07256252
[18] http://www.trucknews.com/transportation/congestion-on-us-highways-costing-trucking-industry/1003071674/

The issue of congestion has been exacerbated by the need and shift toward just-in-time deliveries. The automobile industry for example is one that relies heavily upon just-in-time deliveries and where even a minute delay can cost several thousands of dollars. A research survey of 101 manufacturing executives in the automotive industry commissioned by Advanced Technology Services, Inc. and conducted by Nielson Research found that one minute of stopped production or downtime costs an average of $22,000, while some survey respondents cited the figure to be as high as $50,000 per minute.[19] Although the agencies acknowledged that speed limiters will cause a delay in delivery times, they did not address or analysis the effects of increased traffic congestion as a result of the rule in the PRIA. OOFI firmly believes that these externalities should be included as part of the benefit-cost analysis.

Cost to the Industry

OOFI strongly objects to the cavalier and irresponsible attitude that the agencies have shown toward small carriers and especially the owner-operators. It is readily apparent that the agencies have little knowledge on how the trucking industry actually functions, nor are they aware of the economic importance which small carriers and owner-operators play within the industry and the overall economy of the nation. The agencies carelessly propose that the NPRM will require small carriers and their drivers to operate longer hours in order to deliver the same amount of freight. It would seem contraindicated for any "safety" administration to promulgate a rulemaking that requires more time-on-task, such as driving, when FMCSA, the National Transportation Research Board, and various safety advocates, including Road Safe America and Parents Against Tired Truckers, have expressed concern that increased driving time leads to greater fatigue and thereby a greater likelihood of crashes.

The agencies further display their unfamiliarity with the trucking industry by assuming that small carriers and owner-operators can only compete with large speed limited carriers because they can deliver freight faster. It is extremely egregious to every owner-operator who has worked hard to establish their business built on personal relationships, efficiency, and sound business practices, to have the agencies simply state that they "expect that large trucking companies would absorb the additional cargo with their reserve capacity of trucks and drivers.[20]" In other words, those large carriers are getting exactly what they hoped to achieve when they first petitioned for a speed limiter rulemaking.

The agencies continued to denigrate the owner-operators by stating that they "expect that some of the affected owner-operators would work for trucking companies as independent contractors.[21]" The agencies thus waved the fact that this would mean that an owner-operator would be giving up their status as a small business owner as well as their lifelong business dream in order to go back to work for a large motor carrier. Therefore, in an attempt to blunt the fact that the proposed rule will place hundreds of thousands of small carriers and owner-operators out-of-business, a fact which the agencies readily acknowledged, they stated that these small business owners can simply work for someone else.

[19] http://news.thomasnet.com/companystory/downtime-costs-auto-industry-22k-minute-survey-481017
[20] NPRM, pg. 85
[21] Ibid., pg. 86

Although the agencies are well aware that 99 percent of the trucking industry is composed of small carriers and that approximately 50 percent of registered carriers are one truck operations, they seemingly do not recognize the detrimental effect that the NPRM will have on small business. For example, 73 percent of all trucking fleets in the U.S. operate 150 trucks or less. These carriers, who predominately do not have speed limiters equipped, also comprise over 700,000 of the nearly 1 million registered tractor-trailers. These small carriers have worked hard to establish their operation and for the agencies to state haphazardly that these carriers will simply hand over their business to large carriers after years of developing working relationships is careless and deplorable. While the rulemaking appears to accommodate the one percent of large business who have petitioned for speed limiting devices so that they can commandeer the other 99 percent of the trucking industry with the willing help from the agencies, this is in direct opposition to the very ideals which the United States of America was founded upon, where hard work and individual abilities are rewarded and encouraged. OOFI firmly believes that this is a bi-partisan issue which must be presented to Congress for review.

The agencies' ignorance concerning the work and the importance of the owner-operator to the U.S. economic viability is clearly displayed in the pages of both the NPRM and the PRIA. The following are facts that the agencies are apparently unaware of:

- Large carriers almost exclusively have contracts with big business and as such they do not compete directly with small carriers and owner-operators who operate in the spot market.
- Small carriers receive a lot of freight from large carriers who have discovered that it does not pay to provide service to small business shippers who haul relatively few loads in a year.
- Small carriers primarily service the small business shippers who depend heavily upon these carriers and owner-operators.
- According to LaneAxis's Virtual Freight Management Study, thirteen of the largest motor carriers outsource an average of 42.29 percent, or $17 billion, of their freight to small carriers because it is not profitable for them to service customers who are not a part of their established routes.[22]
- Small carriers and owner-operators are able to be more flexible in their schedule whereas large carriers are bound by contracts. For example, when a drought occurs in Texas, or hurricanes in Louisiana, the states will often rely on small carriers to deliver food, water, and supplies as large carriers are chained by their contractual arrangements.
- Small carriers and owner-operators are the safest carriers on the road.

It is also important to note that small carriers and owner-operators play a crucial role in servicing the manufacturing industry, which is dominated by small companies much like the trucking industry. According to the National Association of Manufacturers (NMA), 98.5 percent of the manufacturing firms are considered small business, and these companies rely predominately upon small carriers and owner-operators to deliver their products to the market. Many of the small manufacturing companies operate on thin profit margins and thus will not be able to pay the higher fees charged by the larger carriers in

[22] "Press Release: LaneAxis research shows top carriers outsource nearly half of freight shipments," LaneAxis (March 2016), http://laneaxis.com/press-release-laneaxis-research-shows-top-carriers-outsource-nearly-half-freight-shipments/

order to haul their freight. As the speed limiter rulemaking has the potential to close down many of these small manufacturers, this externality must also be included in the agencies' cost-benefit analysis. While the nation's economy has been recovering since the 2008 recession, this NPRM could be a giant step backward as manufacturing is what is currently driving the economy forward. According to NMA, every dollar that is spent in manufacturing adds $1.81 to the economy.

Large Carriers

In January 2007, the agencies published a joint request for comments in the *Federal Register* seeking input on the speed limiter petitions presented by the American Trucking Association and Road Safe America. In the NPRM, the agencies mentioned two large carriers, Schneider National and J.B. Hunt Transport, who supported the petitions to mandate speed limiting devices in large trucks. The agencies quoted Schneider, who stated in their comments that crash data on its own fleet indicated that vehicles without speed limiting devices accounted for 40 percent of the company's serious collisions while driving 17 percent of the company's total miles. While this may be true, there are so many variables which are not included, such as region of operation, driver experience, definition of serious collision, and how many trucks were not speed limited, effectively making this statement meaningless. Not to mention the fact that if speed limiters were truly effective, then why did Schneider not simply equip all their trucks with speed limiters?

In November 2015, OOFI conducted an analysis of publically available information on FMCSA's Compliance, Safety, and Accountability (CSA) Safety Measurement System (SMS) website[23] for large carriers, including Schneider and J.B. Hunt, in order to present data that represented the real-world safety outcomes of electronic logging devices (ELDS) and speed limiters. As part of the analysis, the OOFI examined the CSA SMS scores of large carriers that had both ELDs and speed limiters 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 limiter equipped fleets with improved safety in Hours-of-Service 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 drivers
- Percentage of Crashes per million vehicle miles travelled (MVMT)

In order to select carriers to examine the safety outcomes of ELDs and speed limiters, OOFI first selected large motor carriers that had been active in pursuing a mandate for the installation for both technologies. These large carriers are classified as asset carriers. Secondly, OOFI focused on carriers that did not have such technologies installed, which were classified as non-asset carriers. These carriers

[23] https://csa.fmcsa.dot.gov/

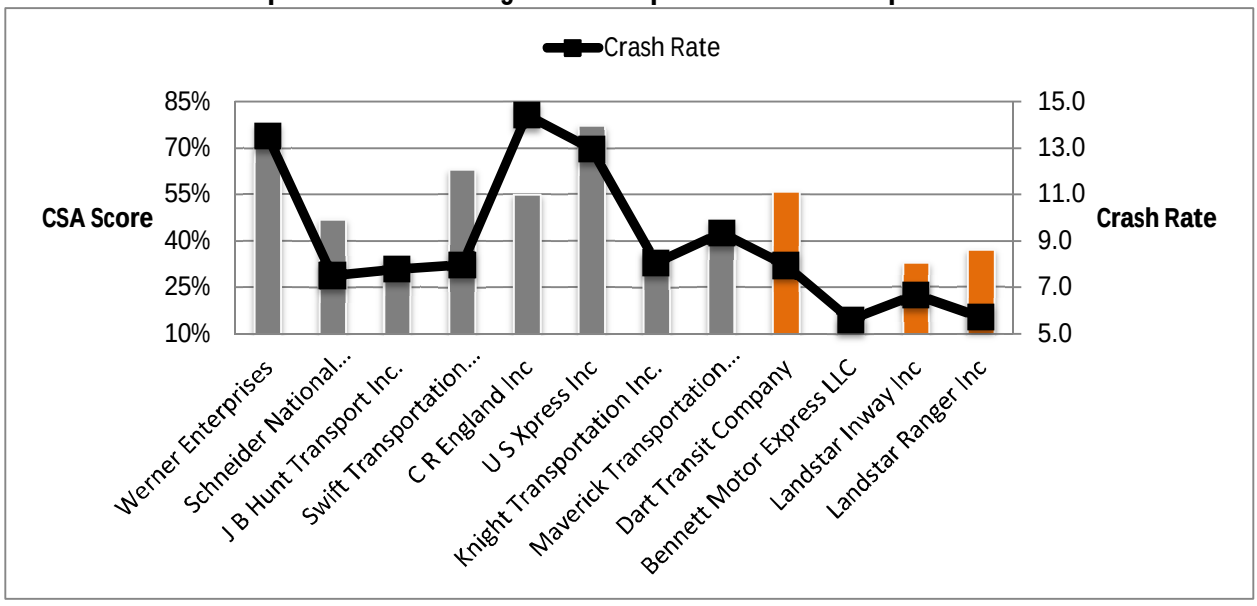
predominately utilized owner-operators. Only the largest non-asset carriers were selected in order for the two cohorts to be comparable.[24]

The ultimate premise of speed limiters is that by reducing the highest possible speed a CMV may travel, speeding violations, along with crashes and the severity of crashes would be reduced. Therefore, by utilizing this premise held by safety groups, large carriers, and FMCSA, it would be reasonable to assume that carriers equipped with speed limiting devices would have fewer speeding violations. OOFI discovered however that regardless of the CSA SMS score, speed limited carriers had an equal, and often higher, number of speeding violations than those carriers that were not equipped with speed limiters.

In order to assess the data, OOFI focused on the rate of speeding violations and crashes per 100 PUs and MVMT for each of the motor carriers. For the asset and non-asset carriers, the average violation rate per 100 PU was 7.6 and 8.1, respectively, while the average speeding violation rate in construction zones was 0.52 and 0.39 per MVMT. The average crash rate per 100 PUs and MVMT was 10.2 and 1.1 for asset carriers, and 6.5 and 0.8 for non-asset carriers. Despite the installation of speed limiters, the asset carriers ranked worse in the Unsafe Driving Behavioral Analysis Safety Improvement Category (BASIC), in speeding violations in construction zones, and in overall crash rates.

The following chart demonstrates the CSA SMS percentile score for each carrier in the Unsafe Driving BASIC compared to the actual crash rate per 100 PUs. In 2014, FMCSA updated the CSA SMS webpage so that the BASICs appear from left to right based upon their correlation to crash risk, of which the Unsafe Driving BASIC appears first.

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



[24] Dart uses or is beginning to use EOBRs for a majority of their owner-operated trucks. Dart has stated that they do not demand these from their owner-operators unless they show a pattern of non-compliance on their logs which would be reflected in their CSA scores.

The chart and data taken from the FMCSA CSA system indicates that those carriers with the highest crashes per number of power units and the lowest miles traveled before a crash are those carriers with speed limiters installed. While Schneider's statement may be accurate concerning the speed limited trucks in its own fleet, when compared to other carriers their crash rate per power unit and miles traveled should not be held as an example of the value of speed limiters in avoiding crashes.

Bad and Controversial Research

Overall, the research utilized by the agencies throughout the NPRM and the PRIA is highly questionable. For example, although much of the prevailing safety research concerning speed limiters has indicated that such devices will cause speed differentials, or speed variance, thus increasing the number of interactions between vehicles and the likelihood of a crash, the agencies chose to utilize two studies conducted by the University of Idaho and the Virginia Transportation Research Council, both of which have limitations as demonstrated in the section entitled "Effect of Speed Limiting Devices" in OOFI's analysis of the PRIA, which observed no consistent safety effects of differential speed limits (DSL) compared to uniform speed limits (USL). The agencies chose these studies, as well as a couple others because they "***believe*** that it provides a reasonable basis ***for the conclusion*** that limiting the speed of heavy vehicles to 65 mph or higher would not increase the probability of being involved with a crash (emphasis added).[25]" In other words, the studies gave the agencies the answers that they were searching for, namely that speed differentials do not increase the risk for a crash.

Even though various research conducted by Cirillo, Garber and Gadiraju, Hall and Dickinson, Solomon, and the Montana Department of Transportation have demonstrated that when traffic is moving at different speeds the number of interactions, and thereby the likelihood of a crash, increases exponentially, the agencies concluded that it was too difficult to estimate the effect of speed limiters on crash risk. Therefore, "the agencies have chosen not to include an estimate of crashes avoided in the PRIA and to only estimate the benefits of reducing crash severity.[26]" OOFI struggles to understand the logic behind the agencies' decision, as they essentially are suggesting that while there might be an increase in crashes, crashes overall will be less severe. Thus, according to the agencies, it is better for more crashes to occur in order for the severity of crashes to be reduced, which might seem reasonable if all crashes were truly predictable and speed was in fact the only variable. The agencies ignore however that in crashes currently involving large trucks and passenger vehicles, the passenger vehicle rear-ended the truck in 14.9 percent of fatal crashes, 16.2 percent of injury crashes, and 9.9 percent of property damage only crashes.[27] The promulgation of a speed limiting mandate will only increase these types of crashes.

OOFI is also concerned with the agencies' inclusion of the study entitled *Research on the Safety Impacts of Speed Limiter Device Installations on Commercial Motor Vehicles: Phase II Draft Final Report*. This study was published in March 2012 as a "second" final draft. The first final draft however was released

[25] *Preliminary Regulatory Impact Analysis and Initial Regulatory Flexibility Analysis*, NHTSA and FMCSA, pg. 25
[26] NPRM, pg. 77
[27] *Large Truck and Bus Crash Facts 2014*, pg. 77

in 2010. It is critical to note that there was no new data collected, nor was there any new research conducted in the intervening time span. While the first final draft of the study stated, "The analysis found that the cohort without SLs [speed limiters] had a significantly higher crash rate. However, because of data limitations and data quality, the research team could not definitely attribute the effect to the presence of an active SL,[28]" the second final draft changed the conclusion to state, "The findings showed strong positive benefits for SLs.[29]" The other primary omission between the two final drafts was a list of confounding factors and limitations of the study that were excluded from the second final draft.

Dr Johnson, who was one of the co-authors of the original final draft, wrote a white paper demonstrating a number of limitations of the report's findings, including: four fundamental methodological issues that affected the validity of the study; an exclusion of exposure (trip length) between the two cohorts; the stability and bias of the data; problems with the statistical model; and an exclusion of data that had a very large impact on the results and conclusions. Johnson's white paper concluded that the data utilized in FMCSA's study did not find a statistical significance in the reduction of crashes due to speed limiters. In fact, Johnson stated that "given the methodological, analysis and interpretation issues associated with this research, it is definitely not appropriate to state that the study found there to be "profound" safety benefits of speed limiters. If speed limiter regulations are implemented, it is important to note that it will occur on the basis of unsupported opinion rather than any definitive valid, reliable and useful data to this point.[30]" OOFI is deeply concerned and troubled that such dubious research was included as part of the justification for a speed limiter mandate considering its controversy.

Other Concerns

In addition to the concerns and limitations of the agencies' proposed rulemaking which OOFI has already revealed, it is important that the agencies also consider the possible effects that a speed limiter mandate will have on the individual states. Though the NPRM recognizes that 46 states have maximum speed limits over 60 mph, 30 states have speed limits over 65 mph and 14 states have speed limits over 70 mph, the agencies have not analyzed why these states have increased their speed limits since the national speed limit of 55 mph was repealed in 1995.

It is well known that the geometric features of a roadway, such as horizontal and vertical alignment, sight distance, the number of lanes and lane width, and cross-section determine the highway design speed as well as the 85th percentile speed of traffic, which is the speed at or below which 85 percent of drivers travel in free-flow conditions at representative locations on the highway or roadway section (Johnson & Pawar, 2005). Individual states have utilized their highway transportation funds over the

[28] Gene Bergoffen et al., *Research on the Safety Impacts of Speed Limiter Device Installations on Commercial Motor Vehicles: Phase Two Draft Final Report*, MaineWay Services (Dec 2010).
[29] Richard Hanowski et al., *Research on the Safety Impacts of Speed Limiter Device Installations on Commercial Motor Vehicles: Phase II Draft Final Report*, MaineWay Services (March 2012).
[30] Steven L. Johnson, "Response to *Research on the Safety Impacts of Speed Limiter Device Installations on Commercial Motor Vehicles: Phase II*," (2012).

years in order to conduct a thorough and comprehensive analysis to determine what constitutes the safest speed for their highways, and yet this fact is largely ignored by the agencies.

Table 4: Speed Limits for Large Trucks by State

State	Max Speed Limit for Trucks	State	Max Speed Limit for Trucks
California	55	Mississippi	70
Hawaii	60	Missouri	70
Michigan	60	New Hampshire	70
Washington	60	North Carolina	70
Alaska	65	Ohio	70
Connecticut	65	Pennsylvania	70
Delaware	65	South Carolina	70
Indiana	65	Tennessee	70
Massachusetts	65	Virginia	70
Montana	65	West Virginia	70
New Jersey	65	Wisconsin	70
New York	65	Arizona	75
Oregon	65	Colorado	75
Rhode Island	65	Kansas	75
Vermont	65	Louisiana	75
Alabama	70	Maine	75
Arkansas	70	Nebraska	75
Florida	70	New Mexico	75
Georgia	70	North Dakota	75
Idaho	70	Oklahoma	75
Illinois	70	Nevada	80
Iowa	70	South Dakota	80
Kentucky	70	Utah	80
Maryland	70	Wyoming	80
Minnesota	70	Texas	85

Moreover, while the NPRM does not directly address the physical condition of the truck driver, the agencies allude to the health benefits associated with lowering the exhaust emissions. Once again however the agencies failed to examine the problem that increased congestion will have on the motoring public as a whole as they sit and idle in stop-and-go traffic. Furthermore, one of the most discussed health issues in the trucking industry today is the effect which fatigue plays on a driver's safety and their ability to react to safety critical events. A major source of fatigue is time-on-task and the agencies readily admit that a speed limiter rule will require drivers to operate their vehicles for longerperiods of time in order to reach their destination. The agencies are well aware of the studies and concerns associated with fatigue management, and yet they failed to consider the safety implications that increased time-on-task will create.

Conclusion

In conclusion, OOFI feels that NHTSA and FMCSA have presented a proposal for speed limiters that is not based on any scientific evidence and that lacks both reliability and validity testing. The agencies utilized information from studies that suit their purpose but yet failed to include the overall conclusion of that research. The agencies attempted to find a cost-benefit by including externalities that crashes cause to the public but failed however to investigate the externalities that increased time-on-task, cost of congestion, and the economy in general. Neither did the agencies consider the cost concerning the potential for more crashes due to the increased level of interactions between vehicles, even if they may prove to be less serious crashes, as compared to the cost of fewer, but possibly more severe, crashes.

The agencies showed a total lack of understanding of the trucking industry dynamics for the movement of freight by assuming that the large carriers with their increased capacity will simply "pick up the excess freight" that is to be expected as a result of the speed limiter mandate. The agencies also demonstrated their lack of understanding by assuming that all trucks that exceed the set speed limit must be in non-compliance. A truck with a manual transmission, which represents the typical large truck, can and often does exceed the speed limiter setting while traveling downhill in order to avoid hard downshifting and increase engine wear, as well as increased fuel consumption and GHG emissions when climbing the next hill. The agencies also failed to recognize that speed limiters will cause other motor vehicles to accelerate more frequently in order to pass the slower moving truck. Heavy vehicles therefore which are equipped with speed limiters will cause other motor vehicles to utilize more fuel while also causing them to slow down to lower gears that require more torque thereby increasing GHG pollution.

The agencies ultimately seem to believe that the potential for more crashes is a better alternative than the possibility of experiencing less severe crashes, and yet they provided no studies to validate their assumption. In fact, the agencies admitted that they have not done a study concerning the effect of speed limiters on safety since 1991. Instead NHTSA and FMCSA based the entire proposal on the belief that speed limiting devices on heavy vehicles will decrease the severity of crashes, even though speed is just one of many factors that may influence the severity of an accident.

Bibliography

Bergoffen, G., Hickman, J., Guo, F., Murray, D., Bishop, R., & Camden, M. (2010). *Research on the Safety Impacts of Speed Limiter Device Installations on Commercial Motor Vehicles: Phase Two Draft Final Report.* Fryeburg: MaineWay Services.

(2016). *Federal Motor Vehicle Safety Standards; Federal Motor Carrier Safety Regulations; Parts and Accessories Necessary for Safe Operation; Speed Limiting Devices; Proposed Rule.* Washington D.C.: NHTSA and FMCSA.

FMCSA Analysis Division. (2016). *Large Truck and Bus Crash Facts 2014.* Washington D.C.: FMCSA.

Hanowski, R. J., Bergoffen, G., Hickman, J. S., Guo, F., Murray, D., Bishop, R., et al. (2012). *Research on the Safety Impacts of Speed Limiter Device Installations on Commercial Motor Vehicles: Phase II Draft Final Report.* Fryeburg: MaineWay Services.

Johnson, S. L. (2012). *Response to Research on the Safety Impacts of Speed Limiter Devices Installations on Commercial Motor Vehicles: Phase II.* Steven Johnson.

Johnson, S., & Pawar, N. (2005). *Cost-Benefit Evaluation of Large Truck-Automobile Speed Limits differentials on Rural Interstate Highways.* Fayetteville: Mack-Blackwell Transportation Center.

Litman, T. A. (2011). *Transportation Cost and Benefit Analysis: Techniques, Estimates and Implications.* Victoria Transport Policy Institute.

NHTSA. (1991). *Commercial Motor Vehicle Speed Safety.* NHTSA.

NHTSA. (2016). *Preliminary Regulatory Impact Analysis and Initial Regulatory Flexibility Analysis.* Washington D.C.: NHTSA.