ADVOCATES FOR HIGHWAY & AUTO SAFETY

Large Trucks – Truck Size and Weight

In 2019, 5,005 people were killed in crashes involving large trucks.[1] Fatalities involving large truck crashes have increased 48 percent since 2009 when such fatalities were at their lowest reported level.[2] Additionally, 159,000 people were injured in crashes involving a large truck in 2019, and injuries of large truck occupants increased by 18 percent.[3] The cost to society from crashes involving commercial motor vehicles (CMVs) was estimated to be $143 billion in 2018, the latest year for which data is available.[4] In fatal two-vehicle crashes between a large truck and a passenger motor vehicle, 96 percent of the fatalities were occupants of the passenger vehicle.[5] Truck driving is identified as one of the most dangerous occupations in the U.S. by the Bureau of Labor Statistics.[6]

Overweight trucks disproportionately damage America's crumbling infrastructure and threaten public safety. Federal limits on the weight and size of CMVs are intended to protect truck drivers, the traveling public and roads and bridges, yet they are under persistent and consistent attack by certain segments of the trucking industry.

The Dangers of Bigger, Heavier Trucks:

- Tractor-trailers moving at 60 mph are required to stop in 310 feet – the length of a football field – once the brakes are applied.[7] Actual stopping distances are often much longer due to driver response time before braking and the common problem that truck brakes are often not in top working condition.
  - In 2020, violations related to tires and/or brakes accounted for 10 of the top 20 most common vehicle out-of-service (OOS) violations.[8]

- More than one in every five trucks that are inspected is placed out of service for vehicle deficiencies that prevent it from continuing to operate.[9] According to a North Carolina study by the Insurance Institute for Highway Safety (IIHS), crash risk increased by 362 percent for trucks with vehicle out-of-service violations.[10]

- Longer trucks come with operational difficulties such as requiring more time to pass, having larger blind spots, crossing into adjacent lanes, swinging into opposing lanes on curves and turns, and taking a longer distance to adequately brake. In fact, double trailer trucks have an 11 percent higher fatal crash rate than single trailer trucks.[11]

- Research and experience show that allowing bigger, heavier trucks will not result in fewer trucks:
  - Since 1982, when Congress last increased the gross vehicle weight limit, truck registrations have more than doubled.[12]
  - Increases in truck size and weights over more than 35 years have never resulted in fewer heavier trucks on the roads.[13]
  - The 2015 U.S. Department of Transportation (DOT) Comprehensive Truck Size and Weight Study addressed this meritless assertion and found that any potential mileage efficiencies from the use of heavier trucks would be offset in just one year.[14]

Detrimental Infrastructure, Economic and Energy Impacts:

- Overweight trucks disproportionately damage our badly deteriorated roads and bridges. An 18,000-pound truck axle does over 3,000 times more damage to pavement than a typical passenger vehicle axle.[15]

- According to the 2017 Infrastructure Report Card from the American Society of Civil Engineers (ASCE), America's roads receive a grade of "D" and our bridges were given a "C+". The roads section of the report noted that 20 percent of the nation's highways alone had poor pavement conditions in 2014. This does not

include those highways with mediocre conditions and all other non-highway roads.[16] In 2016, one in 11 of the Nation's nearly 615,000 bridges in the National Bridge Inventory were structurally deficient.[17]

- Deteriorating surface transportation infrastructure has severe effects on America's economy. The ASCE estimates that poor surface transportation infrastructure will cost 726,000 jobs and $2.8 trillion in lower GDP growth by the year 2040. Further, the direct economic costs on American households would amount to $217 billion by 2039.[18]

- The Federal Highway Administration estimates that $135.7 billion in capital investment would be needed on an annual basis over the next 20 years to significantly improve conditions and performance.[19]

- Increasing the weight of a heavy truck by only 10 percent increases bridge damage by 33 percent.[20] The Federal Highway Administration (FHWA) estimated that the investment backlog for bridges, to address all cost-beneficial bridge needs, is $125.4 billion. The U.S. would need to increase annual funding for bridges by 29 percent over current spending levels to eliminate the bridge backlog by 2034.[21]

- The U.S. DOT Comprehensive Truck Size and Weight Study found that introducing double 33-foot trailer trucks, known as "Double 33s," would be projected to result in 2,478 bridges requiring strengthening or replacement at an estimated one-time cost of $1.1 billion.[22]

- The U.S. taxpayer unfairly subsidizes bigger, heavier trucks:
  - According to the FHWA, a truck weighing over 80,000 pounds only pays between 40 and 50 percent of its cost responsibility.[23]
  - The 2007 Transportation for Tomorrow report, mandated by Congress, confirmed that heavy trucks were underpaying their fair share for highway use, that user fee fairness could be achieved through weight-distance taxes, that heavy trucks should pay an infrastructure damage fee, and that the Heavy Vehicle Use Tax, which only contributes one billion dollars annually to the Highway Trust Fund, had not been changed since the early 1980s.[24]

- Heavy trucks and buses accounted for 19 percent of our nation's transportation energy use.[25]

- Trucks with heavier gross weights require larger engines that decrease fuel economy on a miles-per-gallon basis.[26]

- Increasing truck size and weight will exacerbate safety and infrastructure problems, negate potential benefits from investments in roads and bridges, and divert rail traffic from privately owned freight railroads to our already overburdened public highways.[27]

Public Opinion Strongly Opposed to Bigger, Heavier Trucks:

- There is overwhelming opposition to any increases in truck size and weight limits. The public, local government officials, safety, consumer and public health groups, law enforcement, first responders, truck drivers and labor representatives, families of truck crash victims and survivors, and Congress on a bipartisan level have all rejected attempts to increase truck size and weight limits.
  - A January 2018 public opinion poll conducted by Harper Polling found that seven out of 10 respondents oppose longer and heavier trucks.[28]
  - A 2015 poll conducted by ORC International, commissioned by Advocates for Highway and Auto Safety, found that 77 percent of respondents oppose oversized double trailer trucks on our Nation's roads and highways.[29] Moreover, 79 percent of respondents are very or somewhat convinced that heavier and longer trucks will lead to more braking problems and longer stopping distances, causing an increase in the number of crashes involving trucks.[30]

- A May 2013 public opinion poll by Lake Research Partners found that 68 percent of Americans oppose heavier trucks and 88 percent of Americans do not want to pay higher taxes for the damage caused by heavier trucks.[31]

Safety Solutions to Address the Dangers Associated with Big, Heavy Trucks:
Proven and available safety technology should be required in CMVs, with a minimum performance standard, to prevent and mitigate common crash causes. Minimum performance standards ensure that the technology offers at least a certain level of safety regardless of manufacturer. When a safety feature is mass produced, costs for the systems are reduced. Moreover, additional safety improvements should be made to further protect truck drivers and all road users.

Advanced Driver Assistance Systems (ADAS): According to the National Highway Traffic Safety Administration (NHTSA), from 2003 through 2008, large trucks were the striking vehicle in approximately 32,000 rear-end crashes resulting in 300 fatalities and injuring over 15,000 people annually.[32] Available proven collision avoidance systems have the capability to prevent and mitigate crashes caused by numerous behavioral issues such as distraction, impairment, fatigue, speeding and reckless driving. The technology includes automatic emergency braking (AEB), lane departure warning (LDW), blind spot detection (BSD) and forward collision warning (FCW). The National Transportation Safety Board (NTSB) has recommended the adoption of collision avoidance systems on all new highway vehicles,[33] and AEB is required in large trucks in the European Union.[34]

In 2015, Advocates, along with the Center for Auto Safety, the Truck Safety Coalition (TSC) and Road Safe America, filed a petition with NHTSA seeking the issuance of a rule to require forward collision avoidance and mitigation braking systems (F-CAM), now more commonly known as AEB, on CMVs with a gross vehicle weight rating (GVWR) of 10,000 pounds or more.[35] The NHTSA estimates that fleetwide adoption of advanced AEB systems could save 166 lives and prevent 8,361 injuries per year.[36] The agency granted Advocates' petition in October 2015 but has not undertaken any further regulatory proceedings.[37]

- A study by IIHS found that:
  - Equipping large trucks with FCW and AEB reduced the rate of rear-end crashes by 44 and 41 percent, respectively.
  - Large trucks equipped with FCW had a 22 percent lower rate of crashes while trucks with AEB had a 12 percent lower rate of crashes than those without either of these vital safeguards.
  - FCW and AEB were found to reduce speed at the moment of impact by more than half, which reduces the severity of crashes and improves survivability.[38]

Speed Limiting Devices: Speeding exacerbates CMV safety problems. According to the Federal Motor Carrier Safety Administration (FMCSA), 10,440 people were killed from 2004 to 2013 in crashes where the speed of the CMV likely contributed to the severity of the crash.[39] On average, that is over 1,000 lives lost annually to speeding CMVs.

- In September 2016, NHTSA and FMCSA issued a joint Notice of Proposed Rulemaking (NPRM) to require vehicles with a GVWR of more than 26,000 pounds to be equipped with a speed limiting device.[40]
- The NPRM estimated that setting the device at 60 MPH has the potential to save almost 500 lives and prevent nearly 11,000 injuries annually.[41] Setting the speed at 65 MPH could save as many as 214 lives and prevent approximately 4,500 injuries each year.[42]
- The NTSB has recommended that CMVs be equipped with the technology.[43]
- Research shows that the technology is currently being used by 77 percent of trucks on the road in the United States.[44]
- A 2007 survey of truck drivers by IIHS found 64 percent of drivers were in favor of a truck speed governor requirement.[45]

Underride Guards: Technology is currently available that can significantly increase the chances that an individual can survive violent crashes during which a motor vehicle travels underneath the rear or side of a truck trailer.

- The NTSB has recommended improving comprehensive underride protection.[46]
- In 2015, NHTSA issued a NPRM to update the standards for rear impact guards that are installed on the rear of trailers.[47] However, the NPRM proposed only to upgrade the federal standard to meet the Canadian standard which was issued over a decade ago and is substandard given guards currently available in the marketplace have shown to have superior performance capabilities. In addition, the agency failed to require that single-unit trucks (SUTs) be equipped with underride guards, instead requiring retroreflective tape on the side and rear. While requiring retroreflective tape is long overdue, it alone is not a sufficient countermeasure.
- The IIHS has established the TOUGHGUARD award for good rear underride protection, which has been awarded to nine North American trailer manufacturers, including the eight largest, on some or all of their trailers. IIHS has also conducted two tests of a side underride guard. The AngelWing guard, made by Airflow Deflector Inc., succeeded in preventing a midsize car traveling 35 miles-per-hour (MPH) from going underneath the side of the trailer. A subsequent test showed it also prevented underride at 40 MPH.[48]

Safety Data: FMCSA's Compliance, Safety, Accountability (CSA) program evaluates the safety and compliance of motor carriers and is designed to identify high risk operations for intervention and improvement. Involvement in previous truck crashes in and of themselves and regardless of "fault" has been found by industry, academia and the government to be an accurate predictor of involvement in future truck crashes. The goal of CSA is to implement more effective and efficient ways for FMCSA, its state partners and the trucking industry to prevent CMV crashes, fatalities, and injuries.

- Essential CSA data was removed from public view by Section 5223 of the Fixing America's Surface Transportation (FAST) Act (Pub. L. 114-94, 2015).
- The FAST Act also required the National Academies of Sciences, Engineering and Medicine (NASEM) to study the CSA program method for evaluating the safety of motor carriers and commercial vehicle drivers. In 2017, the NASEM study concluded that the method was sound and made several recommendations to improve the CSA program including that FMCSA should continue to collaborate with states and other agencies to improve the collection of data on vehicle miles traveled and on crashes as well as certain characteristics of carriers such as turnover rates.[49] To date, it is unclear if the FMCSA has made meaningful progress to address the recommendations from this report.
- In 2016, the FMCSA issued a NPRM to revise the carrier safety ratings procedures in light of adoption of the CSA program. This rulemaking was intended to allow the agency to better evaluate the safety records of carriers. Advocates supported the agency's action to upgrade the safety fitness determination (SFD) process, which informs the CSA program, by using on-road safety data to evaluate carriers in addition to an agency investigation. This update to the SFD program would have significantly enhanced the FMCSA's ability to identify unsafe carriers because it would have enabled the agency to use data from the carrier's on-road operations; however, the agency withdrew the rulemaking in March 2017.

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1 Traffic Safety Facts: Research Note; Overview of Motor Vehicle Crashes in 2019, NHTSA, Oct. 2020, DOT HS 813 060.

2 Traffic Safety Facts: Research Note; Overview of Motor Vehicle Crashes in 2019, NHTSA, Oct. 2020, DOT HS 813 060; and Large Truck and Bus Crash Facts 2018, FMCSA, Sep. 2020, FMCSA-RRA-19-018. Note, the 48 percent figure represents the overall change in the number of fatalities in large truck involved crashes from 2009 to 2019. However, between 2015 and 2016 there was a change in data collection at U.S. DOT that could affect this calculation. From 2009 to 2015 the number of fatalities in truck involved crashes increased by 21 percent and between 2016 to 2019, it increased by 7 percent

3 Traffic Safety Facts: Research Note; Overview of Motor Vehicle Crashes in 2019, NHTSA, Oct. 2020, DOT HS 813 060

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7 Code of Federal Regulations (CFR) Title 49 Part 571 Section 121: Standard No. 121 Air brake systems (FMVSS 121).

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