#### NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION U.S. DEPARTMENT OF TRANSPORTATION DOCKET # NHTSA-2023-0012

**Side Underride Guards** 

SUBMITTED BY: American Trucking Associations, Inc. 80 M Street, SE Suite 800 Washington, D.C. 20003

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### I. INTRODUCTION

American Trucking Associations, Inc. (ATA) appreciates the opportunity to comment on the Advance Notice of Proposed Rulemaking (ANPRM) promulgated by the National Highway Traffic Safety Administration (NHTSA). These comments are in response to the release of NHTSA's research into side underride crashes involving commercial vehicles and methods for mitigating these crashes. ATA supports NHTSA's efforts to study side underride crashes and prevention or mitigation methods that could provide a safety benefit to industry.

ATA is a national association comprising motor carriers, state trucking associations, and national trucking conferences. Its mission is to develop, advocate, and advance innovative research-based policies that promote highway safety, security, environmental sustainability, and profitability. The motor carriers represented by ATA transport a significant portion of the freight transported by truck in the United States and virtually all of them operate in interstate commerce among the states. ATA regularly represents the common interests of the trucking industry before federal and state regulatory agencies throughout the nation. ATA recognizes that crashes involving commercial vehicles, including side underride crashes, continue to be a concern in the United States, and will continue working with the Department of Transportation to address this concern. ATA is pleased to provide feedback on the ANPRM and the research conducted by NHTSA, and looks forward to participating on the Advisory Committee on Underride Protection.

#### II. SUMMARY OF ATA'S POSITION

ATA policy is that equipment requirements should be based on sound engineering and economic principles that enhance safety, take into account real-world operations, and weigh potential unintended consequences. NHTSA has conducted a reasonable analysis and has acknowledged that additional operational challenges need to be considered, and are not included as part of this ANPRM. Even before factoring in those additional operational challenges, NHTSA concluded that a requirement for side underride guards on newly manufactured trailers would have a net *negative* annual benefit of almost \$1 billion. While different in scope, this new analysis is consistent with ATA's previous calculation<sup>1</sup> that a mandate to install side underride protection on all trailers currently in operation would have a cost of \$35 billion. Due to 1) the potential for unintended safety and operational consequences, 2) the net negative annual benefit calculated by NHTSA, and 3) the additional costs that would be expected by incorporating additional operational factors, ATA opposes the proposed mandate for side underride protection on newly manufactured trailers. ATA supported the Bipartisan Infrastructure Law's requirement to study side underride protection, and ATA commends NHTSA's efforts in conducting the research. The new estimate of underreporting and methods NHTSA used to identify side underride crashes will be valuable for addressing the problem going forward. Below are ATA's comments on specific areas of the research, feedback on additional operational challenges that should be considered, and suggestions on how to move forward on the issue of side underride crashes.

# III. COMMENTS ON NHTSA'S RESEARCH

# a. ESTIMATION OF UNDERREPORTING

ATA has reviewed the research summary provided by NHTSA in the ANPRM and believes that NHTSA has taken a sound approach to improving our understanding of side underride collisions involving commercial vehicles. Due to how crashes are reported there have been gaps in our data around these types of crashes, which has made it more difficult to evaluate the problem and proposed solutions. NHTSA's approach was an appropriate use of the resources that were available to identify crashes that likely involved side underride and estimate the rate at which they were underreported in that dataset. While it may not be perfect, extrapolating that estimate across the broader crash dataset does provide the best estimate yet of the prevalence of side underride crashes among commercial vehicles. Determining the scope of the issue is a necessary step in evaluating options for addressing it, and NHTSA has provided an appropriate estimate for this purpose.

# **b. EVALUATION OF SIDE UNDERRIDE PROTECTION**

The methods available to mitigate the consequences of side underride crashes involving commercial vehicle trailers are extremely limited. As NHTSA noted in the analysis, only one product is commercially available, and it has only been tested up to 40mph. Other designs are either in development or have no public testing data on which to base an analysis. NHTSA correctly focused only on products that are available and have public cost and crash test data for analysis. NHTSA also correctly applied this data, as it would be inappropriate to make assumptions about performance beyond what testing

<sup>&</sup>lt;sup>1</sup> https://medium.com/trucking/side-underride-guards-what-we-know-about-them-and-what-we-have-yet-to-learn-e54dbcb0afd2

has shown. ATA believes that NHTSA's estimate that current commercially available designs for side underride protection could prevent 17 fatalities and 69 serious injuries annually is reasonable based on the data available.

NHTSA should recognize the need for additional testing of underride guards to determine feasibility and unintended consequences in a real-world setting. Closed course testing has shown that side underride guards can successfully stop a passenger vehicle traveling up to 40mph from penetrating perpendicularly underneath the side of a stationary 53 ft. dry van trailer-one of many styles of commercial vehicles-within a controlled test environment. However, that testing has not been replicated to demonstrate the impacts of a realistic highway scenario—with both vehicles moving at highway speeds, with a moving truck or tractor-trailer, with other traffic present, with the impact at different points on the trailer, with the crash occurring at a non-perpendicular angle. For example, although a side underride guard may successfully prevent a passenger vehicle from going underneath a trailer in some scenarios, it is entirely possible that the passenger vehicle will instead deflect off the trailer and strike other vehicles. The engineering challenge of mitigating a side underride event is significantly different from a rear underride event, and NHTSA should not make assumptions about side underride guard performance based on rear underride guard performance. Rear underride guards are 8 feet wide, have been standard for nearly 70 years, and are designed to address a specific and common type of crash scenario. Side underride guards are approximately 40 feet long and would be subjected to a wide variety of crash scenarios, but only have limited testing data on one specific scenario. NHTSA should not ignore these potentially dangerous scenarios and move forward with a side underride guard mandate that attempts to solve a problem with an unproven solution with high potential for unintended consequences.

ATA believes that efforts to decrease and eliminate side underride crashes should be focused on preventing the crash from occurring in the first place. The mitigation method proposed by NHTSA would force the trucking industry to expend limited resources on unproven designs with limited potential benefits, when we could instead focus efforts on proven and emerging mechanisms to reduce the likelihood of crashes occurring altogether. The transportation industry's focus should be on crash avoidance achieved by advanced driver assistance systems (ADAS), such as automatic emergency braking.

#### c. EVALUATION OF COSTS OF SIDE UNDERRIDE PROTECTION

While NHTSA's costs analysis did not factor in all operational challenges presented by side underride guards, ATA believes that NTHSA made reasonable estimates for the three items on which they chose to focus. ATA agrees that equipment price and fuel economy impacts would be major cost considerations if side underride guards were installed on newly manufactured trailers. ATA also appreciates that NHTSA recognizes additional operational challenges need to be considered and suggests the following:

- **Routing** NHTSA included a scenario in which side underride guards required an additional 5% vehicle miles traveled to avoid high grade rail crossings or other roadway features which could present safety hazards. This will be an important consideration, and NHTSA should continue to dig more deeply into how side underride guards would affect mileage and routes. It will also be important to consider how the additional weight of side underride guards would reduce load capacity and could increase the number of CMV on the road. Finally, NHTSA should consider that this will not impact all fleets or operations equally, with some routes, loads, and destinations being impacted more severely than others. ATA would be happy to work with NHTSA to help refine estimates of how routing would impact members.
- Safety While NHTSA acknowledges that routing would be impacted by side • underride guards, it should also recognize that incidents may still occur. This could be due to lack of awareness about roadway features that could cause incidents, or drivers or fleets operating on unfamiliar roadways, or confusion due to changing between trailers that do and do not have side underride protection. High grade rail crossings are a common safety concern for trailers, and detailed knowledge of these locations and their interactions with side underride guards would be needed for routing to be effective. The additional planning and training necessary to prevent these incidents, as well as the unfortunate costs of incidents that do occur, should be considered by NHTSA. NTHSA could work with the Federal Railroad Administration (FRA) to understand the risks and prevalence of tractor-trailers getting stuck on high grade rail crossings. FRA's Highway-Rail Grade Crossing Crash Data shows that trucks or truck-trailers accounted for 22% of crashes at these locations each year from 2019-2022<sup>2</sup>. FRA may also have insight into incidents specifically involving "high-centering" of a trailer. It's important to note that high-centering events are common today, without side guards installed on trailers. The addition of a side guard would undoubtedly increase the number of these events.
- **Docking** While NHTSA has considered changes to vehicle miles traveled to avoid roadway features that are not compatible with side underride protection, they should also consider challenges presented by features on the private property of shippers and receivers. Many commercial vehicles must navigate high percentage grades in and around loading docks, which may not be compatible with side underride protection. However, unlike public roadway features these conflicts cannot be navigated around. Many fleets cannot use fairings today if they need to operate on high percentage grades. Under a mandate, fleets could be required to use custom side underride solutions for different shippers and be

<sup>&</sup>lt;sup>2</sup> Federal Railroad Administration's Office of Railroad Safety. Highway-Rail Grade Crossing Accident Data (Form 57). https://data.transportation.gov/Railroads/Highway-Rail-Grade-Crossing-Accident-Data-Form-57-/7wn6-i5b9

presented with logistical challenges ensuring that certain trailers are only used in certain locations. Conversely, shippers and receivers could be burdened with costs to regrade or redesign their facilities. A common example of this is grocery stores, which may use 2<sup>nd</sup>-story or below-ground loading docks to reduce the footprints of their buildings. The many ways that side underride protection could interact with grades at loading docks are not well understood and should be further explored if the proposed rule were to be considered. Examples of docking configurations which are typical for shippers or receivers and are not compatible with fairings and likely would not be compatible with existing side underride guards are provided in Section E.

- **Maintenance** NHTSA factored labor for installation of side underride guards into their analysis, but considerations should also be included for maintenance and/or inspection of the guards. Any required safety features on the trailer should be maintained and inspected, which in turn requires time and resources from maintenance personnel. Inspecting and maintaining side underride protection would likely be more expensive and time-consuming than rear underride protection. This is because there would be side underride guards on both sides of the trailer, the guards are larger and more complex, and the guards may be visually hidden by fairings in an attempt to mitigate fuel economy impacts.
- **Trailer Resilience** Beyond typical maintenance, there are also concerns about the overall resilience of the trailer when adding additional rigid bodies to the underside. Trailers are designed to absorb lateral, longitudinal, and vertical forces, as well as pitch, yaw, and roll rotational forces in typical driving conditions. It is unclear how side underride guards could impact these forces on the trailer in typical use cases. In turn it is unclear how side underride protection could impact the long-term structural integrity and useful life of trailers. The Truck Trailers Manufacturers Association has previously called attention to an earlier design for trailers with side underride protection which was less flexible and experienced unsafe failures due to the rotational forces on uneven roads.<sup>3</sup> More research is needed, but NHTSA should consider the possibility that unsafe failures could occur and that useful lives of trailers could decrease, leading to additional turnover in equipment and additional costs.
- **Trailer Configuration** NHTSA's analysis assumes one cost for equipment and one estimate of labor to install side underride protection on *any* trailer. ATA believes that these assumptions should represent a *baseline* cost for equipment and installation. While the application of side underride guards on a standard dryvan trailer has been pilot tested, there would undoubtedly be a need for

<sup>&</sup>lt;sup>3</sup> Truck Trailer Manufacturers Association letter to NHTSA Administrator Mark Rosekind, May 13, 2016. Docket No. NHTSA-2015-0118-0041. https://downloads.regulations.gov/NHTSA-2015-0118-0041/attachment\_1.pdf

customized equipment and/or additional labor for implementing side underride guards on other types of trailers. Installation of side underride protection would *not* be a one-size-fits-all solution due to the various types of trailers in operation today. ATA outlines several trailer variations in Section E of these comments. NHTSA should also consider whether current side underride guard designs could even be implemented on all trailer configurations, and whether their effectiveness changes in these scenarios.

ATA understands that there may not be sufficient data currently to have included these factors in the analysis but encourages NHTSA to work with ATA and industry going forward to better incorporate them into future analyses.

# d. ANALYSIS OF COSTS AND BENEFITS

NHTSA's approach to comparing costs and benefits of a potential side underride guard requirement for newly manufactured trailers is reasonable. The result of NHTSA's analysis is a staggering net negative annual benefit of almost \$1 billion. ATA believes this result is a reasonable estimate of the costs that would be imposed by the requirement given the limitations outlined above, and the calculation is consistent with previous calculations that a mandate for side underride guards on *all* trailers in service would cost approximately \$35 billion. There is no question that injuries and fatalities related to side underride crashes are tragic events, and that industry and DOT should work towards reducing the risk of these crashes. However, the mitigation strategy put forth in the ANPRM does not appear to be effective. ATA encourages DOT to work towards the prevention of side underride crashes as part of its larger strategies for preventing roadway crashes of all types. ATA also encourages DOT to utilize the newly formed Advisory Committee on Underride Protection to explore more effective approaches specific to side-underride crashes.



e. EXAMPLES OF DOCKING AND TRAILER CONFIGURATIONS

Figure 1. Example of ramp to a 2<sup>nd</sup> story delivery dock. The fleet had to remove fairings because they drag and are torn off on the steep grade.



Figure 2. Example of a ramp to a below-ground loading dock. The fleet had to remove fairings because they drag and are torn off on the steep grade.



*Figure 3. Example of pneumatic dry bulk trailer. Note the aerators, control valves, and discharge lines below the frame of the trailer that would interfere with existing side underride guard designs.* 



Figure 4. Example of a belt trailer. Note that these trailers use a belt system below the trailer frame that may not be compatible with existing side underride guard designs.



*Figure 5. Example of a side dump trailer. The trailer frame and hydraulics for side dump trailers or end dump trailers may interfere with current designs for side underride guards.* 



*Figure 6. Example of grain hopper trailer. Note the hoppers below the frame of the trailer, which would interfere with current side underride guard designs.* 



Figure 7. Example of flatbed trailer. Flatbeds are more likely to include a spread axle due to load and are designed to flex upon being loaded, which would have unknown effects on side underride integrity.

#### IV. CONCLUSION

Based on the additional safety/operational concerns described above and NHTSA's cost/benefit calculations, ATA opposes the proposed requirement to install side underride protection on all newly manufactured trailers. ATA appreciates the opportunity to comment on this rulemaking and would be happy to provide additional information on its policy, information about safety and operational concerns, or examples of concerns described above. ATA encourages DOT to take a more holistic approach to addressing side underride crashes as part of a broader crash prevention strategy, and to utilize the Advisory Committee on Underride Protection for exploring specific technologies or strategies. If you have any more questions, please feel free to contact Dan Horvath <u>dhorvath@trucking.org</u>, 703-838-8804, or Kevin Grove kgrove@trucking.org, 703-838-7980.

Sincerely,

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