July 20, 2023

The Honorable Ann Carlson
Acting Administrator
National Highway Traffic Safety Administration
1200 New Jersey Ave. SE
Washington, DC 20590

Side Underride Guards; Advance Notice of Proposed Rulemaking

Dear Administrator Carlson:

I am writing to comment on the National Highway Traffic Safety Administration's advance notice of proposed rulemaking regarding side underride rules, including the cost-benefit analysis published in April 2023. NHTSA's Office of Regulatory Analysis staff have underestimated the potential benefits from a side underride rule.

The cost-benefit analyses do not meet NHTSA's past scientific standards for evaluations of the effects of other safety regulations. As a result, the cost-benefit analyses for large truck side underride guards should be revised, preferably by a group of professionals independent from the NHTSA staff that approved these flawed and potentially biased analyses. Not only is NHTSA's reputation at stake, but NHTSA is unable to reach an objective regulatory decision regarding protection of the public from the hazards of large truck side underrides.

I am an epidemiologist who has spent her career working on injury prevention and control, with a particular focus on traffic safety. I authored the following important papers on large truck underride and have periodically submitted comments to NHTSA and the Federal Motor Carrier Safety Administration (FMCSA) on prior proposed rulemakings for large truck safety, including underride protection for the past 30 years.

E. Braver, M. Cammisa, A. Lund, N. Early, E. Mitter, and M. Powell. 1997. Incidence of Large Truck-Passenger Vehicle Underride Crashes in the Fatal Accident Reporting System and the National Accident Sampling System. *Transportation Research Record*, 1595, 27-33.

E. Braver, E. Mitter, M. Cammisa, M. Powell, and N. Early. 1998. A Photograph-Based Study of the Incidence of Fatal Truck Underride Crashes in Indiana. *Accident Analysis and Prevention*, 30, 235-243.

Furthermore, I was a principal investigator for the National Transportation Safety Board (NTSB) study of single-unit large trucks, which compared the frequency of underride crashes involving tractor-trailers and single-unit large trucks.

National Transportation Safety Board. Crashes Involving Single-Unit Trucks that Resulted in Injuries and Deaths. Washington, DC. NTSB/SS-13/01. June 17, 2013. Available:https://www.ntsb.gov/safety/safety-studies/Documents/SS1301.pdf

I agree with the comments submitted by Mr. Matthew Brumbelow of the Insurance Institute for Highway Safety (IIHS) on May 19, 2023. IIHS made the following key points regarding NHTSA's having underestimated the potential benefits from a side underride rule.

1. Crashes involving more than two vehicles were excluded from the estimate of benefits.
2. Initial impacts to the side or rear of passenger vehicles were excluded, although they have been shown to involve side underrides.

3. Restricting analyses to clock points 2-4 and 8-10 excluded crashes involving side underrides.
4. Fatalities to vulnerable road users, including pedestrians and cyclists, were excluded.
5. The agency's estimate of underrride incidence did not involve photographs, which are crucial to identifying underrides.
6. Assuming that side underride guards could not mitigate crash severity at impact speeds above 40 mph was unreasonable, given that the guards were effective at 40 mph in an IIHS crash test of an aftermarket side underride guard.
7. Using posted speed limits to estimate impact speeds is problematic because electronic data recorder data indicate that a large number of crashes recorded by police as occurring at above 40 mph actually occur at delta-V values below 40 mph.
8. Data from the Large Truck Crash Causation Study (LTCCS) currently are the best available data source for determining the incidence of underrides because photographic documentation are available for a representative sample of large truck crashes in the United States. LTCCS data indicate a higher side underride incidence in large truck crashes than NHTSA's review of police crash reports that lacked photographs.

When NHTSA knows that the Fatality Analysis Reporting System (FARS) database is flawed such that it undercounts certain categories of fatalities, such as those that are alcohol-related, it has an obligation to come up with a credible means of addressing that undercount. In the case of alcohol-related traffic fatalities, NHTSA uses the method of multiple imputation. NHTSA also has adjusted its estimates of seatbelt effectiveness to avoid overstating the benefits of seatbelts because failure to use seatbelts also is associated with alcohol-impaired driving and speeding.

NHTSA has a similar obligation to come up with a reasonable method for estimating underrides, given the well-documented underreporting of underride. In its cost-benefit analysis, NHTSA chose to apply a multiple of 1.78 for underreporting of fatal underrides, based on its review of police-reported crashes. As noted above, NHTSA's review of police-reported crashes was inadequate due to the absence of photographs.

Assuming that a multiple of police-reported underrides will adequately account for underreporting also is problematic. Police recognition of underrides can vary by individual officer, agency, region, calendar month and year, and other factors.

A more reasonable approach is to use the LTCCS data, for which side underride incidence has been examined by both IIHS and NTSB, to obtain percentages of side underrides by type of large truck crash and to multiply those percentages by large truck crashes included in FARS to get estimates of side underride-related fatalities. Similarly, LTCCS findings should be combined with the NHTSA's Crash Investigation Sampling System (CISS) or the Crash Report Sampling System (CRSS) to come up with sound estimates of non-fatal serious injuries related to large truck side underrides.

As NHTSA acknowledged in its cost-benefit analysis, it is reasonable to assume that requiring side underride guards would lower the price of a side underride guard due to competition and technical advances. Nonetheless, NHTSA based its cost estimates on the current price of an aftermarket side underride guard and its sensitivity analyses posited only a potential 20 percent decrease in cost. This decision was inconsistent with good practices for regulatory analyses.

As noted by IIHS, NHTSA's decision to assume that no benefit beyond 40 mph impact speeds made no sense. No reasonable engineer would think that a benefit from side underride guards observed at 40 mph would mean no benefit above 40 mph.

After reviewing the cost-benefit analysis, I and others to whom I have spoken are concerned that NHTSA's cost-benefit analysis for side underride guards may have been done in such a way as to maximize costs and minimize benefits. Accordingly, the cost-benefit analysis should be revised, preferably by safety professionals operating

independently from the group that performed the flawed and potentially biased analyses published in April 2023. This revision is necessary to protect NHTSA's reputation and for NHTSA to make an objective regulatory decision regarding protection of road users from deaths and serious injuries from large truck side underride crashes.

Sincerely,
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