R. Ryan Posten, Associate Administrator for Rulemaking
US Department of Transportation
National Highway Transportation Safety Administration
1200 New Jersey Avenue
Washington, DC 20590

Dear Ryan:

We are writing to recommend that your forthcoming cost-benefit analyses for side underride guards consider the following information:

1. The Government Accounting Office (GAO 2019) acknowledged underreporting of underride crashes and fatalities. The likely underreporting of underride crashes and fatalities due to variability in the data collection process limits NHTSA's ability to accurately determine the frequency of such crashes. Stakeholders reported that underride crash fatalities are likely underreported in FARS due to several factors, such as variability across states in defining underride crashes, inconsistencies in state crash reporting forms and documentation methods, and limited information provided to state and local police on how to consistently identify and record underride crash data. These factors could contribute to police officers incorrectly and inconsistently documenting underride crash data on the crash report form.

   Underreporting of underride crashes would affect the quality of NHTSA's data, thereby affecting the agency's ability to accurately identify the magnitude of underride-related crashes and limiting its ability to make informed decisions on rulemaking or other efforts that would help the agency meet its mission to improve traffic safety. Other researchers and organizations have also commented on the quality of NHTSA's underride crash data. For example, IIHS representatives indicated that they compared underride crash cases in FARS and in NHTSA's and FMCSA's Large Truck Crash Causation Study—a study of large truck crashes from 2001 through 2003—and identified some cases that involved underride crashes but that were not categorized as such in FARS.

   The undercounting of underride has been corroborated by our evaluation of the inaccurate FARS reports for our crashes, including the 2004 underride death of Roya Sadigh and the 2013 underride deaths of AnnaLeah and Mary Karth. We have observed further evidence of questionable data in our review of the FARS report for the 2016 Joshua Brown crash in which his Tesla went under the side of a tractor-trailer, and out the other side, but was coded as "No underride/override noted" (annaleahmary.com).

2. The Truck Trailer Manufacturers Association (TTMA) has inaccurately claimed for years that the benefits do not outweigh the potential costs for side underride guards. During public comments on the issue, the TTMA hired a former NHTSA official, Robert Shelton, to create a report that included a bogus cost-benefit analysis of a hypothetical Federal side underride guard requirement. Information and data were solicited by

TTMA's attorney from the large trailer manufacturers about the cost, weight, materials, and dimensions of their existing rear guards—after informing them that they would submit the data anonymously and that it would be used for a "TTMA-funded project…to develop and evaluate possible defense strategies to side underride lawsuits" (TTMA 2006).

In conjunction, the TTMA also recruited auto industry statistician Jeya Padmanaban to create a report on the annual number of side underride deaths. This has resulted in a faulty and misleading analysis of crash speeds and a federal database that undercounts underride fatalities—by a factor of 3.1 to 1 according to her own calculations—to provide a shaky foundation for Shelton's analysis of the benefits of side underride guards (Sievers 2020).

The TTMA has continued to submit the erroneous Shelton (2006) report to the federal government on multiple occasions during public comments, and its members have attempted to use the report in defending lawsuits, to create the appearance that side underride guards would create an unjustifiable economic burden on the trucking industry (please see the review in Sievers 2020). Therefore, because the unpublished Shelton report (2006) contains misleading information and conclusions, we are asking NHTSA to discontinue relying on it for any cost-benefit analyses concerning rear, front, or side underride guards.

3. Consider that the NTSB (2013) reported that single-unit trucks have been excluded from safety regulations for large trucks in the past because they have been undercounted in fatality cases by about 20 percent, due to misclassification in federal and state databases. The injuries, hospitalizations, emergency department visits, and fatalities resulting from single-unit truck crashes have widespread societal implications including long-term disability, suffering, and substantial medical costs. Take into account, additionally, the fact that research has indicated that passenger vehicle collisions with the sides of tractor-trailers resulted in more than 15,000 injured persons during 2001-2003 (NTSB 2014).

   Previous single-unit truck rulemaking concluded that mandating effective underride protection would not be cost-effective. We would like to discuss the importance of revisiting that decision. By including trucks in the regulatory analysis by the height of their undercarriage rather than by weight, the CBA will be more relevant.

4. It is clear, from peer-reviewed articles, that there is substantial undercounting of underride crashes in the FARS database by factors of 2.8 to 6. Consequently, please consider a *range* of fatality estimates when calculating the cost-benefit of underride guards, including those provided by the following informative research studies:

- Blower D and Campbell K. 1999. Underride in Rear-End Fatal Truck Crashes, The University of Michigan Transportation Research Institute, 1999. [***underreporting fatalities by a factor of 2***]
- Braver ER, Cammisa MX, Lund AK, Early N, Mitter EL, and Powell MR. 1997a. Incidence of Large Truck Passenger Vehicle Underride Crashes in Fatal Accident Reporting System and the National Accident Sampling System, 76th Annual Meeting of the Transportation Research Board, Washington DC, 1997a. [***underreporting fatalities by a factor of 6***]
- Braver ER, Mitter EL, Lund AK, Cammisa MX, Powell MR, and Early N. 1997b. A Photograph-Based Study of the Incidence of Fatal Truck Underride Crashes in Indiana, Insurance Institute for Highway Safety. [***underreporting fatalities by a factor of 2.8***]
- Brumbelow ML. 2012. Potential Benefits of Underride Guards in Large Truck Side Crashes, Insurance Institute for Highway Safety, Traffic Injury Prevention. [***underreporting fatalities by a factor of 3.7***]
- Padmanaban, J. 2013. Estimating Side Underride Fatalities Using Field Data. Annals of Advances in Automotive Medicine. [***underreporting fatalities by a factor of 3.1***]

5. Methods used by other Countries (Australia, Canada, and Europe Union), which have prepared cost-benefit analyses for underride guards, could be useful for the current report:
   - Department of Transport and Regional Services. July 2009. Regulation Impact Statement for Underrun Protection, Canberra, Australia https://www.legislation.gov.au/Details/F2009L03609/c2b84633-6b10-447a-8d0c-fbc25e9cc63c.
   - Haworth N, Symmons M. Proc. Australas. Road Safety Res. Policing Educ. Conf. 2003; 7(1): 244-249. https://acrs.org.au/files/arsrpe/RS030141.pdf
   - National Research Council Canada Centre for Surface Transportation Technology. 2010. Side Guards for Trucks and Trailers Phase 1: Background Investigation. https://www.volpe.dot.gov/sites/volpe.dot.gov/files/docs/side-guards-for-trucks-and-trailers-phase-1-background-investigation-jd-patten-canada.pdf
   - European Commission Directorate General Energy and Transport. 2006. Cost-benefit assessment and prioritisation of vehicle safety technologies, Final report https://ec.europa.eu/transport/road_safety/sites/roadsafety/files/pdf/projects_sources/vehicle_safety_technologies_final_report.pdf

6. The costs of side underride guards are not prohibitive and, similar to other safety measures in passenger vehicles (e.g., seatbelts, airbags, backup cameras), would be a pass-through cost to the consumer. The regulatory framework for underride guards is remarkably identical to airbags, which developed in the United States largely because auto manufacturers were not paying enough attention to producing safer vehicles (see Aubaum and IIHS 2005). Similar to airbags, the costs for safety measures are not absorbed by the auto manufacturers, nor would the cost of side underride guards be

absorbed. There was identical opposition to strengthening rear underride guards and those arguments have now been disproven by semitrailers manufacturers, who have been able to install an improved rear impact guard with no additional cost or weight (Stoughton 2020).

7. The current cost of an AngelWing Side Underride Guard, manufactured by AirFlow Deflector, is about $2,900.00, which includes shipping anywhere in the US or Canada. If this, or a similar guard, were mass produced with the semitrailer, the cost is likely going to be much less. Moreover, the cost will likely be offset with the savings brought with the fuel efficiency because the side guard would also be installed with a fuel-efficient skirt. Additionally, insurance cost would likely be less for trailers with side underride guards because they will save lives and limit lawsuits.

   The weight of side underride guards is not expected to significantly impact the industry. Most tractor-trailers "cube out before they weigh out". In other words, a semitrailer usually fills all the footage of space before they ever get close to reaching the 80,000 pound weight limit for the combination of tractor and trailer (see Zasky 2018). For example, the bill of lading for the semitrailer that killed my son Riley showed that the semitrailer, including its fully-loaded cargo, weighed 7,000 pounds less than the maximum allowed.

   The weight of a set of side underride guards is currently between 600 and 800 pounds (e.g., see Airflow Deflector 2020); however, other braided cable or nylon webbing designs that were recently developed, by engineers -- including one from a trailer manufacturer -- are about half of this weight (Vanguard 2019; Radio Canada (Fortier) 2018; SafetySkirt 2020). Even though the trucking industry was opposed to rear underride guards in 1971 (citing weight, cost, and operational concerns), rear underride guards are now standard and are manufactured with aluminum with no additional weight or cost (New York Times 1971; Stoughton 2020). Future engineering, after underride guards are mandated, will undoubtedly bring about further innovations in reducing guard weight.

8. Use the recently updated increase in the **DOT Value of a Statistical Life** from the $9.6 million VSL from 2016 to $11.6 million VSL in 2021.

9. Make sure that the cost benefit formula is all-inclusive so that the *costs* of purchasing and maintaining underride protection are appropriately compared to the multitude of *benefits* which would result, including:

   - lives saved (through use of a *range* of underride fatality estimates);
   - catastrophic injuries prevented (including both short-term medical costs and lifetime disability costs);
   - decreased liability risk due to truck crashes becoming more survivable;
   - benefits to truck drivers including prevention of PTSD, negative impact on their career, and jail time;

- preventing families from trauma and a lifetime of unnecessary grief, along with the negative financial impact of a lost family member;
- quick return on investment from fuel efficiency leading to reduced operational costs and reduced gas emissions from the installation of side skirt/side guard combinations;
- job creation from mass production of this previously-ignored proven safety equipment;
- less damage to trailers due to the prevention of cars riding under them, including the protection of fuel tanks and thus decreased likelihood of fiery crashes;
- less time required to conduct crash investigations because fatalities are not involved -- resulting in truck drivers being able to more quickly get back on the road to complete their deliveries and less impact on the local area by shortening the length of traffic back-ups;
- and decreasing the potential of lawsuits involving underride tragedies.

10. Factor in the legal and financial liability that is best exemplified by a jury verdict in response to a lawsuit filed concerning Riley Hein's death from a side underride collision in 2015. In August 2019, after a 2-week trial in Santa Fe, New Mexico, the jury reached a $42 million verdict against the Barkandi Express Trucking Company and Utility Trailer Manufacturing Company. Of this, the judgement against Utility Trailer Manufacturing Company was $18.9 million. The jury found that Utility Trailer Manufacturing Company was negligent in Riley's death because they ignored basic facts: hundreds of people continue to die every year from semitrailer side underride collisions and their semitrailer lacked a side underride guard to prevent Riley's death.

    Search the internet for "underride Riley Hein lawsuit" and you will understand the legal and financial risk to semitrailer manufacturers from our jury verdict. Additional high dollar jury awards are inevitable because the semitrailer industry has shown that it will not self-regulate and install side underride guards (see for example GAO 2019).

11. In conclusion, we request that we be allowed to meet with you to discuss our recommendations before any underride rulemaking is issued as an ANPRM or NPRM. That meeting would include discussion of an Advisory Committee On Underride Protection to allow for effective collaboration and timely action.

We appreciate your consideration of this information in support of prompt action from the DOT to the GAO report and your full response to the Karth's APA petition.

Thank you,

Eric Hein, Marianne and Jerry Karth, and Lois Durso Hawkins

Literature Cited

Airflow Deflector. 2020. Side Underride Truck Side Guards Side Underride Protection Devices for Semi and Flat Bed and Trailers. https://airflowdeflector.com/

Aubaum, M., and the Insurance Institute for Highway Safety. 2005. Safety sells: Market Forces and Regulation in the Development of Airbags. 202 pp. https://www.iihs.org/media/186adabe-9ef4-479c-ad37-36b9f0e7fca1/Ka0wWQ/Albaum

Government Accounting Office. 2019. Truck underride guards: Improved data collection, inspections, and research needed. GAO-19-264. https://www.gao.gov/products/gao-19-264

National Transportation Safety Board. 2013. Crashes Involving Single-Unit Trucks that Resulted in Injuries and Deaths. Safety Study, NTSB/SS-13/01, PB2013-106637. https://www.ntsb.gov/safety/safety-studies/Documents/SS1301.pdf

National Transportation Safety Board. April 3, 2014. Safety recommendations: mitigation of blind spots; protection of passenger vehicles from underriding the sides of tractor-trailers; protection of passenger vehicles from underriding the rears of trailers; and improving traffic safety data (H-14-001 through -007). https://www.wilsonelser.com/writable/files/Client_Alerts/ntsb_safety_recomm.pdf

New York Times. July 19, 1971. Agency drops safety plan opposed by trucking men. https://www.nytimes.com/1971/07/19/archives/agency-drops-safety-plan-opposed-by-trucking-men.html

Radio Canada. 2018. Lac-Mégantic invention could save lives. https://ici.radio-canada.ca/nouvelle/1127212/jupes-laterales-protection-vinyle-fortier-invention-lac-megantic

Safetyskirt. 2020. Testing underride guard using safetyskirt. https://www.trailerguards.com/testing

Shelton, R. 2006. Potential costs, safety benefits, and cost effectiveness of side impact guards for truck trailers. Unpublished Report.

Sievers, M. 2020. Hein V. Utility Trailer Manufacturing Company: Jury Sends a Message to Trailer Manufacturers About Side Underride. Journal of Trucking Litigation Winter/Spring 2020 pp. 3-9. https://www.mcginnlaw.com/documents/tlg-journal_winter_spring-2020.pdf

Truck Trailer Manufacturers Association. June 15, 2006 (2006). Public comments and cover letter to Shelton (2006) to US Department of Transportation [RSPA-99-6223 (HM-213B)], 21 pp. UTM docs resp. to 5th RFP (UTM 282030-284345).PDF (wusa9.com)

Stoughton. 2020. New Underride Guard: Now the standard for dry vans; no additional cost. No additional weight. Rear underride guard sales sheet. Wisconsin 2 pp.

https://www.stoughtontrailers.com/Portals/0/documents/Rear%20Underride%20Guard%20Sales%20Sheet.pdf

Zasky, J. March 8, 2018 (2018). AngelWing Can Prevent Side Underride: Aftermarket technology that attaches to the sides of trucks can make underride crashes more survivable. Failure Magazine http://failuremag.com/article/angelwing-can-prevent-side-underride