Biennial Report to Congress and the Secretary

MINORITY REPORT

OF THE

ADVISORY COMMITTEE ON UNDERRIDE PROTECTION

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I. Executive Summary

The Biennial Report fails to provide Congress and the Secretary with the requested consensus advice on reducing underride crashes and associated fatalities and injuries. While the Advisory Committee on Underride Protection ["**ACUP**"] did offer some recommendations aligned with this goal, most of the Committee's recommendations as contained in the Biennial Report reflect only the preconceived views and biases of a slim majority of Committee members, who wrote a report that both included significant material never considered by the ACUP in its deliberations and omitted items that did not further the majority's desired narrative.

The dissenting opinion strongly advocates for objective and evidence-based studies before the Secretary adopts comprehensive underride-related regulations. Specifically, immediate efforts should focus on obtaining reliable, scientifically grounded data that accurately describes the scope of the underride problem, the ability to solve that defined problem with available technologies, and the cost of doing so, including costs imposed through unforeseen consequences.

Regarding side-underride guards, further investigation is needed to assess their effectiveness in preventing fatalities and injuries, as well as the specific crash scenarios leading to those outcomes. Additionally, research should explore potential unforeseen consequences resulting from adopting side-underride guard technology, such as additional fatalities or injuries resulting from damage to trailers, high centering, and increased trips required by cargo displacement.

For rear-impact guards, additional research is needed to evaluate the benefits of enhanced requirements. Although most trailers currently meet the TOUGHGUARD standard, the extent of additional fatality reduction achievable through stronger regulations remains unclear. Investigating secondary impacts resulting from collisions with reinforced rear guards is crucial.

Lastly, the dissenting opinion recommends that the National Highway Traffic Safety Administration ["**NHTSA**"] should prioritize crash-avoidance requirements and distracted-driver mitigation measures to prevent underride accidents proactively. On many of these issues, the ACUP demonstrated true consensus, particularly those recommendations emphasizing collision avoidance for both passenger vehicles and tractor trailers, and those promoting technologies that enhance driver awareness and encourage collision prevention.

II. The Majority Report[1] does not meet NHTSA's unambiguous directive to the Advisory Committee on Underride Protection to provide "written consensus advice"; many of the Report's key recommendations fall far short of any recognized definition of "consensus."

The Bipartisan Infrastructure Law established the ACUP to "provide advice and recommendations to the Secretary of Transportation on safety regulations to reduce underride crashes and fatalities relating to underride crashes."[2] At the designation of the Secretary, NHTSA directed that the ACUP, in carrying out this function, perform the following functions, among others: gather information, deliberate, and then "provide ***written consensus advic*e** to the Secretary on underride protection to reduce underride crashes and fatalities relating to underride crashes"(emphasis supplied).[3] This requirement is echoed in ACUP's Charter.[4]

We believe all ACUP members share a dedication to improving highway safety, saving lives, and reducing underride fatalities. For this reason, the ACUP members united behind 18 substantive motions, in each instance passing the motion by with at least two-thirds voting in favor. These substantive motions – calling for additional research on underride crash characteristics, rulemaking for Automatic Emergency Braking and front override, enhanced conspicuity requirements, research on avoiding collisions into trailers through lamp technologies, and work on assessing benefits to pedestrians, bicyclists, and motorcyclists, among other topics– are all listed in Appendix B to the Minority Report. This was the Committee working as it should, with give and take and arriving at views that represented the consensus advice it was directed to provide.

But this is only part of the story. Despite the ACUP members' commitment to improving highway safety, saving lives, and reducing underride fatalities, our meetings

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[1] Mr. Lee Jackson, the Chair of the ACUP, agreed to prepare the Report for submission to Congress and the Secretary. Recognizing that many of the votes of the ACUP did not have true broad-based support, the ACUP voted at its March 13, 2024 meeting to have a "Minority Report" that would accompany the "Majority Report" prepared by Mr. Jackson. The entire Biennial Report submitted to Congress and the Secretary, except for this Section II ("Minority Report") and Appendix III.B ("Individual ACUP Member Reason for Concurrence or Dissent") is Mr. Jackson's synthesis alone of what was the "majority view" of the ACUP. From time to time in this "Minority Report," Mr. Jackson's submission is referred to as the "**Majority Report**."

[2] Public Law 117-58, section 23011(d)(1).

[3] 87 FR 40347.

[4] Advisory Committee on Underride Protection, NHTSA Docket No. NHTSA-2022-0052 (4. Description of Duties: The Committee shall act solely in an advisory capacity. Duties include the following: … c. ***Providing written consensus advice*** to the Secretary on underride protection to reduce underride crashes and fatalities relating to underride crashes" (emphasis supplied)).

clearly exposed disagreements about the most practical policies to achieve such objectives. Unfortunately, ACUP lost its commitment to working in a collaborative and consensus manner over the course of these discussions. In our opinion, this eliminated ACUP's ability to produce a unified, fair, and reputable report. This is exemplified by the fact that the Majority Report was produced solely by ACUP Chair Lee Jackson.

Over its two years, the ACUP gathered information (although, much of it, as discussed below, lacked scientific basis and instead was based on anecdote), and deliberated. But it failed completely to meet the key mandate from NHTSA – to arrive at and provide "***written consensus advice***" from its work. Rather, the slimmest majority of Committee members used a distorted definition of "consensus" to make pre-arranged recommendations that barely reflected a majority view, let alone a "consensus" view. The result is that the so-called Majority Report reflects views of those who from the very beginning were and are committed to requiring underride guards on semitrailers, regardless of the evidence-based demonstrated benefit, the cost, or the danger to the motoring public from unintended consequences.

Safety advocacy representatives manipulated their numerical advantage in Committee membership and the departure of an impartial Chairperson beginning in February 2024 to minimize opposing viewpoints of ACUP participants. At its February 8, 2024 meeting, a bare majority of the ACUP members considered the NHTSA's directive to provide "consensus advice" and decided (with only 9 of the 16 members present voting in favor; although not reflected one way or the other in the minutes, the best recollection is that the remaining seven voted against the motion) to redefine the word "consensus" in the context of ACUP's work to mean a simple majority.[5]

There can be no doubt that the term "consensus" means more than a simple majority; it requires a much higher level of agreement, as recognized by wide-ranging authorities.[6] We have not located any reputable contrary authority defining

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[5] Advisory Committee on Underride Protection, February 8, 2024, Meeting Minutes, p. 2, "Welcome and Call to Order" – ⁋. 5.

[6] For example, the *Oxford English Dictionary* defines "consensus" as "Agreement in opinion; the collective unanimous opinion of a number of persons"; *Black's Law Dictionary* (10th ed) defines "consensus" as "A general agreement; collective opinion" (citing Floyd M. Riddick & Miriam H. Butcher, *Riddick's Rules of Procedure 56 (1985)* for the following: "The regular method for the chair to use is to ask the members, 'Is the consensus of this meeting that. .. agreed to?' or, 'Is it the will of the assembly that. .. is this agreed to?' or, 'Is there an objection?'. .. . "); *Collins Dictionary* defines "consensus" as "general agreement among a group of people," and lists as synonyms "agreement, general agreement, unanimity, common consent"; *Merriam Webster* defines "consensus" as (1)(a) general agreement: UNANIMITY; (b) the judgment arrived at by most of those concerned; (2) group solidarity in sentiment and belief." The Thesaurus lists 40 synonyms and similar words for "consensus" – none of those is "majority"; and the American National Standards Institute's *Manual on Motor Vehicle Traffic Crashes,* 8th ed. (ANSI D.16-2017)

"consensus" as did those ACUP members interested in having recommendations reflect the views of a simple majority of members rather than views arrived at after hard work directed at obtaining general agreement. The "Majority Report" certainly does not mention any. Had NHTSA been interested in the views of a simple majority of the ACUP members voting (i.e., 50% +1), NHTSA would have said so. Instead, it asked for a "consensus." Unfortunately, the Majority Report fails to deliver this.

The Majority Report recognizes that it has a problem with its successful manipulation to make recommendations based only on a majority vote. At the end of its narrative, it attempts to justify its decision by noting that the consensus requirement is not in the Infrastructure and Investment and Jobs Act ["**IIJA**"] or in the Federal Advisory Committee Act ["**FACA**"]. Also, according to the Majority Report, it is not in the ACUP's Charter or bylaws and appears only in the Federal Register notice, which, according to the Majority, has no legal effect.[7]

But the Majority Report is misleading, at best. First, although the majority states that "there is no consensus definition of requirement found in the ACUP Charter or the Bylaws," this is simply wrong. The "Charter for Advisory Committee on Underride Protection" lists in its "Description of Duties," "The Committee shall act solely in an advisory capacity. Duties include the following: … c. Providing ***written consensus advice*** to the Secretary on underride protection to reduce underride crashes and fatalities relating to underride crashes" (emphasis supplied). This requirement, which was inserted in the NHTSA docket on June 27, 2022, was then included in the Federal Register notice published on July 6, 2022 soliciting applications for appointment to the Committee. Every one of the individuals who voted to redefine consensus as majority knew from the moment that person applied for an ACUP position that NHTSA was seeking "written consensus advice" – it is disingenuous to suggest that these individuals applied and worked relying on the absence of such a term in IIJA.

Second, in focusing on the language of IIJA, the Majority Report ignores the role of NHTSA. All the requirements of IIJA regarding ACUP are directed to "the Secretary." The Federal Register notice, which the majority claims has no effect, noted that NHTSA was soliciting recommendations to the ACUP, and cited as authority 49 C.F.R. § 1.95, which delegates authority to NHTSA's administrator to act. NHTSA's administrator then prepared the Charter and the Federal Register notice requiring that the report provided to the Secretary and Congress contain "written consensus advice." This is the standard NHTSA's leadership wanted the ACUP to use in providing recommendations to the Secretary. It is a valid requirement in the duties of the ACUP and should not be

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notes that consensus is established when "substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority …."

[7] Biennial Report to Congress and the Secretary of the Advisory Committee on Underride Protection, Section 1.A, pp. 4-5.

permitted to be ignored or thwarted by a linguistic exercise that redefines the word consensus to mean something it does not.

A. Significant preconceived biases by certain ACUP members preordained many of the ACUP's recommendations.

That a simple majority decided to make its decisions the ACUP's recommendations is not surprising in light of the ACUP's composition. A significant number of those who applied for and were selected to the Committee were bent from the beginning on requiring underride guards; the result was that those who wished to see underride guards installed on trailers, regardless of whether they were cost justified or supported by evidence, were overrepresented.

The IIJA required that ACUP members be selected from 10 groups. Members of four of those groups – families of underride crash victims; truck safety organizations; motor vehicle crash investigators, and the insurance industry[8] - were predisposed (and as it turns out unyielding) in their desire to make sure the ACUP's recommendations strongly favored underride guards. A significant number of Committee members hold ties to multiple representative groups. As such, this skewed the ACUP's composition.

The two victim representatives (Marianne Karth and Jane Mathis), predictably, are in favor of underride guards of all kinds and any added protection that would reduce fatalities and injuries, often without regard to unintended consequences or cost.[9] The two representatives of the truck safety organizations (Harry Adler and Jennifer Tierney) also are vocal proponents of underride guards. Mr. Adler worked for the Truck Safety Coalition[10] from 2015 through 2020, including as Executive Director, and is now Co-chair and Principal of the Institute for Safer Trucking.[11] Ms. Tierney was on the Truck Safety Coalition's Board of Directors with Mr. Adler, as it turns out is ACUP member Lee Jackson. Also, Ms. Tierney is a victim of underride, and her insistence from the very beginning that the ACUP recommend underride guards is understandable.

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[8] Pub. L. No. 117-58 (2021), Section 23011(d)(2).

[9] Ms. Karth, for example, has petitioned Congress and NHTSA on behalf of underride guards; her website and the promoted "Stop Underride Crash Tour" are devoted to this issue, among others. *See https://annaleahmary.com/*; and meeting on November 9, 2023, with Advocates for Side Underride Guards, Docket No. NHTSA-2023-0012, ANPRM – Side-Underride guards on trailer and semitrailers – RIN:2127-AM54.

[10] According to its website, the Truck Safety Coalition is dedicated to reducing the number of deaths and injuries caused by truck-related crashes (https://trucksafety.org/about-tsc/) and supports underride guards (https://trucksafety.org/issues/).

[11] According to its website, the Institute for Safer Trucking is committed to reducing crashes, injuries, and fatalities involving large trucks in the United States and lists as its "Top Priorities" "Improving Underride Protection" (https://www.safertrucking.org/about).

The representatives of the motor vehicle crash investigators are Lee Jackson and Aaron Kiefer. As noted, Mr. Jackson – who is the sole signatory of the Majority Report and chaired the ACUP after Adrienne Gildea of the CVSA resigned – is a Director of the Truck Safety Coalition with its dedication to supporting underride guards. Mr. Kiefer, a consulting engineer with Accident Research Specialist, is the founder of Collision Safety Consulting founded "to develop truck and trailer guards." He is the inventor of the SafetySkirt, a rubber-band-type underride guard, and his is website (https://www.trailerguards.com/) is filled with information about the dangers of underride and preventing underride through underride guards. Were NHTSA to adopt a requirement for side-underride guards, he might stand to benefit economically as a supplier of such a guard. He appears on the "Stop Underrides Crash Tour" wearing a shirt supporting those efforts, and frequently serves as a paid expert witness in litigation opining that an underride guard could have prevented injury in a given accident and that a trailer without such a guard is defectively designed and manufactured.

Finally, Matthew Brumbelow and Clair Mules represent the insurance industry. Mr. Brumbelow, who is well-known to the Department, is the Senior Research Engineer for the IIHS. The IIHS has conducted tests of the AngelWing guard, and the organization roundly criticized NHTSA's study of the potential impact of side guards, with Mr. Brumbelow himself claiming both on the IIHS website and in a presentation to the ACUP that NHTSA's study understated by roughly 10 times the benefits of side guards.[12] We have not located any information one way or the other suggesting that Ms. Mules was predisposed to support underride guards.

It is worth noting that no other group of ACUP members appears to have had such preconceived commitments to a point of view when joining the Committee. The trailer manufacturer representatives – John Freiler and Kristen Glazner – have been open to underride guards. The Truck Trailer Manufacturers Association, where Mr. Freiler serves as Vice President of Engineering, for example, has said repeatedly, including in statements filed with the government, that it "will support rulemaking that calls for installation of side guards if they are shown to be technologically feasible and justified." Similarly, Wabash International has developed a side-underride guard and demonstrated it on a trailer at a national trucking show. The other engineer representative, Jeff Bennett, is the President and CEO of Utility Trailer Manufacturing Company, LLC, and formerly was the Vice President of Product Design and Manufacturing. Utility Trailer has developed its own Side-Impact Guard and installed it on roughly 65 trailers, and it has conducted extensive testing both of its guard and the

[12] https://www.iihs.org/news/detail/nhtsa-study-underestimates-benefits-of-side-underride-guards-for-trucks.

only other guard commercially available, the AngelWing.[13] Indeed, Utility Trailer has more trailers on the road with side-impact guards than do all other suppliers of side-impact guards combined.

B. ACUP members who joined the Committee intent on recommending underride guards prevented the Committee's recommendations from being based on anything other than a simple majority decision.

The individuals described above had an agenda from the beginning of the ACUP: to recommend side guards. And allowing all recommendations to be decided by a simple majority directly furthered that goal.

As noted, the vote to define "consensus" as majority was decided by a 9 out of 16 people voting in favor. And then, when a motion was made to provide a proper definition of consensus, the group resisted it. Mr. Jackson, who by then had been elected the replacement Chair, refused to allow the motion (which was brought by Engineer Jeff Bennett) to proceed at the February 8, 2024 meeting because under Robert's Rules of Order, he said, someone who originally voted in favor of the definition of consensus as majority must bring the motion – this excluded Mr. Bennett.[14] There is no such Rule when bringing up a new motion on the same topic.[15] Notably, ACUP's bylaws state that, "Robert's Rules of Order will be used for the conduct of ACUP business unless it is in conflict with legal requirements, these bylaws, or the charter." However, Robert's Rule of Orders were loosely and selectively followed throughout ACUP proceedings.

Following Mr. Jackson's attempt to avoid the motion by an erroneous application of the Rules, Mr. Doug Smith (who had originally voted for the motion) agreed to bring up the motion at the next meeting. Mr. Jackson moved Mr. Smith's motion to the end of the meeting and when it came up, he attempted to avoid having it heard: first, by repeating

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[13] Numerous times during ACUP's meetings, Mr. Bennett offered to buy two sets of SafetySkirts from Mr. Kiefer so that they could be tested, evaluated, and the results of those tests reported. Mr. Kiefer refused to provide a price and imposed conditions on any potential transaction that he did not impose on other potential customers and that are atypical in the industry. Mr. Bennett ultimately concluded that Mr. Kiefer does not have a commercially available product.

[14] Minutes, March 13, 2024 ACUP Meeting, p. 3: "Motion 1 was Mr. Bennett's motion to change consensus to two-thirds. Mr. Jackson reiterated per Robert's Rules, someone who voted for the original motion would have to reconsider."

[15] Rather, the restriction cited by Mr. Jackson applies only to a "Motion to Reconsider," which is not what Mr. Benett's motion advocated. To the contrary, Robert's Rules allows anyone to reintroduce a motion or bring up a motion at a later meeting, which is exactly what Mr. Bennett did. MRSC "Changing Course: Using Robert's Rules to Alter a Prior Action," https://mrsc.org/stay-informed/mrsc-insight/january-2021/using-robert-s-rules-to-alter-a-prior-action.

his erroneous claim that the motion could not be considered, and – when that gambit was rejected – by attempting to run out the clock by ending the meeting before it could be considered.[16] Only intervention by NHTSA's James Myers, and the persistence of the motion's proponent Doug Smith, prevented Mr. Jackson's attempts to derail the motion entirely. At the very end of the meeting, a vote was taken. The motion to properly define consensus as something greater than a majority then failed, but the vote was 8-9 against, again the barest majority (Motion B16). Of the nine votes rejecting a proper definition of consensus, eight of those came from the individuals previously mentioned.[17]

C. The decision to improperly define consensus as a simple majority significantly affected the ACUP's recommendations and defeated the mandate to provide "consensus advice."

The simple majority vote redefining consensus had the effect of removing the consensus requirement from the ACUP's chartered duties. This had significant repercussions for what became listed as ACUP's recommendations, enabling a group of 7-8 ACUP members, all with similar backgrounds and biases, to vote as a unified bloc and dictate the majority recommendations of the ACUP, regardless of whether those recommendations reflected a true consensus.

Following the baseless redefinition of "consensus," ACUP adopted dozens of proposed motions that merited substantive opposition. These finalized motions contradict the duties of a Committee designed to identify recommendations that garnered broad agreement. Instead, ACUP has advanced numerous policies that were supported by a slim margin of Committee members. This is wholly unacceptable and a dramatic departure from previous Advisory Committee work conducted under the oversight of U.S. Department of Transportation. The move that transformed "consensus" into a simple majority resulted in a final report that lacks legitimacy.

The ACUP recommendations are largely based on the ACUP's vote on a total of 42 motions – 20 voted on at the March 13, 2024, meeting, and a further 22 at the April 24 and May 22, 2024 meetings. Importantly, the list of votes contained in the Appendix to the Majority Report is not accurate.[18] That list omits motions, does not always match the

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[16] *See* Video recording of April 24, 2024 meeting, beginning at 3:55:16, showing Mr. Jackson's attempt to avoid having the motion considered and delaying a vote since the meeting was required to end in a few minutes.

[17] Minutes, April 24, 2024 ACUP Meeting, p. 7 (referred to in these minutes as Motion 16). *See* ACUP Spreadsheet recording individual votes of ACUP members for March 13, April 24, and May 22 meetings.

[18] The "Record of ACUP Motions' contained in the Appendix to the Majority Report is not accurate and does not match the motions considered as described in the meeting minutes. For example, the minutes of the March 13, 2024, meeting show that 31 motions were considered, but only items 1 through

motion numbering to what is used in the minutes from the meeting, and uses confusing Roman numerals (presumably because the same numbering was used in the March 13, 2023 meeting and again started in the April 24 meeting). To avoid or at least minimize this confusion, the Minority Report includes as Appendix H its "Corrected Record of ACUP Motions and Votes," which is a revised table of all motions considered by the Committee, regardless of whether they were later withdrawn or combined with other motions. Those considered during the March 13, 2024 meeting now have an "A" prefix followed with the sequential number of the motion. Those considered during the April 24 and May 22, 2024 meetings have a "B" prefix and also are numbered sequentially, again starting with the number "1" to match how they are addressed in the meeting minutes and video. And the motion considered during the February 8, 2024 meeting has a "C" prefix (numbered C1). For ease of reference, the Minority Report's table of motions also includes a column showing how the motion is referred to in the meeting minutes and where in the Majority Report Appendix A the motion is located. But in the Minority Report, references are to motions as numbered in Minority Report Appendix H.

We do not have a record of how each person voted on the first 20 motions – only the vote totals as are presented in the Appendix for Motions listed (using Roman numerals) as numbers I through XXII.

But at the April 24 and May 22, 2024 meetings, NHTSA recorded how each person voted on the 22 motions actually considered (out of 29 that came up for discussion – the remaining six were withdrawn and one combined with a different motion). The voting patterns are remarkable and demonstrate the significant and immediate effect of the nine ACUP members – at least seven or eight of whom were predisposed to vote for underride guards as noted above – who alone decided that the Biennial Report would reflect only a majority view, not true consensus advice.

Of the 22 motions decided in the April and May meetings, the eight-person bloc consisting of members Karth, Mathis, Adler, Tierney, Jackson, Kiefer, Brumbelow, and Mules all voted together 15 times. Of the seven times they did not vote as a bloc, four were because of abstentions by one of the Members. In fact, only four times out of 22 did any member of this group vote "no" when the others voted "yes," or vice versa.

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24 (although it listed them using Roman Numerals) in the Appendix contain those motions. Similarly, the April and May meetings considered a total of 29 motions as shown in the spreadsheets disseminated by NHTSA recording the votes at the meeting. Yet only 26 of these motions appear in the Appendix (listed in the Majority Appendix as items 25 through 50, again using Roman Numerals). To be fair, some of the motions that do not appear concerned administrative matters or were withdrawn or were duplicates, but the Appendix does list some motions that were withdrawn. In any event, a proper listing of the motions should include all the motions and should reflect the same numbering as was used in the meeting and is reflected in the minutes. The correct list is included in Minority Report Appendix H: "Corrected Record of ACUP Motions and Votes."

And this bloc voting made a difference, including some key recommendations. For example, on an 8-6-3 vote, with the 8-member bloc voting 6-1-1 in favor,[19] the ACUP voted to require all semitrailers produced after 1998 to have a side-underride guard capable of withstanding a 40 mph impact. On a 9-8 vote, including seven votes by the bloc mentioned above, the ACUP voted that the required side guards must also prevent injuries to vulnerable road users: pedestrians, bicyclists, and motorcyclists.[20] In fact, the bloc vote comprised all or nearly all of the votes in favor of (or against) the ultimate decision in seven of the 15 motions decided at the April and May 2024 meetings.[21]

The previous list concerns only those instances where the vote was extremely close. In those instances, the clear predisposition of seven or eight ACUP members to require underride guards at nearly any cost propelled these hotly disputed issues into recommendations of the ACUP.

But had ACUP followed its Charter and provided only "consensus advice" to the Secretary, the recommendations would be significantly different. Using a conservative estimate of consensus meaning just two-thirds of those voting, only 21 of the 39 motions adopted by the ACUP[22] would have been included as ACUP's written consensus advice to the Secretary,[23] and 16 motions would not have been included.[24]

This means that nearly half of the recommendations in the Majority Report are based on views that did not have a consensus vote, using a conservative definition of consensus as two-thirds. Accordingly, the Majority Report, taken as a whole, is an illegitimate expression of the directive contained in the ACUP Charter, that the duty of

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[19] Mr. Kiefer abstained because he claims he has a side guard that could be retrofitted on the 26 years of trailers covered by this motion; Ms. Mules voted no.

[20] See motion B11.

[21] Appendix A to the Minority Report contains a chart showing each of the seven motions decided in the April and May meetings for which the bloc vote comprised all or nearly all of the votes needed to pass or defeat the motion, setting forth for each the number of the motion, the vote, and the text of the motion.

As previously noted, the 16 motions decided during the April and May meetings are the only motions for which NHTSA recorded individual votes; for the 22 motions decided during the March 13, 2024 meeting for which individual member votes were not documented, the group described above also largely voted as a bloc.

[22] The ACUP voted on 42 motions; 39 were approved; three were defeated.

[23] Appendix B to the Minority Report contains a chart showing each of the motions for which there was a true consensus and therefore were entitled to be included in the Biennial Report of the ACUP, setting forth for each the number of the motion, the vote, and the text of the motion.

[24] Appendix C to the Minority Report contains a chart showing each of the motions for which there was NOT a true consensus and should not have been included in the Biennial Report of the ACUP, setting forth for each the number of the motion, the vote, and the text of the motion.

the ACUP was, among other things, to provide "written consensus advice" to the Secretary. A small group of ACUP members distorted the Charter's directive and have substituted their limited, pre-determined views for a true consensus of ACUP members.

This is not to say, however, that all of the motions that failed to achieve a consensus vote are ill-advised. Some are worthwhile. But because there is not universal agreement among those joining in the Minority Report as to which ones fall into that category, discussion of that issue is included in the section of the Biennial Report that discusses individual ACUP Member Reason for Concurrence or Dissent.

III. The "Biennial Report to Congress and the Secretary of the Advisory Committee on Underride Protection" not only fails to reflect a consensus of the ACUP, but it also both includes significant material that never was considered, let alone voted upon, by the ACUP, and it omits technical presentations made by ACUP members at various meetings that contradict the Majority Report's narrative.

The ACUP voted unanimously that the Biennial Report purporting to provide written consensus advice to the Secretary would be provided to ACUP members a week before it is submitted to the Secretary so that those members with dissenting or differing views could prepare their own submission to be submitted simultaneously.[25] Mr. Jackson, who as ACUP Chair authored the Majority Report portion of the Biennial Report, did not submit his draft in advance of the 1-week deadline for review, comment, or input.

But Mr. Jackson significantly overstepped in preparing the Majority Report. The Report included significant material that never was considered in any way by the ACUP, let alone voted upon or agreed upon by a majority of ACUP members.

For example, the Report includes 135 pages related to disgruntled-employee Quon Kwan's allegation that NHTSA suppressed a report, or significantly altered a report for nefarious reasons, related to pedestrian side guards (but not side guards designed to stop an automobile). These are appendixes III.D.E.F., labeled, respectively, "Quon

[25] Minutes of ACUP April 24, 2024 meeting, p. 9 – Motion 14. For some reason, the Appendix A submitted by Mr. Lee Jackson for review by those who wish to have dissenting views did not include this motion. The text of Motion B14 was as follows: "Therefore it is resolved that any report from the ACUP to the Secretary that claims or purports to contain written consensus advice to the Secretary on underride protection to reduce underride crashes and fatalities relating to underride crashes will be provided in final form to all members of the ACUP at one week before such a report or advice is actually submitted to the Secretary so that those ACUP members who have dissenting or differing views may prepare their own submission to be submitted to the Secretary at the same time the report of the ACUP is submitted to the Secretary."

Kwan Testimony"; "Volpe Center Scope of Work – 'Truck Side Guards to Reduce Vulnerable Road User Fatalities'"; and "Alleged Suppressed Volpe Center Final Report: 'Truck Side Guards and Skirts to Reduce Vulnerable Road User Fatalities: Final Report on Net Benefits and Recommendations.'"

The ACUP never considered these reports. Rather, they were sent – unsolicited – to Mr. Jackson, and he forwarded them to the Committee suggesting that they be considered at the April 24, 2024 meeting. According to Mr. Jackson's statements in the "Majority Report" at p. 22, "NHTSA ***did not allow the ACUP to discuss or hear [Mr. Kwan's] testimony*** and referred the matter to the Department's Office of Inspector General."

Since NHTSA was not allowed to and did not discuss or consider the material related to Mr. Kwan's allegations, they cannot be said to be the majority view of the ACUP. Including them in the Biennial Report is improper. On June 20, 2024, ACUP Member Jeff Bennett sent an email to James Myers, copying all ACUP members, noting this impropriety and asking that the materials be removed. Mr. Jackson admitted in his response to the email that the ACUP was not given an opportunity to discuss the materials, but that, as he said, "***I believe*** that Congress should be made aware of it, and that it is relevant to the report." In other words, Mr. Jackson again substituted his personal views for the views of the ACUP – the material should be stricken before being sent to the Secretary or Congress.

In addition to including material that never was presented to the ACUP, the Biennial Report prepared by Mr. Jackson omits a number of Technical Briefings presented during ACUP meetings – Technical Briefings that contradict the general narrative in the Majority Report supporting underride guards. Specifically, the "Technical Briefings" section of the Biennial Report (Appendix III.C.) omits at least the following Technical Briefings:

- "*A History of NHTSA's Position Concerning Side-Underride Guards on Semitrailers and One Trailer OEM's Response*," Technical Briefing of Jeff Bennett – November 15, 2023 ACUP Meeting – see video at 1:47:27 (the Minority Report includes this Technical Briefing as Appendix D to the Minority Report)

- "*Side Underride Guards – Initial Operational Concerns and Challenges*," Technical Briefing of Dan Horvath – November 15, 2023 ACUP Meeting – see video at 2:49:42 (the Minority Report includes this Technical Briefing as Appendix E to the Minority Report)

- "*Problems of Side Underride Guards to be Overcome*," Technical Briefing of Doug Smith – November 15, 2023 ACUP Meeting – see video at 3:10:35 (the Minority Report includes this Technical Briefing as Appendix F to the Minority Report)

- "*Crash Test Evidence of Commercially Available Side-Underride Guards*," May 22, 2024 ACUP Meeting (the Minority Report includes this Technical Briefing as Appendix G to the Minority Report)

IV. The Secretary should commission comprehensive, evidence-based studies to determine the scope of the underride problem, the ability to solve it, and the costs of doing so before adopting comprehensive underride-related regulations.

The IIJA directs ACUP to provide written consensus advice and recommendations to the Secretary "on safety regulations to reduce underride crashes and fatalities relating to underride crashes" and to include in its Biennial Report an assessment concerning the Secretary's progress in advancing safety regulations relating to those crashes.[26] In working to fulfill this mandate, ACUP focused on the three areas of a semi-trailer where underride can occur: side, rear, and front (the IIJA does not address the last of these, but the ACUP included it in its work).

The common theme underlying most of ACUP's work and deliberations is uncertainty and disagreement concerning (1) the scope of the underride problem in terms of deaths, injuries, and costs; and (2) the ability to reduce both crashes and fatalities through available technologies including (a) the percentage of deaths, injuries, and costs that are capable of being reduced; (b) the ability of various technologies to reduce these items; and (c) the unintended consequences of implementing these technologies.

Those predisposed to requiring underride guards on the side and front of trailers, and stronger or different guards on the rear of trailers, claim that current estimates of underride-associated death and injuries are greatly understated and that the numbers they propose – without much evidence – are far more reliable. This group also claims that existing side-guard technology should be required on all trailers manufactured after 1998 because such a requirement will save sufficient lives and injuries to meet the cost-benefit threshold required of new regulations.

In fact, neither the extent of the underride problem, nor the ability to solve it, is known with sufficient evidence-based certainty to serve as the basis for wide-ranging regulation and public-policy changes. Instead, the Secretary should devote its immediate efforts to obtaining reliable, quality, scientific-based data that accurately describes the scope of the problem, the ability to solve that defined problem with

[26] Pub. L. No. 117-58 (2021), Sections 23011(d)(1) and (d)(6)(B); Advisory Committee on Underride Protection Charter, Section 4, Duties ("Duties include the following: … c. Providing written consensus advice to the Secretary on underride protection to reduce underride crashes and fatalities relating to underride crashes").

available technologies, and the cost of doing so, including costs imposed through unforeseen consequences.

A. Additional unbiased, evidence-based research should be undertaken to determine the scope of the underride problem.

In 2019, the Government Accountability Office [**"GAO**"] issued its report in response to a request to review data on truck underride crashes and underride guards. Because of data variability and lack of direction concerning how to identify and report those crashes, the GAO concluded that the number of fatalities and injuries attributed to underride collisions is underreported, meaning that NHTSA may not have fully accurate data on which to base its conclusions. It therefore recommended modifications to the Model Minimum Uniform Crash Criteria to provide a standard definition of underride crashes and to include a data field for such crashes, to educate police departments regarding identifying those crashes, to require inspections of rear guards during annual inspections, and to conduct research on side-underride guards to understand their true effectiveness.[27]

In response to the GAO Report, NHTSA conducted additional research and prepared its 2022 Report "Side-Impact Guards for Combination Truck Trailers: Cost Benefit Analysis" that, among other things, provided detailed "analysis of crash databases for estimating annual fatalities and serious injuries in side-underride crashes and NHTSA's analysis of the benefits and costs of requiring trailers to be equipped with side-underride guards to mitigate injuries and fatalities" resulting from those crashes.[28] This "preliminary estimate" formed the basis for NHTSA's April 2023 ANPRM on side-underride protection, which concluded that a side-underride guard was not cost beneficial because "the total discounted lifetime costs of equipment new trailers and semitrailers with side-underride guards is six to eight times the corresponding estimated safety benefits"[29] and would prevent only 17.2 deaths.[30]

Although the ACUP majority ignores the costs of its proposed recommendations, it recognizes that the current cost-benefit analysis is antithetical to its goal of requiring underride guards on trailers. The Majority Report itself recognizes, "While technically

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[27] *See* GAO Report to Congressional Requesters GAO-19-264 – *Truck Underride Guards – Improved Data Collection, Inspections, Research Needed*, March 2019, pp. 32-33.

[28] NHTSA-2023-0012; Side-Underride Guards, ANPRM, April 20, 2023, p. 25.

[29] This is the cost-benefit determination for new trailers only. The ACUP Majority Report recommends that side-underride guards be required and retrofitted on all trailers and single-unit trucks manufactured since 1998. Minutes, ACUP April 24, 2024 Meeting, Motion 10. See Appendix III.I. Of course, this would dramatically increase the immediate cost of any regulation.

[30]NHTSA-2023-0012; Side-Underride Guards, ANPRM, April 20, 2023, pp. 6, 18.

still an open rulemaking, NHTSA's cost-benefit conclusion all but precludes a future side-guard requirement."[31]

As a consequence, members of the Majority have engaged in an assault on the conclusion concerning the number of lives that would be saved and injuries prevented. Less than a month after NHTSA published the ANPRM, Mr. Brumbelow submitted a comment to NHTSA Director Carlson claiming that NHTSA's analysis is flawed and substantially understated the number of lives that could be saved.[32] Other members of the Committee have submitted comments to NHTSA challenging NHTSA's conclusions. For example, on November 29, 2023, the so-called "Advocates for Side Underride Guards on Trucks and Trailers" led by ACUP Member Karth participated in an ex parte meeting with NHTSA to challenge NHTSA's ANPRM on side-underride guards and to insist that it be removed. Also attending were ACUP members (and members of the Majority bloc discussed in section I of the Minority Report) Harry Adler, Matthew Brumbelow, and Aaron Kiefer. Mr. Brumbelow echoed the material he provided in his May 2023 comment on the ANPRM.

Mr. Brumbelow had presented the same information to the ACUP at its November 15, 2023 meeting; Ms. Karth made her own presentation on the same topic at the meeting. At the February meeting, Mr. Brumbelow again made a presentation criticizing NHTSA's findings concerning the number of lives that would be saved. At the April meeting, Eric Hein again presented information attacking NHTSA's conclusions regarding side-underride fatalities and proposed revised numbers. Mr. Hein, who was part of the ex parte November 29, 2023 meeting, lost a son in a collision involving a trailer. He formerly worked for the U.S. Forest Service and has no special expertise that would allow him to opine on the number of lives that underride guards would save, how NHTSA's estimates should be revised, or whether side-underride guards are cost beneficial. Predictably, the presentations offered by ACUP majority members during the meetings reach results that are consistent with the conclusion the ACUP majority members have desired from the very beginning: Underride guards are cost beneficial.

The problem, though, is that decisions must be based on unbiased, fact-based evidence. The Majority Report recommendations fall short. Each attack on NHTSA's conclusions presented to the ACUP was brought by or supported by an individual or organization that has an admitted bias in favor of underride guards. There is no independent support for the conclusions the Majority Report reaches.

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[31] Majority Report, p. 14.

[32] Docket No. NHTSA-2023-0012; May 19, 2023 Comment of IIHS HLDI on Side Underride Guards; Advance Notice of Proposed Rulemaking.

The Majority Report claims there are 7,850 side-underride crashes and 8,950 corresponding fatalities (179 per year), 10,050 rear-underride crashes and 14,350 corresponding fatalities (287 per year), and 7200 front override crashes and 8,200 corresponding fatalities (164 per year). But the only support provided for these numbers is a letter from Eric Hein to James Myers dated April 30, 2024. As noted, Mr. Hein is not qualified to provide data on which public policy should be made, and – tragically – he is biased in his zeal to have the 2023 ANPRM withdrawn and side-underride guards mandated. As for front fatalities and injuries, it is impossible to confirm the numbers provided in the Majority Report from the data – there are no overall numbers provided, and the conclusion appears to be an extrapolation from an exceedingly small sample.

Although the Minority Report does not have its own view concerning the precise number of individuals who are killed or injured in underride crashes of all types, it is clear that there is significant disagreement on the subject and that there is no independent, fact-based, comprehensive analysis that is better than NHTSA's research to date concerning the scope of the problem. Recognizing this disagreement, the Minority Report supports the two ACUP motions recommending additional research into the scope of the underride problem, all of which received more than 66% of the ACUP Committee's vote:

- **Motion A-3** – Committee recommend that NHTSA conduct comprehensive research on U.S. underride crash characteristics, including the frequency of 30 perfect overlap crashes. Include photos as much as possible.

- **Motion B-5** – NHTSA should complete a new Side-Impact Guard cost-benefit analysis and rulemaking that counts previously omitted underride victim categories, including pedestrians, bicyclists, and motorcyclists.

To make sure that the information NHTSA gathers from this research is as accurate as possible, the Minority Report also supports the three ACUP motions recommending improvement in how data concerning the scope of the side-underride problem is gathered:

- **Motion B-19** – To further GAO recommendation # 1 regarding improvements to Model Minimum Uniform Crash Criteria, NHTSA should take additional steps to include both vehicle-related side-underride crashes, and Vulnerable Road Users (VRU) side-underride crashes in reporting of injuries and fatalities related to side-underride guard crashes.

- **Motion B-27** – The ACUP shall recommend in its report that NHTSA create a field in the Fatality Analysis Reporting System to determine if an underride crash occurred involving a large truck and a pedestrian/cyclist.

- **Motion B-28 –** The ACUP shall recommend that DOT disseminate educational material in addition to existing brochure for law enforcement to help them identify and record side-underride crashes.

It is crucial that this improved data gathering, and resulting research, be accomplished as the immediate next steps in evaluating whether NHTSA should implement underride-guard regulations. To determine whether underride guards are cost justified, at least the following information must be obtained:

- Number of individuals who die or are injured in underride collisions of all kinds
- The types of all injuries the individuals sustained and, if a fatality, the cause
- Location of the victim in the vehicle, and whether the victim was wearing a seatbelt
- Location of the collision on the trailer / truck: rear, side, front
- Location on the trailer / truck (in relation to where a guard would be) where the impact occurred – center, end, overlap of edge of a guard
- Angle of impact
- Speed of impact
- Assessment of potentially increased injury from deceleration injuries (including deceleration loads and interior contact), particularly if rear guards are strengthened or side guards are implemented
- Type of vehicle involved
- Whether the vehicle had airbags and, if so, whether they deployed
- Whether the vehicle had automatic emergency braking
- Whether the occupants were belted

B. After obtaining unbiased, fact-based research defining the true scope of the underride problem, NHTSA should undertake fact-based research into the ability of guard technologies to solve the defined underride problem.

Only after the information listed in the previous section is obtained can it be determined the extent to which current guard technologies would have prevented fatalities or minimized or eliminated injuries that occurred. As noted below, current guard technologies have significant limitations, and it cannot be said that current guard designs – whether Perry Ponder's AngelWing, Utility's Side-Impact Guard, or Aaron Kiefer's SafetySkirt – would still allow many of the fatalities and injuries to occur in side-crashes. Similarly, even the strong rear guards existing today allow a significant number of fatalities and injuries to occur, as there are limits to the abilities of the

technology to prevent these consequences. And not enough is known about front override crashes to reach any conclusions.[33]

(1) There are significant uncertainties concerning the ability of side-guard technologies to significantly reduce side-underride fatalities and injuries

As recommended by the GAO Report, and noted in the ANPRM, additional work needs to be done on both the efficacy of side-underride guards in preventing the types of deaths and injuries that occur and in the types of crashes leading to those deaths and injuries. The uncertainties arise from two areas: the ability of the guard to prevent fatality and injury in a specific crash scenario, and unintended consequences of installing side-underride guards.

Although the Majority Report devotes significant ink to criticizing NHTSA's conclusions regarding the number of fatalities and injuries that occur, it presents no significant analysis concerning the ability of side-underride guards to prevent or lessen that injury. Rather, those interested in mandating side-underride technology showed a number of videos of crash tests conducted either by the IIHS or by the Stop Underrides Group and extrapolated conclusions that guards would be widely effective.

The IIHS tests involved perpendicular crashes of a Chevrolet Malibu into the center of an AngelWing guard at 35 mph and 40 mph.[34] In a number of Stop Underride-sponsored tests, the AngelWing guard and SafetySkirt stopped passenger-compartment intrusion at roughly the same speeds. Along the same lines, Utility Trailer showed video of its Side-Impact Guard stopping a Malibu at 35 mph with no passenger-compartment intrusion.[35]

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[33] Although it did not achieve a 2/3 approval vote, Motion B6 was approved on an 11-1-5 vote: "NHTSA should issue an Advanced Notice of Proposed Rulemaking on Front Impact Guards."

[34] The IIHS tests are open to criticism as the IIHS, in testing the AngelWing, departed from the testing methodology it used for all rear-underride guard tests. Specifically, the IIHS did not fully load the trailer to capacity, and it put the partial load (35,561 lbs. out of 65,000 gross vehicle weight rating) into the rear half of the trailer. (*See* "*Crash Test Evidence of Commercially Available Trailer Side Underride Guards*," Jeff Bennett Technical Briefing presented at May 22, 2024 ACUP Meeting, slide 2.) As a result, the trailer moved significantly laterally upon impact – roughly 2 feet. This dissipated significant energy. In contrast, IIHS's rear-guard tests were on fully loaded trailers with the load evenly distributed, and the brakes of the tractor-trailer may have been engaged, further preventing movement of the trailer. All tests were conducted on a relatively slick floor, further decreasing the inertia of the trailer. Mr. Kiefer reports that some of his tests of the Safety Skirt did not suffer these flaws as they were on a fully loaded trailer on a non-slick surface.

[35] The Technical Briefing Jeff Bennett presented to the ACUP on May 22, 2024 – slide #5. The Majority Report / Biennial Report omitted this Briefing ("*Crash Test Evidence of Commercially Available Trailer Side*

Putting aside the IIHS testing deficiencies, there is not much question that a properly designed guard will stop a medium-size car at 35 mph when the guard is struck in the center at a perpendicular angle. At higher speeds, the challenge increases, as the force of the impact increases with the square of the speed.

But the real challenge is what happens when the crash is not into the center of the guard, and is not at a 90-degree angle. Here, there has been almost no testing. Not all crashes occur at 90 degrees into the center of the guard. Better data is needed to know the full range and distribution of crash scenarios, but reviewing the crashes that have been subject to litigation would show that such a scenario is the exception; most occur at an angle and are either closer to the end of the guard, overlapping where the end of a guard would be, or in the gap that would exist between the end of the guard and the wheels of either the trailer or tractor. And for crashes that occur in this last area, a side-underride guard such as the AngelWing or Utility Trailer's Side-Impact Guard will not be at all effective.

Gathering data on the nature of these crashes is essential because research shows that the guard is not as effective, or is not effective at all, as the crash departs from the center / 90-degree impact perfect scenario. Utility Trailer has requested that the IIHS and the Stop Underrides Group test guards such as the AngelWing or the SafetySkirt in a way similar to how the IIHS tests rearguards: in scenarios involving first 50% overlap and 30% overlap with the end of the guard. Utility even offered to provide its Side-Impact Guard to the IIHS if it would include those tests in the testing protocol. As far as is known, neither the IIHS nor the Stop Underrides group has conducted these tests.

Utility Trailer, however, has crash tested its guard in an overlap situation and shown the resulting video the ACUP. Also, it has dynamically tested the AngelWing simulating loads toward the end of the guard.[36] In the crash test, Utility's Side-Impact Guard dramatically failed to prevent passenger-compartment intrusion, as shown by the following photos[37]; in the dynamic test, the AngelWing failed to resist the force that would be associated with an impact near the end.

Underride Guards") from the list of Technical Briefings it included in its Appendix III.C. A complete copy of Mr. Bennett's presentation is included as Appendix G to the Minority Report

[36] After Mr. Kiefer claimed the SafetySkirt was commercially available (there are only two actually in use), Utility Trailer publicly offered to buy two sets of SafetySkirts from Mr. Kiefer at retail cost so it could test those guards. Mr. Kiefer has refused to sell the guards to Utility Trailer absent unusual requirements that do not apply to other potential customers and are unusual in the industry.

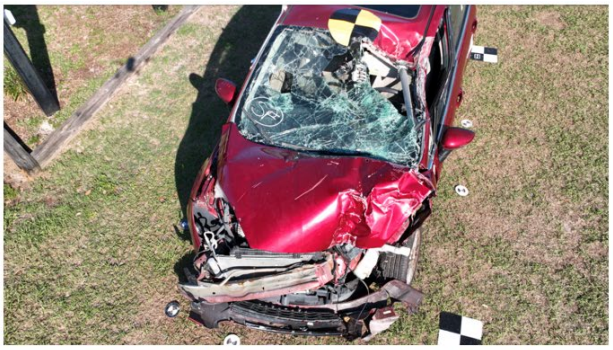
[37] Photos of Utility's 30% overlap test were included in the Technical Briefing Jeff Bennett presented to the ACUP on November 15, 2024 – slide #11. The Majority Report / Biennial Report omitted this Briefing ("*A History of NHTSA's Position Concerning Side-Underride Guards on Semitrailers and One Trailer OEM's Response*") from the list of Technical Briefings it included in its Appendix III.C. A complete copy of Mr. Bennett's presentation is included as Appendix D to the Minority Report. Other photos were included in Mr. Bennett's omitted Technical Briefing ("*Crash Test Evidence of Commercially Available Trailer*

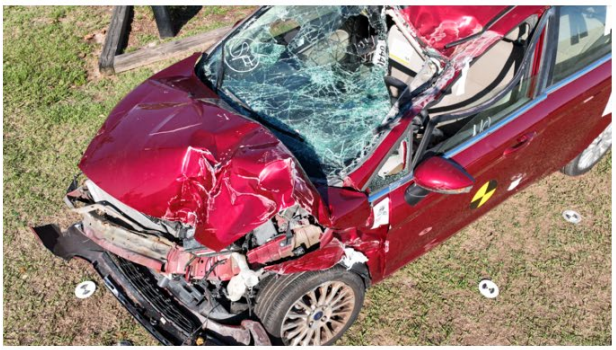
Similarly, there are substantial questions concerning how well the side-underride guard works in an angled crash. Again, 90-degree impacts are the exception; a wide variety of angles are the norm. The results of a crash test of a Ford Fiesta into an AngelWing guard at 45 mph shows that the guard does not protect the occupants.

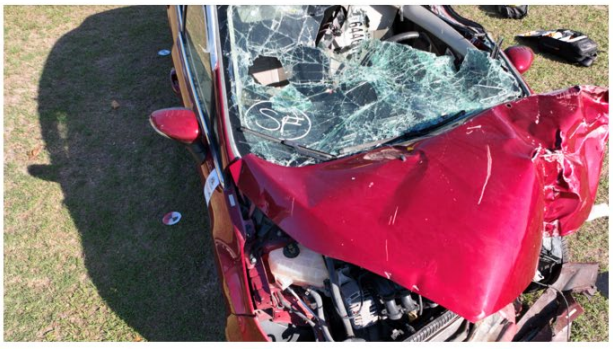
ACUP members Karth and Keifer showed the ACUP a number of crash tests during various ACUP meetings. In each such test video, the guard being tested prevented passenger-compartment intrusion. But Karth and Kiefer both were present at the April 2023 test of the Ford Fiesta mentioned in the previous paragraph, yet they never mentioned this test to the ACUP. But an ACUP member obtained a copy of the video when Mr. Kiefer was required to disclose it in connection with his serving as an expert witness in litigation involving a side-impact crash. As shown in the following photos, the guard ripped off the trailer in the angled impact, and there was significant passenger-compartment intrusion.[38]

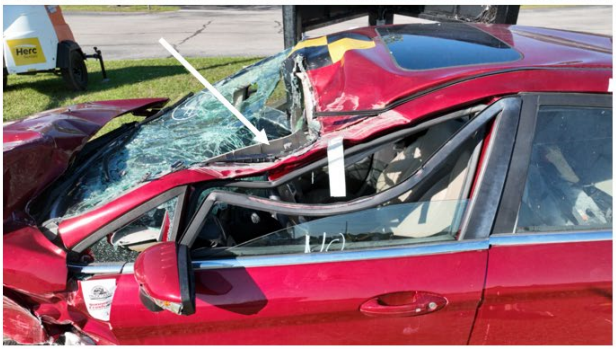
Side Underride Guards") provided to the ACUP on May 22, 2024, slides, 6-8, included as Appendix G to the Minority Report.

[38] Photos of this test showing the failure of the AngelWing were included in the Technical Briefing Jeff Bennett presented to the ACUP on May 22, 2024 – slides #9-17. The Majority Report / Biennial Report omitted this Briefing ("*Crash Test Evidence of Commercially Available Trailer Side Underride Guards*") from the list of Technical Briefings it included in its Appendix III.C. Mr. Bennett's Technical Briefing is included as Appendix G to the Minority Report.









There is no indication that the Majority Report took these limitations into consideration in extrapolating their view of how many fatalities or injuries could be eliminated or mitigated.

Finally, it is important to understand the scope and types of injuries suffered by so-called vulnerable road users (pedestrians, bicyclists, and motorcyclists) because the technology required to mitigate injuries is far different than the technology required to prevent side underride from an automobile. Although Mr. Jackson claimed that he visited Europe and saw many trailers with side-underride guards,[39] he was in error. What he saw in Europe were pedestrian guards; they are not designed to and will not stop a vehicle.[40] Despite having this confusion corrected, the Majority Report claims that the "United States lags behind many nations in adopting impact guards designed to prevent industries and deaths from underride crashes."[41] But the citation for this conclusion – contained in Majority Report footnote 10 – actually is not about side-underride guards as focused upon by the ACUP. Rather, it is about Lateral Protective Devices, which are pedestrian guards and apply to trucks, as is confirmed by the title of the publication cited by the Majority Report: "A Literature Review of Lateral Protection Devices on Trucks Intended for Reducing Pedestrian and Cyclist Fatalities."

These pedestrian guards are lightweight and do not impose the same stresses and costs as do the rigid side-underride guards. They can also function as aerodynamic devices. And as of recently, the Mexican authorities require that certain trailers imported into Mexico have these type of guards. As with rigid side-underride guards, there are potential unintended consequences as discussed in the next section, as the guards become damaged in normal use.

(2) Requiring side-underride guards on trailers is likely to result in significant unforeseen consequences; additional research should be conducted on these issues before adopting such technologies.

ACUP received information concerning the side-underride devices currently on the market: the AngelWing, Utility Trailer's Side-Impact Guard, and Kiefer's SafetySkirt. Real-world experience with these devices is limited, given the few trailers so equipped. According to testimony, AngelWing has sold roughly four sets of guards to end users, plus six to trailer manufacturers (presumably for testing). Kiefer has two sets of SafetySkirts mounted on trailers; and Utility Trailer has mounted its prototype Side-Impact Guard on roughly 65 trailers. And non-crash testing of the AngelWing and SafetySkirt to demonstrate its performance in day-to-day operations is either limited or non-existent.

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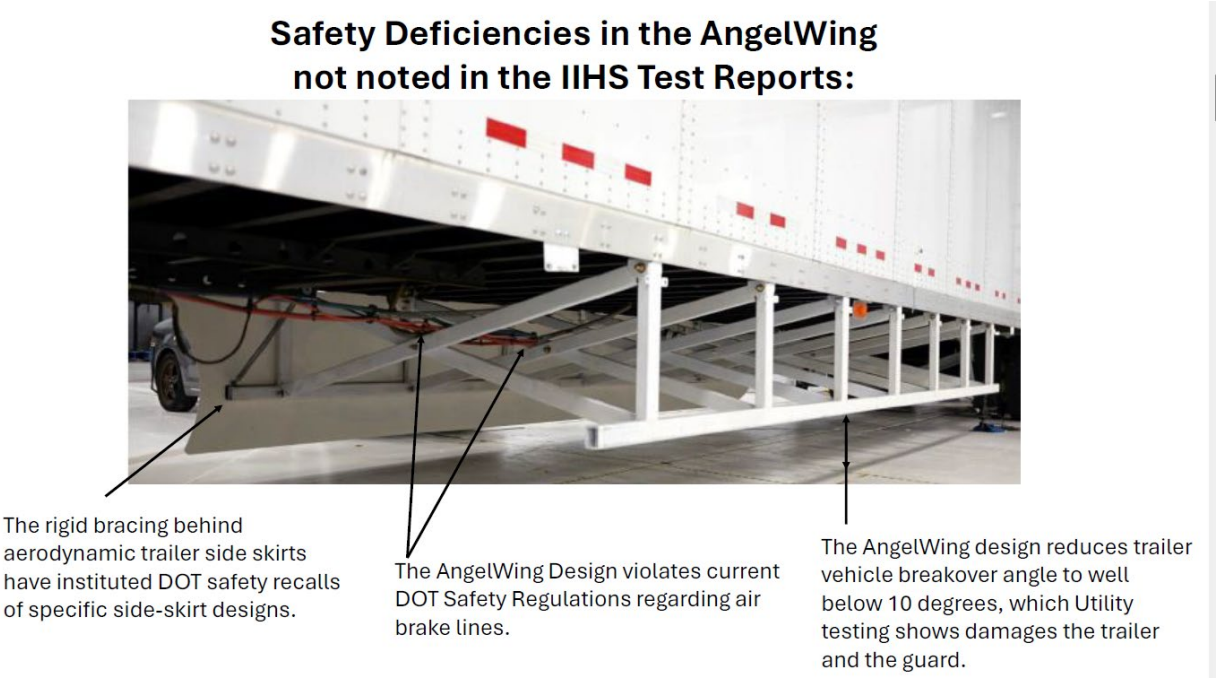
[39] November 15, 2023 ACUP Meeting. See video at 2:00:07.

[40] *See* Technical Briefing of Doug Smith, November 13, 2023 Meeting. The Majority Report omitted it in its list of Technical Briefings. It is included as Appendix F to the Minority Report.

[41] Majority Report, p. 10

The limited testing that does exist is of the AngelWing, and it was conducted not by AngelWing's inventor but by Utility Trailer. In 2018, Utility Trailer purchased two sets of AngelWing guards for testing. It tested the guards extensively, concluding in a detailed report that the guards were not safe because they caused failure of the AngelWing mounting bracket before completing a standard floor tests of both refrigerated and dry-van trailers failure, and also caused high centering in real-world situations, damaging the guard and the trailer itself.[42] The AngelWing also violates DOT brake-line regulations, as the guard rubs against air hoses, as shown in this photograph of the AngelWing[43]:



The AngelWing also impermissibly restricts the travel of the slider, which would render the trailer unable to be used in certain states. Utility provided a copy of its report to AngelWing's inventor and marketing company and it previously has submitted it to NHTSA. None of the report's findings have been challenged or controverted. As noted earlier, Utility Trailer has attempted to purchase at retail two sets of SafetySkirts so it

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[42] Photos of the damage to the guard and trailer from the high-centering tests is included in the Technical Briefing Jeff Bennett presented to the ACUP on November 15, 2024 – slide #10. The Majority Report / Biennial Report omitted this Briefing ("*A History of NHTSA's Position Concerning Side-Underride Guards on Semitrailers and One Trailer OEM's Response*") from the list of Technical Briefings it included in its Appendix III.C. A complete copy of Mr. Bennett's presentation is included as Appendix D to the Minority Report.

[43] "*Crash Test Evidence of Commercially Available Trailer Side Underride Guards*," Technical Briefing by Jeff Bennett to ACUP, May 22, 2024, slide 4.

could test that device, but Mr. Kiefer has not been willing to sell them in a normal commercial transaction.

After discovering the flaws of the AngelWing that caused significant safety concerns, Utility Trailer developed its own Side-Impact Guard design that eliminated the cause of the bracket failure and high centering, as shown by even more strenuous tests than those that caused damage to the AngelWing. But there remain problems with the Side-Impact Guard that need to be resolved. For example, attaching the aerodynamic side skirt to the rigid Side-Impact Guard causes damage and tears to the aerodynamic device in normal operations. Customers also complain about the weight of the device, and the need to run additional loads in those instances where the trailer "weighs out."

And then there is the cost. When Utility Trailer purchased the AngelWing, it paid over $6,000 for each set of guards. Mr. Kiefer has not provided an exact cost for the SafetySkirt, although he says it likely is about $4,000 per set in volume. Utility Trailer estimates the costs of its guards would exceed $5,000 per set. Those advocating requiring guards claim that the cost would decrease significantly with volume. This is not accurate in Utility Trailer's experience. As noted, Utility Trailer has installed roughly 65 sets of its prototypical Side-Impact Guard, and because it uses the same raw materials it purchases in bulk for building trailers, there are no material cost savings to be had. Nor will there be significant labor savings, as Utility already produced jigs to manufacture the guards it installed on trailers, and its assembly lines prevent installation of the guards until the trailer is largely completed.

Equally important, customers have not been eager to adopt the technology at any cost. Utility Trailer has not charged its customers retail price for the guards it has installed. Rather, because the Side-Impact Guard is a prototype, it leases the guards to the customer for $1 / year – essentially free. Utility Trailer has had to persuade customers to take the guard so Utility Trailer can monitor its performance in the real world. No customer has asked for additional guards. In Utility Trailer's view, it cannot give the guards away.

As noted, the possibility of high centering in day-to-day operations causes safety concerns in that the trailer and guard are damaged. This damage could result in failure or detachment on the road. Other related unintended consequences from high centering include trailers being stuck on railroad tracks and detachment of aerodynamic devices that become damaged as the trailers traverse significant changes in grade. The Minority Report supports the recommendation in Motion B18, which passed on a 15-0 vote:

> *"NHTSA should work with the Federal Railroad Administration (FRA) to conduct research to examine potential impacts the installation of side-underride guards would have during highway-rail grade crossings."*

Additional unintended consequences arise from the weight of current underride guards. The AngelWing and Utility's Side-Impact Guard weighs 962 lbs. for the set.[44] This has two consequences. First, a significant number of trailers weigh out.[45] This means that there will be more trailers on the road as additional loads are required to carry the same capacity, meaning (a) an increase in costs; (b) increase in carbon emissions; and (c) increase in truck/trailer accidents, which are correlated with total mileage.[46] Second, increased weight, even in cubed-out trailers, means additional fuel and operating costs.

Those in support of side-underride guards often counter by saying that attaching an aerodynamic device to the guard would offset the increased fuel costs. The problem with this argument is that many trailers already have aerodynamic devices, or could have aerodynamic devices without installing the side-impact device – for these, there is no savings, only cost. Also, as noted previously, testing has shown incompatibility between side-impact guards and aerodynamic devices causing the guards to become torn or damaged. This means increased maintenance costs for the owner/operator at least; it may also present the possibility of danger to the motoring public if the damaged aerodynamic device, or pieces of it, come loose from the trailer.

Side-underride guards may obstruct access to critical areas during safety inspections, or pre-trip inspections, potentially hiding or causing the operator to overlook maintenance issues or structural problems.

Finally, there are significant operational concerns involved in side-underride guards. At the November 15, 2023 meeting, Mr. Horvath presented information showing the challenges and incompatibility issues between sideguards and various trailers and intermodal chassis (which retract and are stacked for transport and storage). His presentation also addressed the significant real-world problems that will develop as the guard interacts with loading docks and railroad crossings, and the need for changes

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[44] "*A History of NHTSA's Position Concerning Side-Underride Guards on Semitrailers and One Trailer OEM's Response*," Technical Briefing of Jeff Bennett – November 15, 2023 ACUP Meeting, slide 5, included as Minority Report Appendix D.

[45] The Majority Report points to a 24-year-old study stating that most long-haul shipments cube out before they weigh out. (Majority Report, p. 3, FN 7.) Aside from the fact that the data is a quarter of a century old, if accurate it applies only to long-haul routes. And regardless of whether it is a majority, the number of loads that weigh out is significant. *Comprehensive Truck Size and Weight Limits Study, November 2013, Modal Shift Analysis, p. 8*.

[46] The ACUP voted 7-6-2 to recommend that the DOT explore a weight exemption for side-underride guards. (Motion B25.) Although it passed by the narrowest of majority, there was significant disagreement on this issue, with those voting against noting the danger of heavier trailers on the road and increased damage to the nation's bridges and roadways.

in routing to accommodate the guards.[47] Similarly, Mr. Smith presented a Technical Briefing at the same meeting showing the real-world challenges a side-guard would experience as it traversed changes in grade, harsh weather conditions, and as various trailer configurations were involved.[48]

(3) Additional research is needed into what benefits can be achieved from additional requirements for rear-impact guards.

Mr. Brumbelow and Ms. Karth each noted that the nine largest trailer manufacturers all offer rear-underride guards that meet the IIHS's TOUGHGUARD standard, meaning it will prevent passenger-compartment intrusion in a perpendicular impact by a Chevrolet Malibu traveling at 35 mph into the rear of a fully loaded trailer, regardless of whether the impact occurs in the center, overlapping the end of the guard by 50% of the car width, or overlapping the end of the guard by 30% of the car width (70% of the car outside the edge of the guard). Seven manufacturers make the TOUGHGUARD-awarded guard standard; two manufacturers have it as an option.

With the vast majority of trailers manufactured today meeting the TOUGHGUARD standard, it is difficult to say how much additional reduction in fatalities would result from additional strength-related regulations in this area.[49] Of note, the Majority Report says that there are at least 287 fatalities from crashes into the rear of the trailer – the highest number of any location.[50] The fact that this many people die while crashing into strengthened guards[51] at least raises the question as to what additional benefit may be obtained from further regulation concerning the rear guard. It also raises the question whether a strong guard on the side of the trailer will have a significant effect on fatalities.

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[47] Although Mr. Horvath made his presentation at the November 15, 2023 meeting, the Majority Report omitted it in its list of Technical Briefings. It is included as Appendix E to the Minority Report: "*Side Underride Guards – Initial Operational Concerns and Challenges*."

[48] *See* "*Problems of Side-Underride Guards to be Overcome*," Doug Smith, included as Appendix F to the Minority Report.

[49] The ACUP majority adopted three recommendations relating to strengthening rear guards – none were adopted by close to a two-thirds majority: Motion A6 (require all trailers to meeting TOUGHGUARD standard) – 10-1-6 (58.8%); Motion A12 (all trailers manufactured since 1998 to be retrofitted with TOUGHGUARD guards) – 8-1-6 (53.3%); Motion A13 (single-unit trucks to meet same rear-guard standards as semitrailers) – 9-2-4 (60%); Motion A17 (expeditiously conduct rear-guard testing at speeds up to 65 mph) – 9-5-1 (60%).

[50] Majority Report, p. 2.

[51] IIHS notes that "nearly all newly manufactured guards on trailers already meet this new standard, which is similar to a longstanding Canadian requirement." IIHS Press Release, cited in Majority Report, p. 13, FN 19.

Additional research should also be performed on secondary impacts resulting from crashes into strengthened rear guards. As noted, trailers meeting the TOUGHGUARD standard prevent passenger-compartment intrusion in both 50% and 30% overlap collisions. But in these collisions, the striking vehicle rotates significantly into what is very possibly an adjacent or oncoming lane of traffic, as shown in the following photos, which show separate IIHS-conducted crash tests of a Malibu into, respectively, a Stoughton, Wabash, and Great Dane trailer[52]

This deflection and rotation could also occur in side-impact crashes. The ACUP voted to recommend that NHTSA assess the risks associated with such deflection and make the results public, but the motion did not pass with a 2/3 vote – only 60% voted for it (9-6-0). [53] Of the six votes against this recommendation, 5 came from the Majority bloc referred to in section I of this Minority Report. The Minority Report supports this recommendation.

C. Until the additional research discussed in the previous sections is considered and evaluated, and the costs of requiring guards is determined, the Secretary and Congress should not act on the Majority Report recommendations.

Predisposed toward recommending that NHTSA require underride guards, and with a solid group of at least 7 or 8 votes in pocket, the majority bloc voted in favor of broad, sweeping requirements for underride guards. None of the motions on these topics, however, came close to being adopted by a true consensus of members, whether that amount is two-thirds or higher.

For example, the ACUP recommended on a 7-6-4 vote that NHTSA withdraw the ANPRM or reissue a revised ANPRM to reflect that the cost-benefit analysis artificially constrained lives and failed to account for cost savings (Motion B3). Seven votes in favor is not even a <u>majority</u> of those who voted, let alone two-thirds of those voting. That this does not represent the true views of the ACUP is dramatically demonstrated

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[52] Photos of the rotation were shown to the ACUP as part of Jeff Bennett's Technical Briefing at the February 8, 2024 Meeting, "*A History of Trailer Rear-Impact Guard RIG) from Utility's Perspective," slide 11.*

[53] Motion B12.

by the result of the immediately following motion (Motion B4), in which the ACUP defeated (7-7-3) Ms. Karth's motion that NHTSA underestimated the number of preventable side-underride deaths and erroneously concluded that costs outweigh benefits. The seven votes in favor of the defeated motion all came from the majority bloc discussed in section I of the Minority Report.

Similarly, ACUP recommended 8-6-0 that all trailers and single-unit trucks manufactured after 1998 be equipped with side guards that prevent passenger-compartment intrusion when struck by a midsize vehicle at any angle and any location at speeds up to 40 mph (Motion B10). It made the same recommendation for new semitrailers, passing the motion 11-6-0 (Motion B9). And it recommended that the guards referred to in Motions B9 and B10 prevent injuries to vulnerable road users – meaning pedestrians, bicyclists, and motorcyclists, passing the motion 9-8-0 (Motion B11). Again, these votes do not reflect a true consensus view of ACUP, even putting aside the fact, discussed earlier, that it has not been demonstrated that the technology to accomplish this exists.

These recommendations were virtually preordained once the ACUP members were selected. They do not advance the goals of doing the hard work to find common ground that accounts for different perspective and recognizes the need for scientific, evidence-based decisions. Conducting the research discussed previously in this Minority Report will provide this necessary evidence and lead to defensible policy, regardless of what that policy is.

Finally, costs must be considered. Determining the true costs of requiring underride guards was not part of ACUP's Charter. But determining costs is part of the cost-benefit analysis NHTSA must undertake in considering what recommendations to make concerning underride guards. We recommend performing the same thoughtful, evidence-based analysis in exploring the full costs of underride guards that we have recommended in evaluating the scope of the underride problem, and the ability to solve that problem with existing technology.

D. NHTSA should focus on adopting crash-avoidance requirements or distracted-driver mitigation measures that will help prevent the underride accident from occurring in the first place.

As part of his Technical Briefing at the November 13, 2023 ACUP meeting, Mr. Horvath started a discussion of the benefits of focusing on avoiding the underride crash entirely, rather than attempting to dissipate the significant energy involved in the crash or mitigate the fatalities and injuries resulting from the crash.[54] Similarly, Keith

[54] *See* "*Side Underride Guards – Initial Operational Concerns and Challenges*," Horvath Technical Briefing, included in Minority Report Appendix E.

Friedman of Friedman Research Corporation made a Technical Briefing to the ACUP at the April 24, 2023 meeting regarding front override crashes, noting the role that "Advanced Technology System Opportunities" such as collision detection, automated braking, and deployable systems can play in eliminating the harm from front override crashes.[55] This is an attractive alternative, since crashes that do not occur have zero fatalities and injuries.

Most underride accidents are not fault free. Most frequently, the driver of the vehicle underriding the trailer is not paying attention for one reason or another, attempts a last-minute maneuver losing control of the vehicle, or is inexperienced and does not react to changing circumstances in time to avoid impact with the side or rear of a trailer. For collisions that involve a vehicle driving into the rear of a trailer, or the sides of a trailer (vs. side swiping a trailer), the driver of the vehicle either failed or was unable to brake in time to avoid the impact (or to mitigate the speed at impact), or overestimated the ability to stop or misjudged the speed or distance involved as the situation evolved. There are many causes of this, including: poor judgment; distraction caused by phones, multimedia, eating, or drinking; fatigue; drug or alcohol impairment; visibility; excessive speed; and inexperience.

Technology available today can largely avoid impacts caused by these factors. These technologies include adaptive cruise control, advanced driver assistance systems and other crash-avoidance technology. Although it will take time before these technologies are present in the vast majority of vehicles and tractor trailers, NHTSA can take steps to encourage or require auto and truck manufacturers to include this equipment as standard.

Recognizing this, the ACUP voted – this time by a clear consensus – to recommend that NHTSA pursue various options designed to avoid the collision entirely. These include motions focusing on collision mitigation or avoidance by both the passenger vehicle and the tractor/truck, specifically

- Motion B20: "*NHTSA should investigate the potential for collision mitigation technologies for light and heavy-duty vehicles to prevent or reduce the risk associated with side-underride crashes.*" Approved 15-0-0.

- Motion A17: "*The ACUP should include in its Report to Congress a recommendation that NHTSA conduct a study to research how the survivability rate of rear-underride crashes will change with increased passenger vehicle adoption of Automatic Emergency Braking at currently tested speeds (35 mph) as well as highway speeds (up to 65 mph).*" Approved 15-0-0.

[55] *See* "*Front Underride*, "Friedman Technical Briefing, including as Appendix C.h. to Biennial Report.

- Motion A16: "*The ACUP should include in its Report to Congress a recommendation that NHTSA must expeditiously complete Heavy Vehicle Automatic Emergency Brake Rulemaking for all classes of CMVs (RIN 2127-AM36).*" Approved 15-0-0.

The ACUP also focused on technologies that would make it more likely that a driver notice a trailer and take steps herself to avoid the collision, both those involving new technologies and those involving existing visibility measures, specifically

- Motion A20: "*The ACUP should include in its Report to Congress a recommendation that DOT should continue research into Enhanced Rear Signaling Systems that could help better prevent rear-underride crashes.*" Approved 16-0-0.

- Motion A22: "*The ACUP should include in its Report to Congress a recommendation that DOT conduct research into efficacious methods of reducing Distracted Driving such as flashing lamps.*" Approved 16-0-0.

- Motion A21: "*The ACUP should recommend that DOT research the efficacy of high visibility ID lamps that illuminate the rear of a CMV to assist with potential Clearance Lamp rulemaking for all CMVs.*" Approved 14-1-0.

- Motion A18: "*The ACUP should include in its Report to Congress a recommendation that FMCSA should issue stronger conspicuity requirements, at minimum, a requirement to maintain and replace conspicuity tape every 5 years.*" Approved 11-4-1.

- Motion A19: "*The ACUP should include in its Report to Congress a recommendation that NHTSA should additionally require Single-Unit Trucks to adhere to conspicuity requirements.*" Approved 15-0-1.

The Minority Report agrees with these recommendations and believes devoting resources to these approaches are likely to have significant effects on underride fatalities and injuries and, because they involve avoiding crashes in all types of accidents, are likely to have a far greater return on investment than focusing on underride guards.[56]

Minority Report authored by Jeff Bennett and Doug Smith,

with input from other ACUP members

[56] In performing its ultimate cost-benefit analysis, the Minority Report also recommends that NHTSA consider explicitly the reduction in underride collisions that will occur as these collision-avoidance technologies became more widespread.

Appendix A
to Minority Report

LIST OF ACUP MOTIONS
FOR WHICH THE BLOC VOTE COMPOSED ALL OR NEARLY ALL THE VOTES NECESSARY TO DECIDE THE MOTION

Motions Where Bloc Vote Made Significant Difference			
Motion # (as listed in Appendix)	**Motion # (as listed in Minority Appendix H)**	**Vote**	**Subject**
XXV	B2	7-6-4 (7 bloc votes in favor - Adler abstained)	NHTSA should withdraw its previously submitted ANPRM or reissue a revised ANPRM and cost-benefit analysis that acknowledges and accommodates critiques made by commenters that the cost-benefit approach taken artificially constrained the number of lives saved and also failed to account for cost-savings (such as fuel efficiency gains provided by side-underride guards).
XXVII	B3	9-2-6 (7 bloc votes in favor – Brumbelow abstains)	ACUP affirms that NHTSA, per the Modernizing Regulatory Review Executive Memo and corresponding guidance, must fully account for regulatory benefits that are difficult or impossible to quantify when conducting rulemaking analysis.
XXVIII	B4	7-7-3 (defeated) (7 bloc votes against – Adler abstains)	Based on the rigorous analysis of the IIHS' Public Comment, the ACUP finds that NHTSA underestimated the number of preventable side-underride deaths. NHTSA erroneously concluded that costs outweigh benefits, when the opposite is true. NHTSA should withdraw the 2023 side-impact guard ANPRM.
XXXIV	B10	8-6-3 (Bloc voted 6-1-1 – Mules voted no; Kiefer abstained because he sells guards that could be retrofitted on trailers)	To require semitrailers, and single-unit trucks manufactured after 1998 that have crash incompatible open space(s) along the side(s) to be equipped with side guards capable of preventing injurious passenger-compartment intrusion (PCI) when struck by a midsize vehicle at any angle, at any location, and at any closing speed up to and including 40 mph.
XXXV	B11	9-8-0 (Bloc voted 7-1-0 – Mules voted no)	To require the side guards referenced in motions [above] above to also prevent a vulnerable road user (VRU) from passing underneath the guarded vehicle in an interaction with the side of the vehicle.

Motions Where Bloc Vote Made Significant Difference			
Motion # (as listed in Appendix)	**Motion # (as listed in Minority Appendix H)**	**Vote**	**Subject**
XXXVIII	B16	8-9-0 (defeated) (Bloc voted 0-8-0 to defeat the motion)	For purposes of providing 'written consensus advice' to the Secretary of Transportation on underride protection to reduce underride crashes and fatalities relating to underride crashes, 'consensus' on any piece of advice will mean the agreement of two-thirds of the then-serving ACUP members, and any piece of advice that does not have the agreement of two-thirds of the then-serving ACUP members will not be represented to be the consensus advice of the ACUP.
XL	B21	9-6-0 (Bloc voted 1-6-0 against this motion; Mules voted yes; Mathis was not present)	NHTSA should assess risks associated with deflection into adjacent lanes associated with partial offset rear crashes as well as side-underride crashes. Final results should be made public.

Appendix B
to Minority Report

LIST OF ACUP MOTIONS FOR WHICH THERE WAS A CONSENSUS

Motions Agreed to by Consensus of ACUP members			
Motion # (as listed in Appendix)	**Motion # (as listed in Minority Appendix H)**	**Vote**	**Subject**
II	A3	13-4-0	The committee recommends that NHTSA conduct comprehensive research on U.S. underride crash characteristics, including the frequency of 30 percent overlap crashes. As much as possible, photos should be used. This research should be in addition to the agency's congressionally directed research into the feasibility of developing guards to protect in certain crash scenarios.
IV	A5	13-4-1	Request a deadline extension for the committee.
VI	A7	13-0-3	Include in the report to the Secretary and Congress the following recommendation, that pursuant to the IIJA, within five years of implementing (V), the Secretary shall review and update FMVSS 223/224 standards in response to advancements in technology.
VIII	A10	12-3-1	The ACUP should request from NHTSA/DOT all scoping documents, directions, discussions, test results, data, memoranda, reports, and/or notes generated before, during, and following quasi-static testing of trailer rear-underride guards conducted by Karco or other contractors (i.e., Elemance) on behalf of NHTSA/DOT between 2016 and 2024. (Combined 8 & 9).
XIV	A16	15-0-0	The ACUP should include in its Report to Congress a recommendation that NHTSA must expeditiously complete Heavy Vehicle Automatic Emergency Brake Rulemaking for all classes of CMVs (RIN 2127-AM36).

Motions Agreed to by Consensus of ACUP members			
Motion # (as listed in Appendix)	**Motion # (as listed in Minority Appendix H)**	**Vote**	**Subject**
XV	A17	15-0-0	The ACUP should include in its Report to Congress a recommendation that NHTSA conduct a study to research how the survivability rate of rear-underride crashes will change with increased passenger vehicle adoption of Automatic Emergency Braking at currently tested speeds (35 mph) as well as highway speeds (up to 65 mph).
XVI	A18	11-4-1	The ACUP should include in its Report to Congress a recommendation that FMCSA should issue stronger conspicuity requirements, at minimum, a requirement to maintain and replace conspicuity tape every 5 years.
XVII	A19	15-0-1	The ACUP should include in its Report to Congress a recommendation that NHTSA should additionally require Single-Unit Trucks to adhere to conspicuity requirements.
XVIII	A20	16-0-0	The ACUP should include in its Report to Congress a recommendation that DOT should continue research into Enhanced Rear Signaling Systems that could help better prevent rear underride crashes.
XIX	A21	14-1-1	The ACUP should recommend that DOT research the efficacy of high visibility ID lamps that illuminate the rear of a CMV to assist with potential Clearance Lamp rulemaking for all CMVs.
XX	A22	16-0-0	The ACUP should include in its Report to Congress a recommendation that DOT conduct research into efficacious methods of reducing Distracted Driving such as flashing lamps.

Motions Agreed to by Consensus of ACUP members			
Motion # (as listed in Appendix)	**Motion # (as listed in Minority Appendix H)**	**Vote**	**Subject**
XXI	A23	14-1-0	The ACUP should include in its Report to Congress a recommendation that FMCSA work with State law enforcement and other stakeholders to emphasize education and the need to issue RIG violation citations and encourage maximum fines for violations affecting safety.
XXIV	A27	15-0-0	Motion for minority report to accompany majority report.
XXIX	B5	11-1-5	NHTSA should complete a new side-impact guard cost-benefit analysis and rulemaking that counts previously omitted underride victim categories, including pedestrians, bicyclists, and motorcyclists.
XXX	B6	11-1-5	NHTSA should issue an Advanced Notice of Proposed Rulemaking on Front Impact Guards.
XXXVII	B13	16-1-0	The Department should conduct a study of conspicuity tape in service. This study focuses on actual rates of compliance with the regulated minimum reflectivity requirements, the ability of enforcement personnel to accurately and adequately enforce these requirements, and make recommendations on how to reduce the most common forms of non-compliance found.
XLIII	B18	15-0-0	NHTSA should work with the Federal Railroad Administration (FRA) to conduct research to examine potential impacts the installation of side-underride guards would have during highway-rail grade crossings.
XXXIX	B19	14-0-0	To further GAO recommendation # 1 regarding improvements to Model Minimum Uniform Crash Criteria, NHTSA should take additional steps to include both vehicle-related side-underride crashes, and Vulnerable Road Users (VRU) side underride crashes in reporting of injuries and fatalities related to side-underride guard crashes.

Motions Agreed to by Consensus of ACUP members			
Motion # (as listed in Appendix)	**Motion # (as listed in Minority Appendix H)**	**Vote**	**Subject**
XLII	B26	13-1-1	The ACUP shall recommend in its report that NHTSA request that the Department of Transportation's Volpe Center evaluate the effectiveness of a side-underride guard to determine if their effectiveness is similar or greater than Lateral Protective Devices in mitigating the severity of pedestrian, cyclist, and motorcyclist fatalities.
XLIV	B27	13-0-2	The ACUP shall recommend in its report that NHTSA create a field in the Fatality Analysis Reporting System to determine if an underride crash occurred involving a large truck and a pedestrian/cyclist.
L	B29	15-0-0	The ACUP report shall reflect whether each committee member concurs or does not concur with the report by allowing each member to make a statement of concurrence or non-concurrence with the report. The ACUP report include such documentation in an Appendix.

Appendix C
to Minority Report

LIST OF ACUP MOTIONS
FOR WHICH THERE WAS
NOT A CONSENSUS

Motions Not Agreed to by Consensus of ACUP members			
Motion #(as listed in Appendix)	**Motion # (as listed in Minority Appendix H)**	**Vote**	**Subject**
V	A6	10-1-6	Include in the report to the Secretary and Congress the following recommendation that the 2022 RIG Rule should be amended to require that all new trailers meet the ToughGuard test protocol or equivalent.
IX	A11	10-6-0	NHTSA/DOT should produce all documents related to rear-guard standards including test data, contracts, studies, scoping documents, analyses, reports, memoranda, and/or other communications or references related to trailer and/or straight truck rear-guard strength, design, quasi-static or dynamic testing, and/or test protocols between 1970 and 1998.
X	A12	8-1-6	The ACUP should include in its congressional report a recommendation that all trailers manufactured between 1998 to the current time that do not have ToughGuard-awarded rear-impact guards should be retrofitted with crash proven reinforcement device(s). These reinforcement devices, at minimum, should be tested and proven to mitigate PCI and create crash compatibility consistent with a ToughGuard-awarded rear-impact guard when attached to a minimally compliant FMVSS 223 rear-impact guard.
XI	A13	9-2-4	The ACUP should recommend in its report to congress that Congress regulate single-unit trucks (SUTs) with the same rear-impact guard standards that currently only apply to semitrailers.
XIII	A15	9-5-1	The ACUP should include in its Report to Congress a recommendation NHTSA expeditiously conduct rear-impact guard testing at "highway speeds" (up to 65 mph) as IIJA already directed NHTSA to do (Sec 23011 (b)(2)(A,B)) and publish the results within 2 years.
XXIII	A25	7-4-4	The ACUP should include in its Report to Congress a fact-based history of underride crashes.
XXV	B2	7-6-4	NHTSA should withdraw its previously submitted ANPRM or reissue a revised ANPRM and cost-benefit analysis that acknowledges and accommodates critiques made by commenters that the cost-benefit approach taken artificially constrained the number of lives saved and also failed to account for cost-savings (such as fuel efficiency gains provided by side-underride guards).
XXVII	B3	9-2-6	ACUP affirms that NHTSA, per the Modernizing Regulatory Review Executive Memo and corresponding guidance, must fully account for regulatory benefits that are difficult or impossible to quantify when conducting rulemaking analysis.

Motions Not Agreed to by Consensus of ACUP members			
Motion #(as listed in Appendix)	**Motion # (as listed in Minority Appendix H)**	**Vote**	**Subject**
XXVIII	B4	7-7-3 Motion failed	Based on the rigorous analysis of the IIHS' Public Comment, the ACUP finds that NHTSA underestimated the number of preventable side-underride deaths. NHTSA erroneously concluded that costs outweigh benefits, when the opposite is true. NHTSA should withdraw the 2023 side-impact guard ANPRM.
XXXI	B8	1-12-4	The Secretary should recommend, and the President should establish, a Presidential Advisory Committee on Integrity of Underride Research. It should be composed of a diverse group of stakeholders, including: (i) Truck and trailer manufacturers. (ii) Motor carriers, including independent owner operators. (iii) Law enforcement. (iv) Motor vehicle engineers. (v) Motor vehicle crash investigators. (vi) Truck safety organizations. (vii) The insurance industry. (viii) Emergency medical service providers. (ix) Families of passenger vehicle underride crash victims. (x) Families of Vulnerable Road User underride crash victims. (xi) Labor organizations. The ACUP should review all underride-related research, conducted by or contracted with the Department of Transportation, including the Statement of Work and the draft report prior to publication.
XXXIII	B9	11-6-0	To require all new semitrailers, and single-unit trucks that have crash incompatible open space(s) along the side(s) to be equipped with side guards capable of preventing injurious passenger-compartment intrusion (PCI) when struck by a midsize vehicle at any angle, at any location, and at any closing speed up to and including 40 mph.

Motions Not Agreed to by Consensus of ACUP members			
Motion #(as listed in Appendix)	**Motion # (as listed in Minority Appendix H)**	**Vote**	**Subject**
XXXIV	B10	8-6-3	To require semitrailers, and single-unit trucks manufactured after 1998 that have crash incompatible open space(s) along the side(s) to be equipped with side guards capable of preventing injurious passenger-compartment intrusion (PCI) when struck by a midsize vehicle at any angle, at any location, and at any closing speed up to and including 40 mph.
XXXV	B11	9-8-0	To require the side guards referenced above also prevent a vulnerable road user (VRU) from passing underneath the guarded vehicle in an interaction with the side of the vehicle.
XXXVIII	B16	8-9-0 Motion failed	For purposes of providing 'written consensus advice' to the Secretary of Transportation on underride protection to reduce underride crashes and fatalities relating to underride crashes, 'consensus' on any piece of advice will mean the agreement of two-thirds of the then-serving ACUP members, and any piece of advice that does not have the agreement of two-thirds of the then-serving ACUP members will not be represented to be the consensus advice of the ACUP.
XL	B21	9-6-0	NHTSA should assess risks associated with deflection into adjacent lanes associated with partial offset rear crashes as well as side-underride crashes. Final results should be made public.
XLI	B25	7-6-2	The ACUP shall recommend in its report that DOT explore the need for Federal weight limit weight-based exemption for side-underride guards.

Appendix D
to Minority Report

"A History of NHTSA's Position Concerning Side-Underride Guards on Semitrailers and One Trailer OEM's Response"

TECHNICAL BRIEFING BY JEFF BENNETT

A History of NHTSA's Position Concerning side-underride Guards on Semi Trailers And One Trailer OEM's Response

1) **DEPARTMENT OF TRANSPORTATION Federal Highway Administration I 49 CFR Part 371 1 [Docket No. 1—11; Notice 2]**

MOTOR VEHICLE SAFETY STANDARDS

Rear Underride Protection; Trailers and Trucks With Gross Vehicle Weight Rating Over 10,000 Pounds

1969 NHTSA STATED

"It is anticipated that the proposed Standard will be amended, after technical studies have been completed, to extend the requirement for underride protection to the sides of large vehicles."

F.R. Doc. 70-10663; Filed, Aug. 13, 1970;

2) National Highway Safety Bureau

[49 CFR Part 571]

[Docket No. 1-11; Notice 5]

REAR UNDERRIDE PROTECTION; TRUCKS AND TRAILERS

Notice of Proposed Rule Making

"Further consideration will be given, after issuance of the standard and completion of technical studies, to the inclusion of energy management of underride protection to the sides of large vehicles."

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

Denial of Petition for Rulemaking

This notice denies a petition submitted by Mr. William H. Page, Jr. requesting rulemaking to require side underride protection devices on large trailers. Mr. Page indicated that the problems of smaller vehicles underriding the sides of trailers are now significant and will increase as the size of passenger cars decreases.

The National Highway Traffic Safety Administration (NHTSA) has reviewed Mr. Page's request. Currently, the NHTSA is pursuing rulemaking in the area of truck rear underride devices. In the course of that rulemaking, the agency will collect information relating to the problem of side underride. Until the agency has gathered this material on side underride, it does not consider it appropriate to invest more of its limited agency resources in this area.

The agency will continue to gather information on side underride during the rear underride rulemaking. If the evidence gathered by the agency indicates that side underride rulemaking could contribute significantly to safety, the agency will commence rulemaking.

The agency will continue to gather information on side underride during the rear underride rulemaking. If the evidence gathered by the agency indicates that side underride rulemaking could contribute significantly to safety, the agency will commence rulemaking.

U.S. Department of Transportation
National Highway Traffic Safety Administration

01-11-N09-002

1-11-N09

Memorandum

SUBJECT: Docket Submission: Docket No. 1-11; Notice 09

DATE: DEC 30 1991

FROM: Donald C. Bischoff
Associate Administrator for Plans and Policy

REPLY TO ATTN OF:

TO: DOCKET

FILE

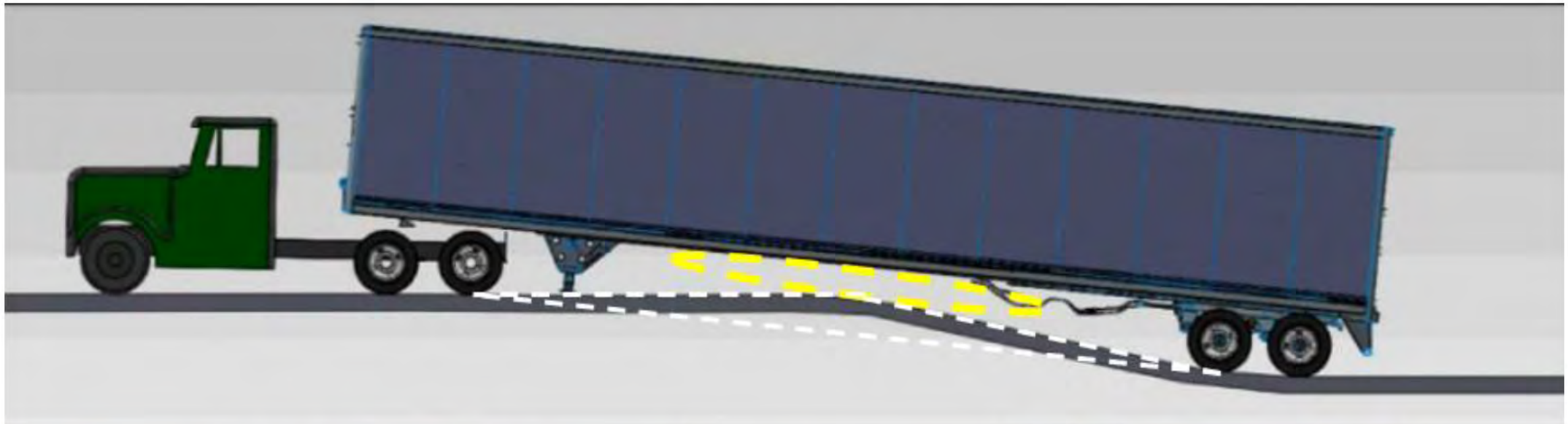
102 pgs

THRU: Paul Jackson Rice
Chief Counsel

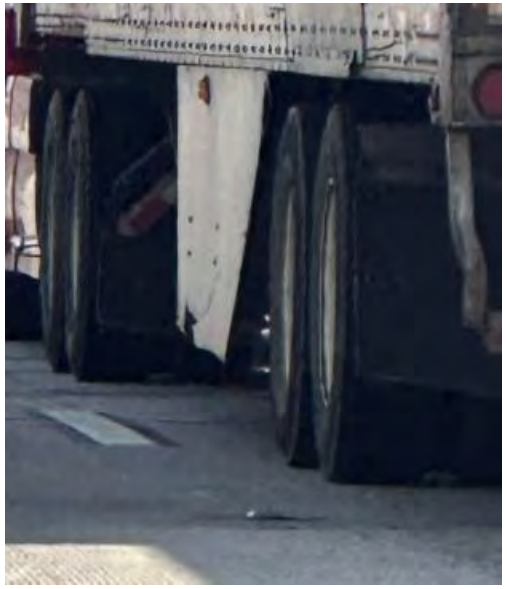
problem is worse than the single unit trucks by a factor of 5. Combination truck side underride countermeasures have been determined not to be cost-effective.


The SIG adds 962 lbs. to a trailer with Utility side skirts.
There are $1 SIG leases available to qualified customers.

All Vehicles Require Sufficient Center Ground Clearance



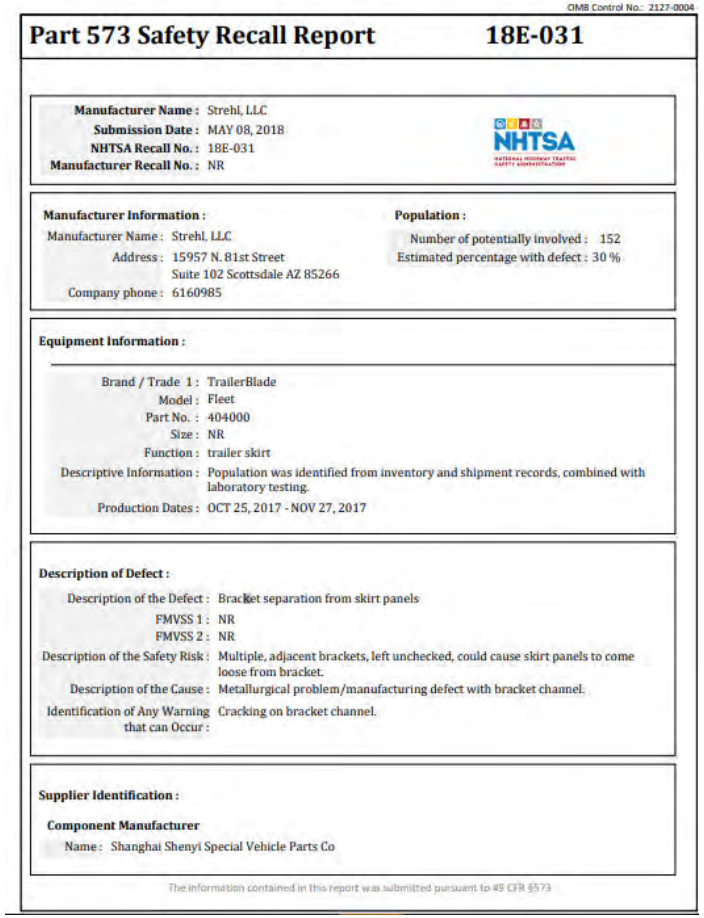
Earlier Aerodynamic Trailer Side Skirt Designs Were Too Rigid To Avoid Ground Damage



May 11, 2018 NHTSA CAMPAIGN NUMBER: 18E031000

Trailer Skirt Panel May Separate from Trailer

If multiple brackets separate, the trailer skirt could detach from the trailer, increasing the risk of a crash.



OMB Control No.: 2127-0004

Part 573 Safety Recall Report **18E-031**

Manufacturer Name : Strehl, LLC
Submission Date : MAY 08, 2018
NHTSA Recall No. : 18E-031
Manufacturer Recall No. : NR

Manufacturer Information :
Manufacturer Name : Strehl, LLC
Address : 15957 N. 81st Street
Suite 102 Scottsdale AZ 85266
Company phone : 6160985

Population :
Number of potentially involved : 152
Estimated percentage with defect : 30 %

Equipment Information :

Brand / Trade 1 : TrailerBlade
Model : Fleet
Part No. : 404000
Size : NR
Function : trailer skirt
Descriptive Information : Population was identified from inventory and shipment records, combined with laboratory testing.
Production Dates : OCT 25, 2017 - NOV 27, 2017

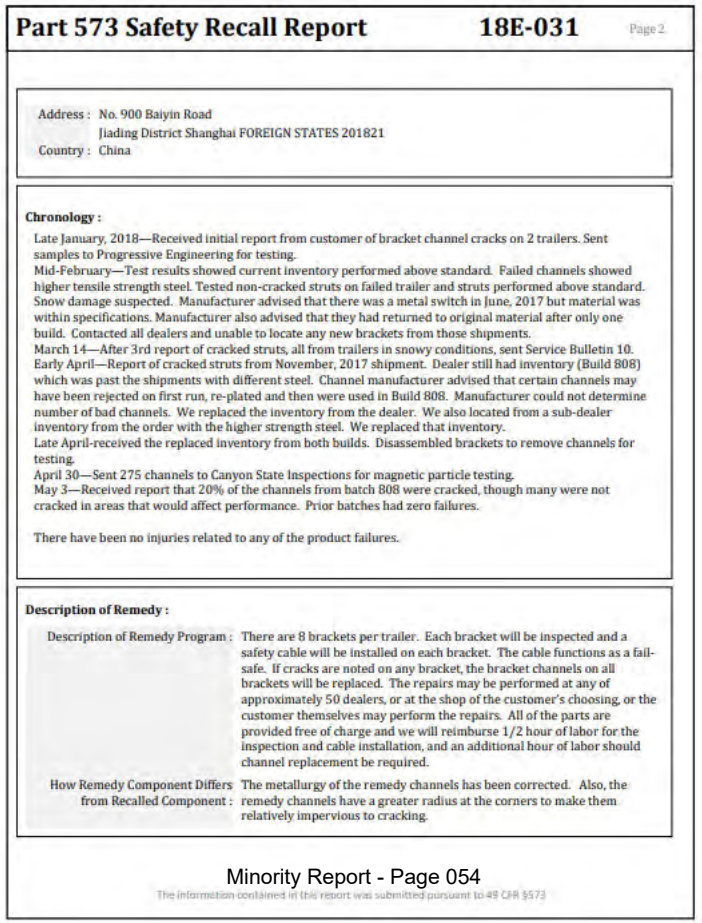
Description of Defect :

Description of the Defect : Bracket separation from skirt panels
FMVSS 1 : NR
FMVSS 2 : NR
Description of the Safety Risk : Multiple, adjacent brackets, left unchecked, could cause skirt panels to come loose from bracket.
Description of the Cause : Metallurgical problem/manufacturing defect with bracket channel.
Identification of Any Warning that can Occur : Cracking on bracket channel.

Supplier Identification :

Component Manufacturer
Name : Shanghai Shenyi Special Vehicle Parts Co

The information contained in this report was submitted pursuant to 49 CFR §573



Part 573 Safety Recall Report **18E-031** Page 2

Address : No. 900 Baiyin Road
Jiading District Shanghai FOREIGN STATES 201821
Country : China

Chronology :

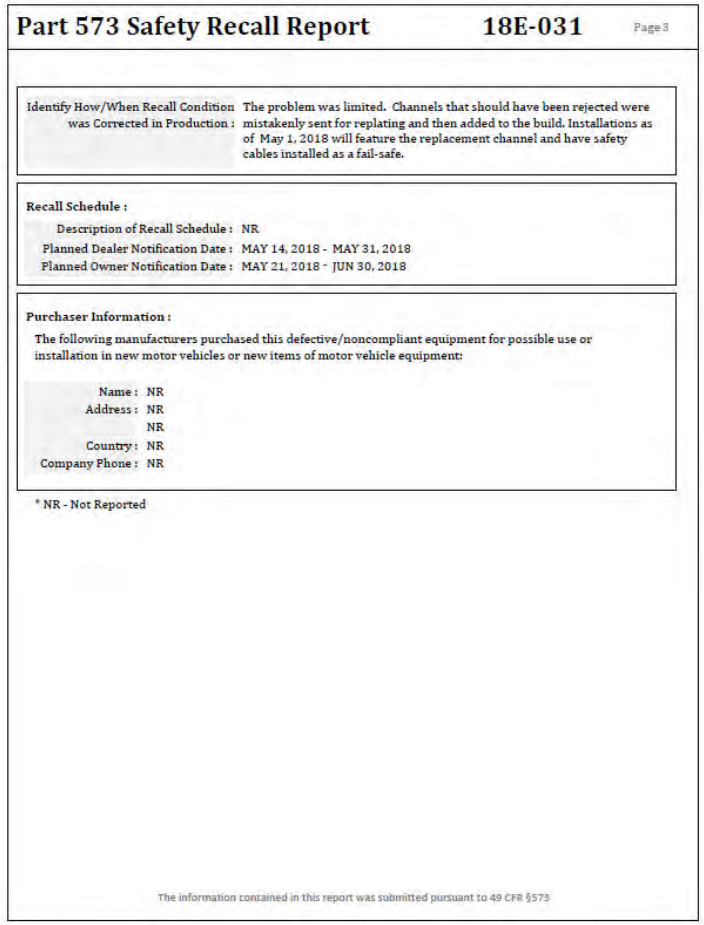
Late January, 2018—Received initial report from customer of bracket channel cracks on 2 trailers. Sent samples to Progressive Engineering for testing.
Mid-February—Test results showed current inventory performed above standard. Failed channels showed higher tensile strength steel. Tested non-cracked struts on failed trailer and struts performed above standard. Snow damage suspected. Manufacturer advised that there was a metal switch in June, 2017 but material was within specifications. Manufacturer also advised that they had returned to original material after only one build. Contacted all dealers and unable to locate any new brackets from those shipments.
March 14—After 3rd report of cracked struts, all from trailers in snowy conditions, sent Service Bulletin 10.
Early April—Report of cracked struts from November, 2017 shipment. Dealer still had inventory (Build 808) which was past the shipments with different steel. Channel manufacturer advised that certain channels may have been rejected on first run, re-plated and then were used in Build 808. Manufacturer could not determine number of bad channels. We replaced the inventory from the dealer. We also located from a sub-dealer inventory from the order with the higher strength steel. We replaced that inventory.
Late April-received the replaced inventory from both builds. Disassembled brackets to remove channels for testing.
April 30—Sent 275 channels to Canyon State Inspections for magnetic particle testing.
May 3—Received report that 20% of the channels from batch 808 were cracked, though many were not cracked in areas that would affect performance. Prior batches had zero failures.

There have been no injuries related to any of the product failures.

Description of Remedy :

Description of Remedy Program : There are 8 brackets per trailer. Each bracket will be inspected and a safety cable will be installed on each bracket. The cable functions as a fail-safe. If cracks are noted on any bracket, the bracket channels on all brackets will be replaced. The repairs may be performed at any of approximately 50 dealers, or at the shop of the customer's choosing, or the customer themselves may perform the repairs. All of the parts are provided free of charge and we will reimburse 1/2 hour of labor for the inspection and cable installation, and an additional hour of labor should channel replacement be required.
How Remedy Component Differs from Recalled Component : The metallurgy of the remedy channels has been corrected. Also, the remedy channels have a greater radius at the corners to make them relatively impervious to cracking.

The information contained in this report was submitted pursuant to 49 CFR §573



Part 573 Safety Recall Report **18E-031** Page 3

Identify How/When Recall Condition was Corrected in Production : The problem was limited. Channels that should have been rejected were mistakenly sent for replating and then added to the build. Installations as of May 1, 2018 will feature the replacement channel and have safety cables installed as a fail-safe.

Recall Schedule :

Description of Recall Schedule : NR
Planned Dealer Notification Date : MAY 14, 2018 - MAY 31, 2018
Planned Owner Notification Date : MAY 21, 2018 - JUN 30, 2018

Purchaser Information :

The following manufacturers purchased this defective/noncompliant equipment for possible use or installation in new motor vehicles or new items of motor vehicle equipment:

Name : NR
Address : NR
NR
Country : NR
Company Phone : NR

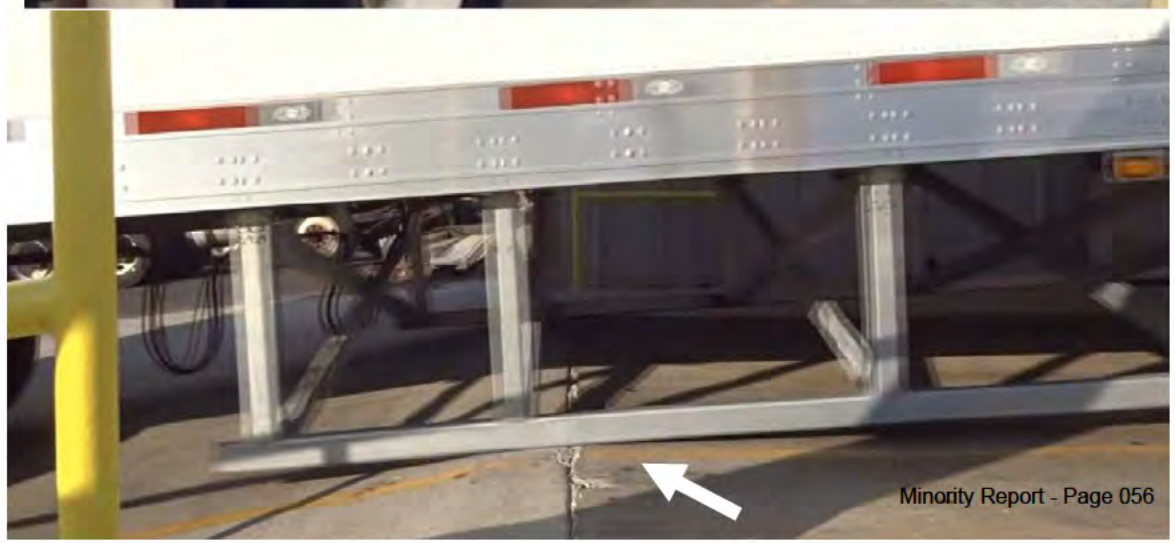
* NR - Not Reported

The information contained in this report was submitted pursuant to 49 CFR §573

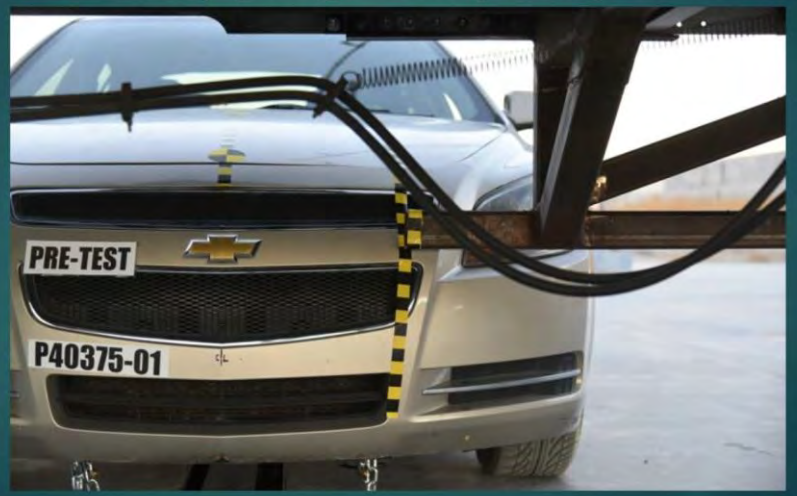
UTILITY TESTING OF STREHL / TRAILERBLADE SIDE SKIRT

– STANDARD CHANGE OF GRADE TEST –

Angelwing Rigid Side Impact Guard Reduces Trailer Ground Clearance Resulting In High Centering Damage To Itself And The Trailer's Structural Integrity



Repeat Test
SIG overlapping 30% (max) of Malibu



MISSION

To save lives, prevent injuries, and reduce the costs of traffic crashes – among drivers, passengers, pedestrians, and bicyclists

Appendix E
to Minority Report

"Side-Underride Guards – Initial Operational Concerns and Challenges,"

TECHNICAL BRIEFING BY DAN HORVATH

Side Underride Guards

Initial Operational Concerns and Challenges

American Trucking Associations

Known Operational Concerns…

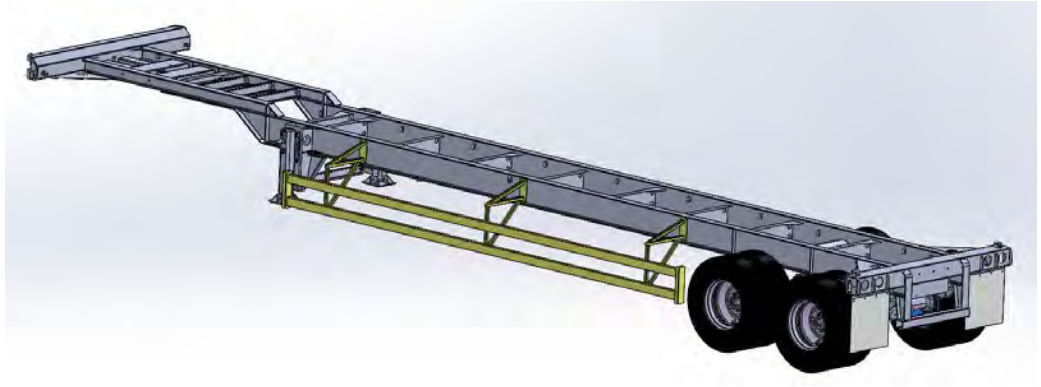
- Compatibility with various trailer configurations
  - Tank Trailers
  - Intermodal
  - Agricultural Use
    - Belt trailer
    - Grain Hopper
- Highway-rail grade crossings
  - High-centering events
  - Ongoing work with Federal Railroad Administration
- Second story and below ground loading docks
  - Increase in high-centering events


1203


1500
1200

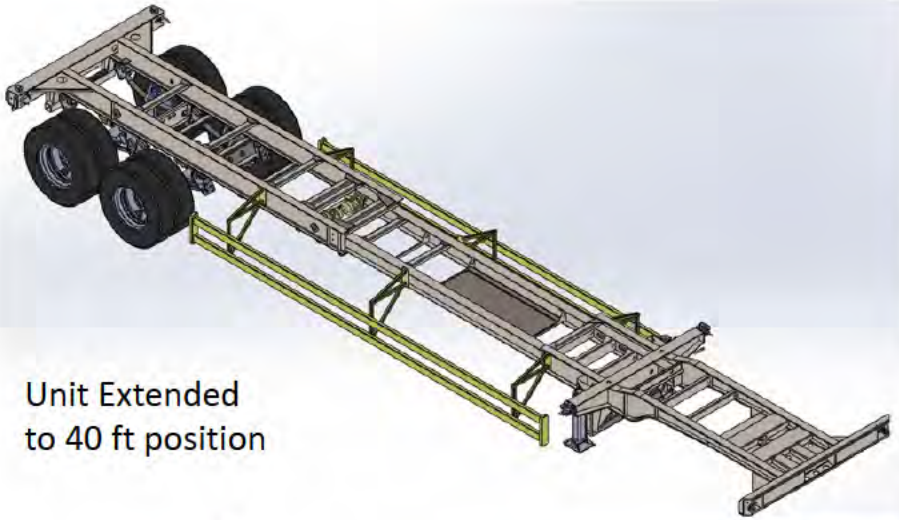
Trailer Compatibility

- Intermodal Chassis have unique designs. While adding a side guard to a standard non extendable chassis may be a relatively simple solution, there are weight and cost impacts.
- Additionally, industry demands that the chassis be stackable for storage when not in use. Side guards would prohibit this practice or could lead to damaged side guards.

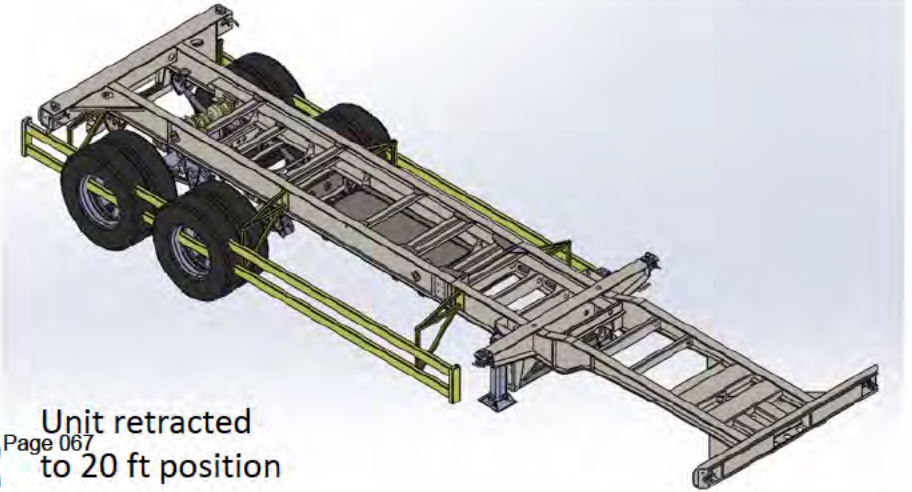


Trailer Compatibility

- Sliding and or Extendable chassis pose a difficult challenge to apply appropriate side impact guards to prevent intrusion. These type of chassis are now the most useful type and becoming the most desired.



Unit Extended
to 40 ft position



Unit retracted
to 20 ft position

Rail Grade Crossings

- Average of 300 crashes per year involving train and truck-tractor
- Installation of side-guards will lead to more.
- In 2014 FRA estimated 130,000 public and 80,000 private rail crossings in U.S.
  - Route planning to avoid these crossings can be problematic.
- Federal Railroad Administration in the process of addressing highway-grade crossing events.

Loading Docks

- Second story or below ground (depressed) loading docks common in retail or grocery

- ATA members report these are not compatible with aerodynamic skirts. Skirts drag on slope

Challenges not yet addressed

- Trailer Resiliency Over Time
- Maintenance
- Routing to accommodate side guards

Ways to address side underride crashes

- Using side underride guards to ***mitigate*** a crash at highway speeds ***after*** *impact* focuses only on mitigation and not prevention and is a difficult engineering challenge.
  - What occurs *after* impact with the side guard ?
  - The crash sequence does not conclude at the impact with the side guard.
- Opportunities to address side underride crashes ***before*** impact:
  - Prevention (Forward-collision alerts, distraction/drowsiness detection)
  - Vehicle to Vehicle/Infrastructure capabilities
  - Mitigation via braking (AEB)
  - Mitigation versus speed enforcement/aggressive driving
  - Defensive Driver training

Appendix F
to Minority Report

"Problems of Side-Underride Guards To Be Overcome"

TECHNICAL BRIEFING BY DOUG SMITH


NOW LEASING
320-4400


VN.20.572.z
VIZ PEOP


SCHWARZMULLER


LTL
855-WANSHIP
WANSHIP.COM
wanship


LOW
GROUND
CLEARANCE


AF190


RAM


DOT

End Slideshow

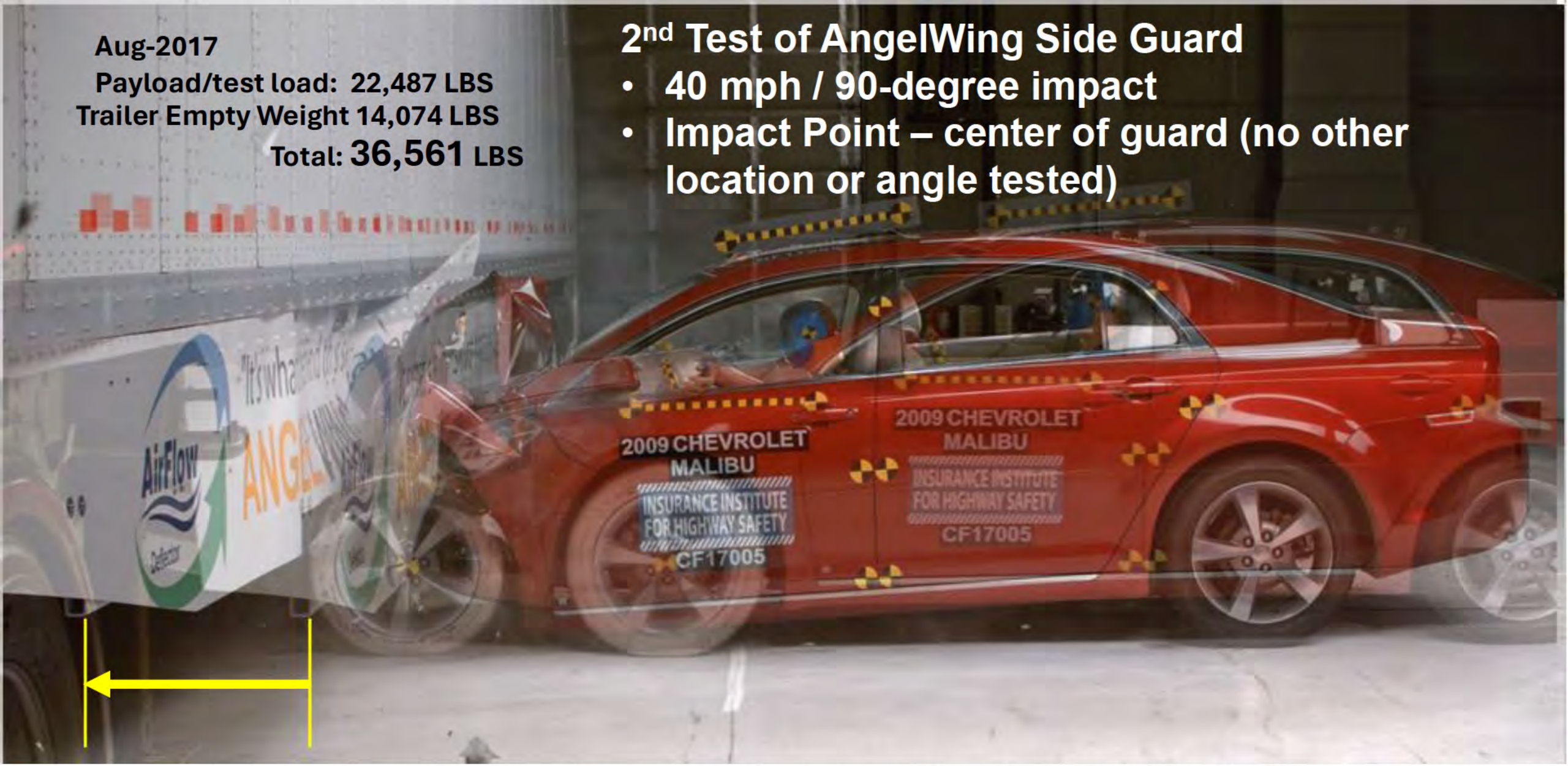
Appendix G
to Minority Report

"Crash Test Evidence of Commercially Available Side-Underride Guards"

TECHNICAL BRIEFING BY JEFF BENNETT

Crash Test Evidence of Commercially Available Trailer Side Underride Guards

March 2017 IIHS Crash Test of AngelWing Side Underride Guard
35 MPH - 90 Degrees - Centered On Guard



Excessive slide (approximately 24”) from impact of trailer (poor test boundary condition – lightly loaded trailer, smooth floor).

Safety Deficiencies in the AngelWing not noted in the IIHS Test Reports:

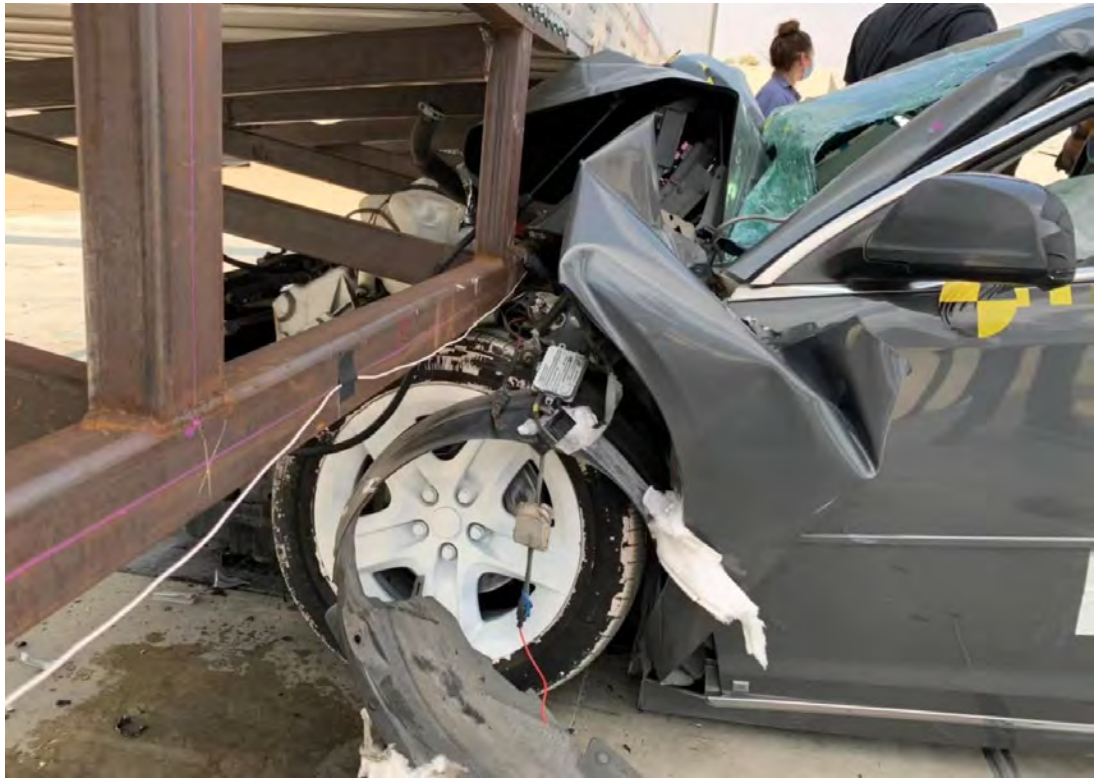
The rigid bracing behind aerodynamic trailer side skirts have instituted DOT safety recalls of specific side-skirt designs.

The AngelWing Design violates current DOT Safety Regulations regarding air brake lines.

The AngelWing design reduces trailer vehicle breakover angle to well below 10 degrees, which Utility testing shows damages the trailer and the guard.

Utility Side Impact Guard (SIG) Crash Test
– 35 mph / 90-degree impact / center of guard –

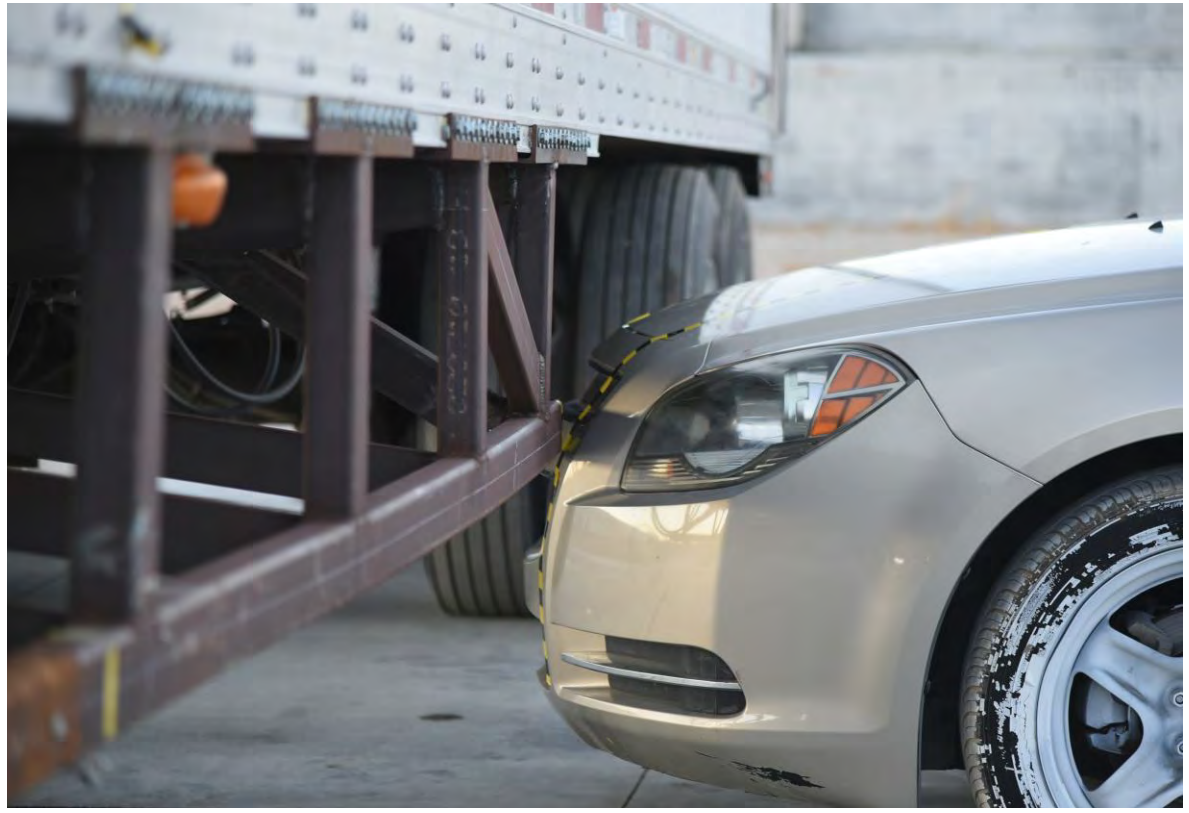
2011 Chevrolet Malibu




Utility Base Refrigerated Trailer

40,000 Pound Payload in Trailer (vs 22,487 at IIHS)
(Utility *trailer moved approx. 3" at impact*.)

Utility SIG Crash Test Rear - 30% Overlap / 35 mph / 90-degree Impact



Rear end of guard overlaps 30% of car width.

Utility Base Reefer Van (Trailer axles at wheels-back location)

2011 Chevrolet Malibu

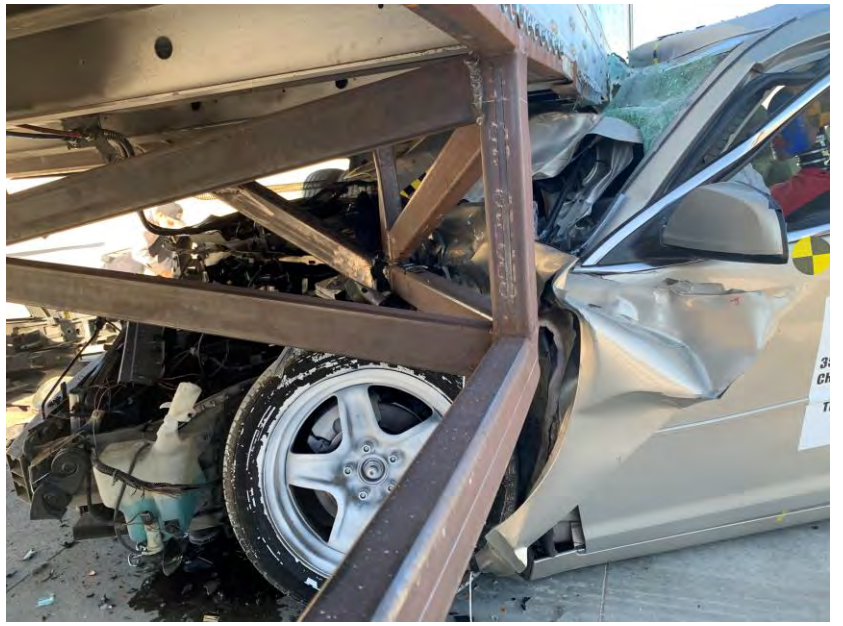
40,000 Pound Payload in Trailer (vs 22,487 at IIHS) (*Trailer moved approx. 3" at impact.*)


P40375-01
1


P40375-01
2


P40375-01
P40375-01
3


P40375-01
P40375-01
4



UTM Side Impact Guard was not effective when impacted at one end.

This is the only test we know of conducted at 30% (car to guard) overlap.

Collision and Crime Forensic Solutions & Stop Underrides crash test – April 2023.
Ford Fiesta / 45 mph / 45 degree impact angle / center of AngelWing

Ford Fiesta initially impacts the center of the AngelWing at 45 mph / 45 degrees.

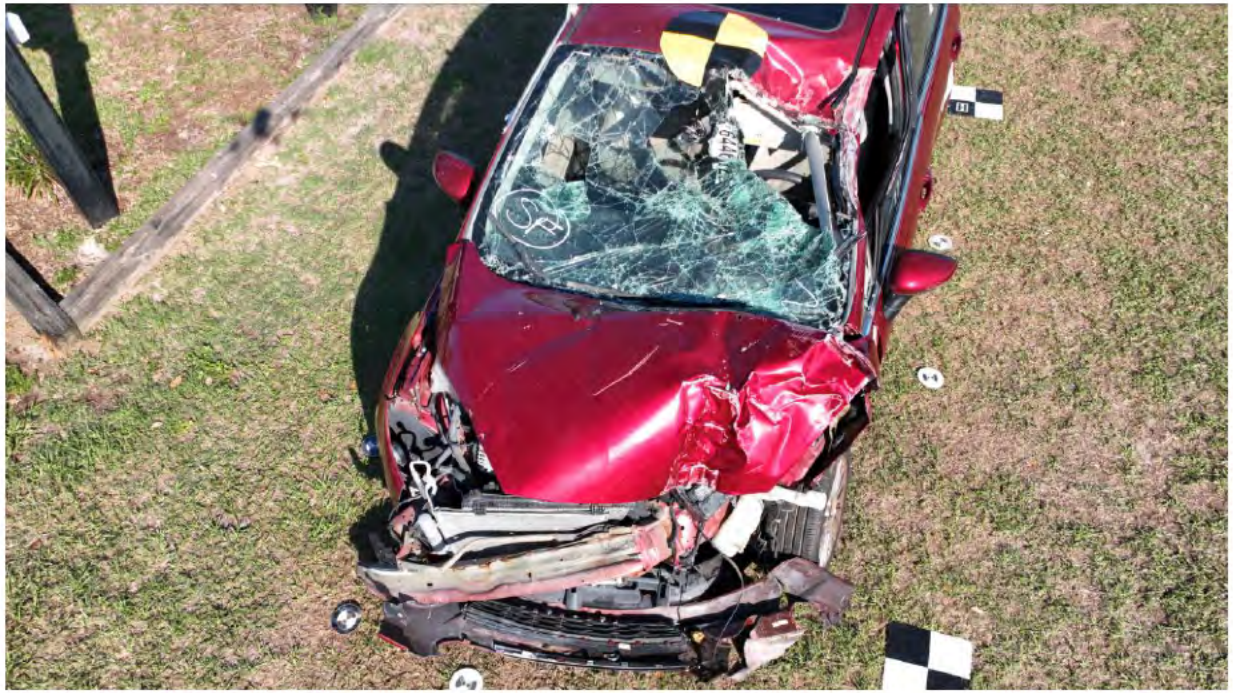
The AngelWing deflects rearward and detaches from trailer

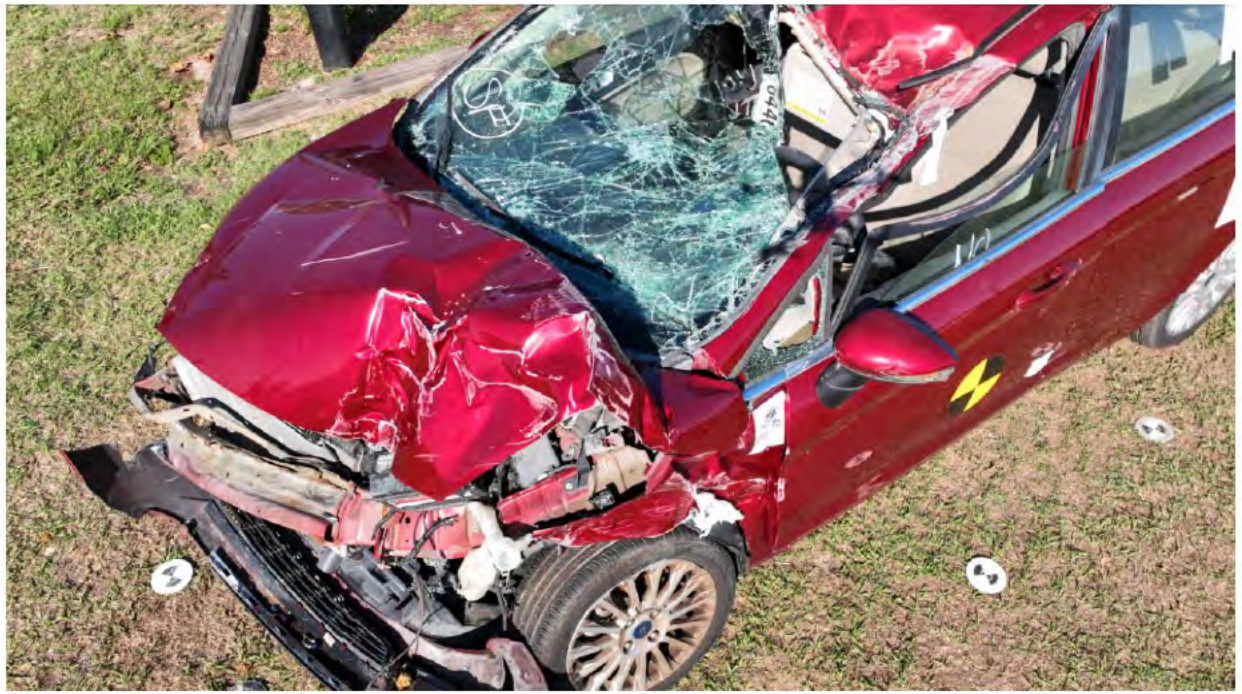

Ford Fiesta
underrides the trailer
Ryder
THERMO KING

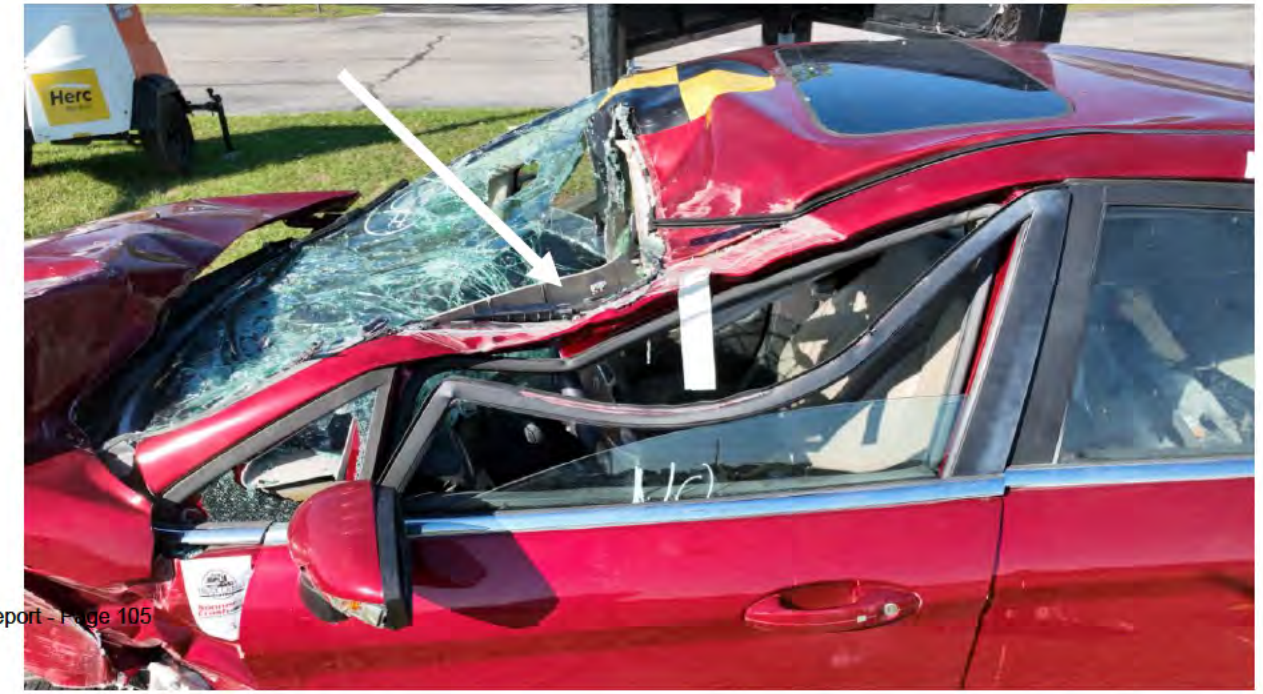

Initial 45-degree
impact


AngelWing detaches
and car underrides


STOP
UNDERRIDES
Combined (45 degree)
longitudinal and lateral impact
caused AngelWing to detach






Herc


TEAM
UNDERRIDE
TEAM
UNDERRIDE
TEAM
UNDERRIDE
TEAM
UNDERRIDE
CAR CLOUDS


TEAM
UNDERRIDE
36
CAR CLOUDS
COLLISION
CRIME
TITANIUM

Ford Fiesta AngelWing Test Performed by “Stop Underrides and Collision & Crime Forensic Solutions” Confirmed AngelWing Side Underride Guard not effective in a 45-mph center impact at 45 degrees.

Appendix H
to Minority Report

CORRECTED RECORD OF ACUP MOTIONS AND VOTES

Compilation of Votes from ACUP Meetings

MOTION	DATE	AUTHOR	SUMMARY	RESULT	VOTE	Name of Motion in Minutes	Included in Majority Report Appendix A. Record of ACUP Motions
C1	2/8/2024	Jennifer Tierney	Motion for "consensus" to be defined as 51%.	**Motion Carried**	9 Yes; 16 Members Present	Does not have motion name in minutes. Brought up by Jennifer Tierney during Welcome and Call to Order. Refer to 2/8/2024 Minutes.	Included: See Majority Report Appendix A.I **(Vote count incorrect in Majority Report Appendix A)**
A1	3/13/2024	Lee Jackson	Motion to amend the Bylaws to require a simple majority of members for quorum instead of 75%	**Motion Carried**	11 Yes; 6 No; 0 Abstain	Does not have motion name in minutes. Brought up by Chairman Lee Jackson during Welcome and Call to Order. Refer to 3/13/2024 Minutes.	**Omitted from Majority Report Appendix A**
A2	3/13/2024	Jeff Bennett	Use two-thirds as the threshold of consensus.	Delayed to future meeting	N/A	Motion 1	**Omitted from Majority Report Appendix A**
A3	3/13/2024	Kristen Glazner	Committee recommend that NHTSA conduct comprehensive research on U.S. underride crash characteristics, including the frequency of 30 perfect overlap crashes. Include photos as much as possible (goes into final report).	**Motion Carried**	13 Yes; 4 No; 0 Abstain	Motion 2	Included: See Majority Report Appendix A.II
A4	3/13/2024	Lee Jackson	Conduct an in-person meeting for all ACUP members to attend.	Withdrawn	N/A	Motion 3	Included: See Majority Report Appendix A.III
A5	3/13/2024	Lee Jackson	Request a deadline extension for the committee.	**Motion Carried**	13 Yes; 4 No; 1 Abstain	Motion 4	Included: See Majority Report Appendix A.IV
A6	3/13/2024	Marianne Karth	Include in the report to the Secretary and Congress the following recommedation that the 2022 RIG rule should be amended to require that ll new trailers meet the TOUGHGUARD test protocol or equivalent.	**Motion Carried**	10 Yes; 1 No; 6 Abstain	Motion 5	Included: See Majority Report Appendix A.V
A7	3/13/2024	Marianne Karth	Include in the report to the Secretary and Congress the following recommendation, that pursuant to the IIJA, within five years of implementing (V), the Secretary shall review and update FMVSS 223/224 standards in response to advancements in technology.	**Motion Carried**	13 Yes; 0 No; 3 Abstain	Motion 6	Included: See Majority Report Appendix A.VI
A8	3/13/2024	Marianne Karth	The ACUP include in the report to the Secretary and Congress the following Assessment: NHTSA's performance with respect to protecting the public from death and injury caused by rear underrides has been inadequate. Over the past 50 years, thousands of Americans have died potentially preventable deaths from rear impact collisions with semitrailers. During this period, NHTSA's only finalized rear impact guard rulemakings occurred in 1996 and 2022, the latter of which the agency was compelled to do by Congress. NHTSA merely adopted a 17 year-old Canadian standard with which nearly all American manufacturers (93%) already complied. NHTSA chose not to require advances in rear guard safety protection marketed by nine large trailer manufacturers in response to the Insurance Institute for Highway Safety's TOUGHGUARD test protocol.	Withdrawn	N/A	Motion 7	Included: See Majority Report Appendix A.VII
A9	3/13/2024	Aaron Kiefer	The ACUP should request from NHTSA/DOT all scoping documents, directions, and discussions between NHTSA/DOT and Elemance with regard to the rear guard analytical work between 2018 and 2024.	Combined with another motion	N/A	Motion 8	Included: See Majority Report Appendix A.VIII **(Incorrect year date in Majority Report Appendix A)**
A10	3/13/2024	Aaron Kiefer	The ACUP should request from NHTSA/DOT all scoping documents, directions, discussions, test results, data, memoranda, reports and/or notes generated before, during, and following quasi static testing of trailer rear underride guards conducted by Karco or other contractors on behalf of NHTSA/DOT between 2016 and 2024.	**Motion carried**	12 Yes; 3 No; 1 Abstain	Motion 9	Included: See Majority Report Appendix A.VIII
A11	3/13/2024	Aaron Kiefer	NHTSA/DOT should produce all documents related to rear guard standards including test data, contracts, studies, scoping documents, analyses, reports, memoranda, and/or other communications or references related to trailer and/or straight truck rear guard strength, design, quasi static or dynamic testing, and/or test protocols between 1970 and 1998.	**Motion carried**	10 Yes; 6 No; 0 Abstain	Motion 10	Included: See Majority Report Appendix A.IX
A12	3/13/2024	Aaron Kiefer	The ACUP should include in its congressional report a recommendation that all trailers manufactured between 1998 to the current time that do not have ToughGuard awarded rear impact guards should be retrofitted with crash proven reinforcement device(s). These reinforcement devices, at minimum, should be tested and proven to mitigate PCI and create crash compatibility consistent with a ToughGuard awarded rear impact guard when attached to a minimally compliant FMVSS 223 rear impact guard.	**Motion carried**	8 Yes; 1 No; 6 Abstain	Motion 11	Included: See Majority Report Appendix A.X
A13	3/13/2024	Aaron Kiefer	The ACUP should recommend in its report to congress that congress regulate single unit trucks (SUTs) with the same rear impact guard standards that currently only apply to semitrailers.	**Motion carried**	9 Yes; 2 No; 4 Abstain	Motion 12	Included: See Majority Report Appendix A.XI
A14	3/13/2024	Jennifer Tierney	The ACUP should include in its Report to Congress a recommendation that NHTSA issue revised RIG performance standards to withstand 30% rear overlap crash at 35 mph as the IIJA already directed NHTSA to do (Sec 23011 (b)(1)(A)(iii), FMVSS 223 & 224).	Withdrawn	N/A	Motion 13	Included: See Majority Report Appendix A.XII

MOTION	DATE	AUTHOR	SUMMARY	RESULT	VOTE	Name of Motion in Minutes	Included in Majority Report Appendix A. Record of ACUP Motions
A15	3/13/2024	Jennifer Tierney	The ACUP should include in its Report to Congress a recommendation NHTSA expeditiously conduct rear impact guard testing at "highway speeds" (up to 65 mph) as IIJA already directed NHTSA to do (Sec 23011 (b)(2)(A,B) and publish the results within 2 years.	**Motion carried**	9 Yes; 5 No; 1 Abstain	Motion 14	Included: See Majority Report Appendix A.XIII
A16	3/13/2024	Jennifer Tierney	The ACUP should include in its Report to Congress a recommendation that NHTSA must expeditiously complete Heavy Vehicle Automatic Emergency Brake Rulemaking for all classes of CMVs (RIN 2127-AM36).	**Motion carried**	15 Yes; 0 No; 0 Abstain	Motion 15	Included: See Majority Report Appendix A.XIV
A17	3/13/2024	Jennifer Tierney	The ACUP should include in its Report to Congress a recommendation that NHTSA conduct a study to research how the survivability rate of rear underride crashes will change with increased passenger vehicle adoption of Automatic Emergency Braking at currently tested speeds (35 mph) as well as highway speeds (up to 65 mph).	**Motion carried**	15 Yes; 0 No; 0 Abstain	Motion 16	Included: See Majority Report Appendix A.XV
A18	3/13/2024	Jennifer Tierney	The ACUP should include in its Report to Congress a recommendation that FMCSA should issue stronger conspicuity requirements, at minimum, a requirement to maintain and replace conspicuity tape every 5 years.	**Motion carried**	11 Yes; 4 No; 1 Abstain	Motion 17	Included: See Majority Report Appendix A.XVI
A19	3/13/2024	Jennifer Tierney	The ACUP should include in its Report to Congress a recommendation that NHTSA should additionally require Single Unit Trucks to adhere to conspicuity requirements.	**Motion carried**	15 Yes; 0 No; 1 Abstain	Motion 18	Included: See Majority Report Appendix A.XVII
A20	3/13/2024	Jennifer Tierney	The ACUP should include in its Report to Congress a recommendation that DOT should continue research into Enhanced Rear Signaling Systems that could help better prevent rear underride crashes.	**Motion carried**	16 Yes; 0 No; 0 Abstain	Motion 19	Included: See Majority Report Appendix A.XVIII
A21	3/13/2024	Jennifer Tierney	The ACUP should recommend that DOT research the efficacy of high visibility ID lamps that illuminate the rear of a CMV to assist with potential Clearance Lamp rulemaking for all CMVs.	**Motion carried**	14 Yes; 1 No; 1 Abstain	Motion 20	Included: See Majority Report Appendix A.XIX
A22	3/13/2024	Jennifer Tierney	The ACUP should include in its Report to Congress a recommendation that DOT conduct research into efficacious methods of reducing Distracted Driving such as flashing lamps.	**Motion carried**	16 Yes; 0 No; 0 Abstain	Motion 21	Included: See Majority Report Appendix A.XX
A23	3/13/2024	Jennifer Tierney	The ACUP should include in its Report to Congress a recommendation that FMCSA work with State law enforcement and other stakeholders to emphasize education and the need to issue RIG violation citations and encourage maximum fines for violations affecting safety.	**Motion carried**	14 Yes; 1 No; 0 Abstain	Motion 22	Included: See Majority Report Appendix A.XXI
A24	3/13/2024	Jennifer Tierney	NHTSA should provide a staff member on a contractor to the ACUP Committee to help proofread, edit, and format the Committee's written report to Congress, consistent with IIJA 23011 (d)(5), "On request of the Committee, the Secretary shall provide information, administrative services, and supplies necessary for the Committee to carry out the duties of the Committee."	Withdrawn	N/A	Motion 23	Included: See Majority Report Appendix A.XXII
A25	3/13/2024	Jennifer Tierney	The ACUP should include in its Report to Congress a fact-based history of underride crashes.	**Motion carried**	7 Yes; 4 No; 4 Abstain	Motion 24	Included: See Majority Report Appendix A.XXIII
A26	3/13/2024	Jennifer Tierney	The ACUP should request the Secretary of DOT to extend the ACUP charter for an additional 2-years in accordance with FACA.	Withdrawn	N/A	Motion 25	Included: See Majority Report Appendix A.XXVI
A27	3/13/2024	Lee Jackson	Motion for minority report to accompany majority report.	**Motion carried**	15 Yes; 0 No; 0 Abstain	Motion 26	Included: See Majority Report Appendix A.XXIV
A28	3/13/2024	Harry Adler	Motion for proxies.	Ran out of time	N/A	N/A	**Omitted from Majority Report Appendix A**
B1	4/24/2024	Jeff Bennett	Therefore it is resolved that for purposes of providing 'written consensus advice' to the Secretary of Transportation on underride protection to reduce underride crashes and fatalities relating to underride crashes, 'consensus' on any piece of advice will mean the agreement of two-thirds of the then-serving ACUP members, and any piece of advice that does not have the agreement of two-thirds of the then-serving ACUP members will not be represented to be the consensus advice of the ACUP.	Combined with Motion 16	N/A	Motion 1	**Omitted from Majority Report Appendix A, but Motion was combined with Motion 16**
B2	4/24/2024	Jennifer Tierney	NHTSA should withdraw its previously submitted ANPRM or reissue a revised ANPRM and cost-benefit analysis that acknowledges and accommodates critiques made by commenters that the cost-benefit approach taken artificially constrained the number of lives saved and also failed to account for cost-savings (such as fuel efficiency gains provided by side underride guards).	**Motion Carried**	7 Yes; 6 No; 4 Abstain	Motion 2	Included: See Majority Report Appendix A.XXV
B3	4/24/2024	Jennifer Tierney	ACUP affirms that NHTSA, per the Modernizing Regulatory Review Executive Memo and corresponding guidance, must fully account for regulatory benefits that are difficult or impossible to quantify when conducting rulemaking analysis.	**Motion Carried**	9 Yes; 2 No; 6 Abstain	Motion 3	Included: See Majority Report Appendix A.XXVII
B4	4/24/2024	Marianne Karth	Based on the rigorous analysis of the IIHS' Public Comment, the ACUP finds that NHTSA underestimated the number of preventable side underride deaths. NHTSA erroneously concluded that costs outweigh benefits, when the opposite is true. NHTSA should withdraw the 2023 side impact guard ANPRM.	**Motion did not carry**	7 Yes; 7 No; 3 Abstain	Motion 4	Included: See Majority Report Appendix A.XXVIII
B5	4/24/2024	Marianne Karth	NHTSA should complete a new side impact guard cost benefit analysis and rulemaking that counts previously omitted underride victim categories, including pedestrians, bicyclists, and motorcyclists.	**Motion Carried**	12 Yes; 5 No; 0 Abstain	Motion 5	Included: See Majority Report Appendix A.XXIX **(Vote count incorrect in Majority Report Appendix A)**
B6	4/24/2024	Marianne Karth	NHTSA should issue an Advanced Notice of Proposed Rulemaking on Front Impact Guards.	**Motion Carried**	11 Yes; 1 No; 5 Abstain	Motion 6	Included: See Majority Report Appendix A.XXX

MOTION	DATE	AUTHOR	SUMMARY	RESULT	VOTE	Name of Motion in Minutes	Included in Majority Report Appendix A. Record of ACUP Motions
B7	4/24/2024	Marianne Karth	NHTSA may harmonize with global front override regulations, including UNECE-93 and any revisions to it, in order to provide improved motor vehicle safety, as indicated in Section 24211 of the IIJA: The Secretary shall cooperate, to the maximum extent practicable, with foreign governments, nongovernmental stakeholder groups, the motor vehicle industry, and consumer groups with respect to global harmonization of vehicle regulations as a means for improving motor vehicle safety. (IIJA, p. 397, https://www.congress.gov/117/plaws/publ58/PLAW-117publ58.pdf)	**Motion Carried**	11 Yes; 1 No; 5 Abstain	Motion 7	Included: See Majority Report Appendix A.XXXII
B8	4/24/2024	Marianne Karth	The Secretary should recommend, and the President should establish, a Presidential Advisory Committee on Integrity of Underride Research. It should be composed of a diverse group of stakeholders, including: (i) Truck and trailer manufacturers. (ii) Motor carriers, including independent owner operators. (iii) Law enforcement. (iv) Motor vehicle engineers. (v) Motor vehicle crash investigators. (vi) Truck safety organizations. (vii) The insurance industry. (viii) Emergency medical service providers. (ix) Families of passenger vehicle underride crash victims. (x) Families of Vulnerable Road User underride crash victims. (xi) Labor organizations. The ACIUR should review all underride-related research, conducted by or contracted with the Department of Transportation, including the Statement of Work and the draft report prior to publication.	**Motion did not carry**	1 Yes; 12 No; 4 Abstain	Motion 8	Included: See Majority Report Appendix A.XXXI
B9	4/24/2024	Aaron Kiefer	To require all new semitrailers, and single unit trucks that have crash incompatible open space(s) along the side(s) to be equipped with side guards capable of preventing injurious passenger compartment intrusion (PCI) when struck by a midsize vehicle at any angle, at any location, and at any closing speed up to and including 40 mph.	**Motion Carried**	11 yes; 6 No; 0 Abstain	Motion 9	Included: See Majority Report Appendix A.XXXIII
B10	4/24/2024	Aaron Kiefer	To require semitrailers, and single unit trucks manufactured after 1998 that have crash incompatible open space(s) along the side(s) to be equipped with side guards capable of preventing injurious passenger compartment intrusion (PCI) when struck by a midsize vehicle at any angle, at any location, and at any closing speed up to and including 40 mph.	**Motion Carried**	8 Yes; 6 No; 3 Abstain	Motion 10	Included: See Majority Report Appendix A.XXXIV
B11	4/24/2024	Aaron Kiefer	To require the side guards referenced in motions 9 & 10 above to also prevent a vulnerable road user (VRU) from passing underneath the guarded vehicle in an interaction with the side of the vehicle.	**Motion Carried**	9 Yes; 8 No; 0 Abstain	Motion 11	Included: See Majority Report Appendix A.XXXV
B12	4/24/2024	Aaron Kiefer	To require NHTSA to conduct a cost analysis of the total average cost of a fatal side underride crash including loss of life, lost productivity, court costs, equipment costs, expert witness and attorney costs, property damage, judgements and/or settlements and other related costs. This study should be based on data from fatal side underride crashes such as the crash of Riley Hein.	Withdrawn	N/A	Motion 12	Included: See Majority Report Appendix A.XXXVI
B13	4/24/2024	John Frieler	The department should conduct a study of conspicuity tape in service. This study focuses on actual rates of compliance with the regulated minimum reflectivity requirements, the ability of enforcement personnel to accurately and adequately enforce these requirements and make recommendations on how to reduce the most common forms of non-compliance found.	**Motion Carried**	16 Yes; 1 No; 0 Abstain	Motion 13	Included: See Majority Report Appendix A.XXXVII
B14	4/24/2024	Jeff Bennett	Therefore it is resolved that any report from the ACUP to the Secretary that claims or purports to contain written consensus advice to the Secretary on underride protection to reduce underride crashes and fatalities relating to underride crashes will be provided in final form to all members of the ACUP at one week before such a report or advice is actually submitted to the Secretary so that those ACUP members who have dissenting or differing views may prepare their own submission to be submitted to the Secretary at the same time the report of the ACUP is submitted to the Secretary.	**Motion Carried**	17 Yes; 0 No; 0 Abstain	Motion 14	Included: See Majority Report Appendix A.XLV
B15	4/24/2024	Kristen Glazner	I move that NHTSA set deadlines for drafts of the majority and minority reports to be circulated, deadlines for comments to be submitted on each draft report, deadlines for revised drafts to be circulated, and deadlines for reports to be deemed final.	Withdrawn	N/A	Motion 15	Included: See Majority Report Appendix A.XLVI
B16	4/24/2024	Doug Smith	For purposes of providing 'written consensus advice' to the Secretary of Transportation on underride protection to reduce underride crashes and fatalities relating to underride crashes, 'consensus' on any piece of advice will mean the agreement of two-thirds of the then-serving ACUP members, and any piece of advice that does not have the agreement of two-thirds of the then-serving ACUP members will not be represented to be the consensus advice of the ACUP.	**Motion did not carry**	8 Yes; 9 No; 0 Abstain	Motion 16	Included: See Majority Report Appendix A.XXXVIII

MOTION	DATE	AUTHOR	SUMMARY	RESULT	VOTE	Name of Motion in Minutes	Included in Majority Report Appendix A. Record of ACUP Motions
B17	5/22/2024	Doug Smith	Moving forward, NHTSA should use an independent moderator to assist ACUP in executing Committee duties, covering all agenda items, and facilitating member discussion.	Withdrawn	N/A	Motion 17	Included: See Majority Report Appendix A.XLVII
B18	5/22/2024	Dan Horvath	NHTSA should work with the Federal Railroad Administration (FRA) to conduct research to examine potential impacts the installation of side underride guards would have during highway-rail grade crossings.	**Motion carried**	15 Yes; 0 No; 0 Abstain	Motion 18	Included: See Majority Report Appendix A.XLIII
B19	5/22/2024	Dan Horvath	To further GAO recommendation # 1 regarding improvements to Model Minimum Uniform Crash Criteria, NHTSA should take additional steps to include both vehicle-related side underride crashes, and Vulnerable Road Users (VRU) side underride crashes in reporting of injuries and fatalities related to side underride guard crashes.	**Motion carried**	14 Yes; 0 No; 0 Abstain	Motion 19	Included: See Majority Report Appendix A.XXXIX **(Vote count incorrect in Majority Report Appendix A)**
B20	5/22/2024	Dan Horvath	NHTSA should investigate the potential for collision mitigation technologies for light and heavy-duty vehicles to prevent or reduce the risk associated with side underride crashes.	**Motion carried**	15 Yes; 0 No; 0 Abstain	Motion 20	Included: See Majority Report Appendix A.XLVIII
B21	5/22/2024	Dan Horvath	NHTSA should assess risks associated with deflection into adjacent lanes associated with partial offset rear crashes as well as side underride crashes. Final results should be made public.	**Motion carried**	9 Yes; 6 No; 0 Abstain	Motion 21	Included: See Majority Report Appendix A.XL
B22	5/22/2024	Harry Adler	The ACUP shall recommend in its report that NHTSA advance rulemaking to mandate that all new applicable semitrailers install side underride guards.	Withdrawn	N/A	Motion 22	**Omitted from Majority Report Appendix A**
B23	5/22/2024	Harry Adler	The ACUP shall recommend in its report that NHTSA advance rulemaking to mandate retrofitting all applicable semitrailers built since 1998 install side underride guards.	Withdrawn	N/A	Motion 23	**Omitted from Majority Report Appendix A**
B24	5/22/2024	Harry Adler	The ACUP shall recommend in its report that NHTSA advance rulemaking to mandate that all new applicable single unit trucks install side underride guards.	Withdrawn	N/A	Motion 24	**Omitted from Majority Report Appendix A**
B25	5/22/2024	Harry Adler	The ACUP shall recommend in its report that DOT explore the need for Federal weight limit weight-based exemption for side underride guards.	**Motion carried**	7 Yes; 6 No; 2 Abstain	Motion 25	Included: See Majority Report Appendix A.XLI
B26	5/22/2024	Harry Adler	The ACUP shall recommend in its report that NHTSA request that the Department of Transportation's Volpe Center evaluate the effectiveness of a side underride guard to determine if their effectiveness is similar or greater than Lateral Protective Devices in mitigating the severity of pedestrian, cyclist, and motorcyclist fatalities.	**Motion carried**	13 Yes; 1 No; 1 Abstain	Motion 26	Included: See Majority Report Appendix A.XLII **(Vote count incorrect in Majority Report Appendix A)**
B27	5/22/2024	Harry Adler	The ACUP shall recommend in its report that NHTSA create a field in the Fatality Analysis Reporting System to determine if an underride crash occurred involving a large truck and a pedestrian/cyclist.	**Motion carried**	13 Yes; 0 No; 2 Abstain	Motion 27	Included: See Majority Report Appendix A.XLIV
B28	5/22/2024	Harry Adler	The ACUP shall recommend that DOT disseminate educational material in additional to existing brochure for law enforcement to help them identify and record side underride crashes.	**Motion carried**	15 Yes; 0 No; 0 Abstain	Motion 28	Included: See Majority Report Appendix A.XLIX
B29	5/22/2024	Kristen Glazner	I move that the ACUP report reflects whether each committee member concurs or does not concur with the report by allowing each member to make a statement of concurrence or non-concurrence with the report. The following link contains an example from another DOT Committee: APPENDIX_F-Combined_Voting_Ballots_03242022.pdf (faa.gov). My motion is that the ACUP report include similar documentation in an Appendix.	**Motion carried**	15 Yes; 0 No; 0 Abstain	Motion 29	Included: See Majority Report Appendix A.L