



March 26, 2024

Ms. Sophie Shulman  
Acting Administrator  
National Highway Traffic Safety Administration  
1200 New Jersey Avenue, S.E.  
Washington, D.C. 20590

**RE: Federal Motor Vehicle Safety Standards: Automatic Emergency Braking Systems for Light Vehicles [NHTSA-2023-0021]**

Dear Deputy Administrator Shulman,

The Alliance for Automotive Innovation (Auto Innovators) provides the following supplemental comments in response to the June 13, 2023 Federal Register Notice of Proposed Rulemaking (NPRM) to adopt a new Federal Motor Vehicle Safety Standard (FMVSS) to require automatic emergency braking (AEB), including pedestrian AEB (PAEB), systems on light vehicles.<sup>1,2</sup> These comments add supporting data to reinforce and substantiate industry concerns regarding the technical feasibility, practicability, and overall regulatory impact of the proposed rule. The intent of these comments is not to oppose the agency's decision to regulate AEB and PAEB or significantly delay progress, but rather it is to propose constructive alternatives that can be reasonably implemented within the timeframe envisioned by the agency.

**Auto Innovators Supports Reasonable Requirements**

Auto Innovators does not oppose rulemaking to establish a new baseline level of performance. Such rulemaking should build upon the industry's commitment to improve safety AEB and PAEB systems, which have demonstrated very high levels of safety benefits under their current performance capabilities. However, there are fundamental issues with the agency's proposal that must be addressed to ensure the final rule is practicable and reflective of the current pace of technological innovation.<sup>3</sup> The NPRM does not adequately consider the technical challenges and potential unintended consequences of establishing a *no contact* requirement – particularly for certain high speed scenarios. The rule also fails to evaluate alternative approaches that may be more appropriate based on current levels of technology maturity. We continue to urge more comprehensive review to avoid a rule that, based on an incomplete analysis, misrepresents the readiness of the fleet in adapting to meet the proposed performance requirements.<sup>4</sup>

---

<sup>1</sup> From the manufacturers producing most vehicles sold in the U.S. to autonomous vehicle innovators to equipment suppliers, battery producers and semiconductor makers – Alliance for Automotive Innovation represents the full auto industry, a sector supporting 10 million American jobs and five percent of the economy. Active in Washington, D.C. and all 50 states, the association is committed to a cleaner, safer, and smarter personal transportation future. [www.autosinnovate.org](http://www.autosinnovate.org).

<sup>2</sup> 88 FR 38632

<sup>3</sup> 49 USC 30111

<sup>4</sup> <https://www.reginfo.gov/public/do/eoDetails?rrid=366763>

### Data shows NHTSA Cost Estimates are Too Low

Auto Innovators surveyed our OEM members to further understand the anticipated burden of meeting the requirements outlined in the NPRM and the anticipated cost impact that this would have on consumers. The data below includes information provided by participating OEMs in a manner that has been aggregated and anonymized by outside counsel.

We found that NHTSA's assumptions about the relatively low cost per vehicle for compliance with the proposed rule may be based on inaccurate assumptions about how much additional investment would be needed and how much variable costs would differ across the fleet, based on what is needed to achieve compliance. Even within companies, it was often noted that there is a wide range based on the anticipated production volume of a given platform.

Table 1: Summary of Auto Innovators survey results compared with NHTSA Preliminary Regulatory Impact Analysis (PRIA).

	NHTSA Estimates	Auto Innovators Survey Estimates
<b>Cost Estimates based on NHTSA NPRM</b>		
What is the anticipated <b>overall cost</b> (based on total end user price) to achieve lead vehicle AEB and PAEB functionality that meets the <b>no contact</b> requirements of the rule as proposed by NHTSA, within a three year lead time?	\$282.16 Million (Total estimated cost of regulation)	Average \$430M per company
What is the anticipated <b>cost per vehicle</b> (based on total end user price) if the proposed <b>no contact</b> requirements were adopted in the final rule?	\$82.15	Average low of \$200 to an average high of \$4,200
What is the anticipated <b>cost per vehicle</b> (based on total end user price) as a result of the 10° HUD requirements. <i>Note: these estimated HUD costs would be in addition to the cost of meeting the no contact requirements above.</i>	Analysis not performed.	Average low of \$221 to an average high of \$1,073
<b>Cost Estimates Based on Auto Innovators Proposed Alternatives</b>		
What is the anticipated <b>overall cost</b> (based on total end user price) to achieve lead vehicle AEB and PAEB functionality that meets the requirements of <b>R152 (extrapolated to 100km/h)</b> ?	Analysis not performed. <sup>5</sup>	Average \$61M per company.
What is the anticipated <b>cost per vehicle</b> (based on total end user price) if the proposed AEB/PAEB requirements were consistent with the requirements of <b>R152 (extrapolated to 100km/h)</b> ?	Analysis not performed.	Low of \$0 to an average high of \$1,200.
What is the anticipated <b>cost per vehicle</b> (based on total end user price) if the proposed AEB/PAEB requirements were consistent with the requirements of <b>R152 (up to 60km/h)</b> ?	Analysis not performed.	Low of \$0 to an average high of \$500.

<sup>5</sup> Auto Innovators recommended that these elements should have been included in the initial NHTSA PRIA.

The data demonstrates that meeting the requirements of the proposed regulation will require significant hardware and software changes, despite the agency's assertion that "*nearly all vehicles subject to [the] proposal would already have the hardware capable of meeting the proposed requirements by the effective date of the final rule.*"<sup>6,7</sup>

**NHTSA's regulatory impact analysis does not provide an accurate representation of the challenges to meet the proposed rulemaking requirements substantially underestimates the costs to meet the proposed performance requirements.**

The NPRM's compressed 3-year lead time is expected to be extremely disruptive of vehicle developments already underway because it will require revisiting previous hardware and software design decisions and redesigning systems with a nexus to the AEB/PAEB system. Similarly, it unreasonably assumes that the proposed performance specifications can be met solely through software upgrades; existing vehicle electrical architectures may not be capable of handling the additional communication bandwidth due to the necessary additional sensors or the processing power to support vehicle ADAS systems to this level of performance.

NHTSA has not adequately considered the anticipated resource investment, complexity, and lead time needed to update vehicle software systems in addition to changes in vehicle hardware. The NPRM states:<sup>8</sup>

*"NHTSA anticipates that systems can achieve the proposed requirements through upgraded software, as all vehicles are assumed to have the necessary hardware. Therefore, the incremental cost associated with this proposed rule reflects the cost of a software upgrade that will allow current systems to achieve lead vehicle AEB and PAEB functionality that meets the requirements specified in this proposed rule. **The incremental cost per vehicle is estimated at \$82.15 for each design cycle change of the model.***

*When accounting for design cycles and annual sales of new light vehicles, **the total annual cost associated with this proposed rule is approximately \$282.16 million in 2020 dollars.***

The Auto Innovators member survey aggregated data anticipates overall cost per manufacturer (*based on total end user price*) to achieve lead vehicle AEB and PAEB functionality that meets the requirements of the NPRM within a three year lead time is expected to be, on average, approximately **\$430 Million per company**.<sup>9</sup> This figure is well in excess of the \$282.16 million that the agency has suggested as being the total cost across the entire industry. Based on these estimates, we anticipate total cost to industry is likely to be in the billions of dollars, not millions

In breaking down these estimates further, the anticipated cost (*based on total end user price*) per vehicle if the proposed AEB and PAEB requirements were adopted is expected to be between an **average low of \$200** and an **average high of \$4,200**. While we recognize this is a wide range, these estimates indicate a cost impact that is at least 2.5X times greater than agency estimates (per vehicle) and could be up to 50X times greater.<sup>10</sup>

---

<sup>6</sup> <https://www.regulations.gov/comment/NHTSA-2023-0021-0844>

<sup>7</sup> <https://www.federalregister.gov/d/2023-11863/p-748>

<sup>8</sup> <https://www.federalregister.gov/d/2023-11863/p-159>

<sup>9</sup> The estimated cost per vehicle in the NHTSA Preliminary Regulatory Impact Analysis is based on the total end user price.

<sup>10</sup> When considering the combined low-end estimates of meeting both the AEB-PAEB and HUD requirements (Table 1), the regulatory impact of the proposed rule is approximately \$481. This is 5X times more than agency's estimate of \$82.15.

When considering the per vehicle cost, vehicles with relatively lower sales volumes, such as legacy electrified platforms, may be disproportionately impacted. This creates significant uncertainty as these vehicle models may play a crucial role in achieving near term compliance with competing environmental regulations. Late-stage design changes may adversely affect the ability of vehicles to remain price competitive within their intended market segment. This may result in certain products being discontinued – particularly if the costs to comply are unbearable to the consumer. Similar concerns also exist for small volume manufacturers, as it becomes increasingly challenging to offset higher implementation costs based on limited volume sales.

**NHTSA did not adequately consider alternatives to the proposed *no contact* requirement. The proposed approach imposes substantially more burden when compared to requirements that more closely align with R152 (up to 100km/h).**

We believe that the proposed *no contact* requirement is not practicable and increases the potential for unintended consequences at the proposed test speeds.<sup>11</sup> Each of the options NHTSA gives in the proposed rule is predicated on maintaining a *no contact* requirement that is not practicable. The agency has not adequately considered whether establishing an acceptable level of speed reduction would yield similar safety benefits or whether such an approach would impose significantly lower levels of burden.

**NHTSA did not consider the estimated regulatory impact of requiring a heads up display.**

In addition to the AEB and PAEB requirements, members were also surveyed on the anticipated cost per vehicle of implementing the *de facto* 10° Heads up Display (HUD) requirement, which was not included or contemplated as part of the agency's Preliminary Regulatory Impact Analysis (PRIA). The impact of this requirement alone is expected to be an average low of approximately **\$221 per vehicle** to an average high of **\$1073 per vehicle**. Again, this far exceeds the agency's estimate for AEB and PAEB functionality.<sup>12</sup>

**Conclusion**

It is clear from these survey data that there are certain fundamental aspects of the agency's proposal that must be reconsidered. More specifically, these data points suggest several actions must be taken before issuing a final rule:

- First, NHTSA must update its PRIA to ensure the practicability concerns associated with the proposed requirements are either addressed or accounted for. This update should include a more comprehensive analysis of the required hardware and software changes for the purpose of determining cost effects, lead time feasibility, and a more thorough comparative analysis of alternatives to the proposed *no contact* requirements.
- Second, the agency must reconsider its proposal to establish a *no contact* requirement in FMVSS based on both technical concerns and the updated regulatory impact analysis. As noted in our initial comments, there are several more practicable and less burdensome alternatives that can be implemented to incentivize continued safety improvements as technology evolves.<sup>13</sup>
- Third, to the extent that the technical and practicability concerns are not addressed in the final rule that was recently sent to OMB for review, we urge the agency to reconsider its decision and instead issue a Supplemental Notice of Proposed Rulemaking (SNPRM) to ensure that the challenges we have identified can be addressed in an expeditious manner.

---

<sup>11</sup> <https://www.regulations.gov/comment/NHTSA-2023-0021-0844>

<sup>12</sup> As noted in our initial comments, Auto Innovators is opposed to NHTSA establishing a de facto requirement for heads-up displays as part of this rulemaking, however it is also important that the agency does not prevent the use of these systems in the near term or in the future.

<sup>13</sup> <https://www.regulations.gov/comment/NHTSA-2023-0021-0844>

Thank you for your consideration of these supplemental comments. Please do not hesitate to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'SP' followed by a horizontal line.

Sarah Puro  
Vice President, Safety and Technology Policy  
Alliance for Automotive Innovation