



**Submission by the
Technical Working Group on
Advanced Impaired Driving Prevention Technology
to Rulemaking Docket (NHTSA-2022-0079) regarding the
Advance Notice of Proposed Rulemaking on
Advanced Impaired Driving Prevention Technology**

The Technical Working Group on Advanced Impaired Driving Prevention Technology (TWG) respectfully submits the following document with attachment to the Rulemaking Docket (NHTSA-2022-0079) in response to the Advance Notice of Proposed Rulemaking (ANPRM) on Advanced Impaired Driving Prevention Technology.

The TWG (see attachment for background) is grateful for the thoughtful and comprehensive ANPRM published by the National Highway Traffic Safety Administration (NHTSA) in January 2024 in response to the Congressional directive in the Infrastructure Investment and Jobs Act of 2021. The following *Roadmap to Implementation of Driver Impairment Prevention Technology* released by the TWG in February 2024 presents the TWG's viewpoint that successful implementation of the Congressional mandate is feasible within the prescribed rulemaking period. The Roadmap lays out an approach that could result in substantial near-term savings in impaired driving death and injury, along with a commitment to longer-term progress that would result in even greater public benefit.



Roadmap to Implementation of Driver Impairment Prevention Technology

As the first statutory milestone of Section 24220 of the Infrastructure Investment and Jobs Act of 2021 (IIJA) approaches, the Technical Working Group for Advanced Impaired Driving Prevention Technology (TWG) believes pathways to successful implementation of the Congressional mandate for driver impairment prevention technology are clear. The TWG offers the following roadmap to realizing the potential of the mandate and the technology.

Where are we now?

By November 15, 2024, the National Highway Traffic Safety Administration (NHTSA) is directed by the IIJA to issue a final rule (or alternatively a report describing the reasons for not prescribing a rule) requiring new cars sold in the U.S. to be equipped with technology that can detect that driver blood alcohol content (BAC) is at or above 0.08 g/dl, monitor driver performance to detect whether they are impaired, or both, and prevent or limit vehicle operation accordingly. On January 5, 2024, NHTSA published an Advance Notice of Proposed Rulemaking (ANPRM) requesting public comment and information on a range of topics that will inform subsequent steps of the rulemaking. Prior to publication of the ANPRM, NHTSA published a November 2020 notice seeking information on impaired driving technologies.

The ANPRM provides a thorough discussion of issues surrounding implementation of the Congressional mandate and reveals a number of pathways by which implementation could succeed as prescribed by the IIJA. Considerations for selecting a pathway were presented in a Views Statement by the TWG in April 2023. The Views Statement included essential principles:

- Deliberate progress is essential – we must use this legislative opportunity to take a deliberate step toward our vision of eliminating impaired driving. Years may pass before another such opportunity arrives, and at least 13,000 are killed and hundreds of thousands are injured each year.
- Comprehensive function is our goal, but let's implement what we can now - a system that is capable of detecting all types of impairment and intervening whether the car is stationary or moving is our vision. However, we cannot let perfection stand in the way of progress. More than 10,000 lives can be saved each year by a system that prevents drivers with illegal BAC from operating their vehicles.

The introduction to the ANPRM highlights a critical fact, "***The negative economic and societal impacts related to impaired driving are enormous and devastating.***" This is an intolerable situation. The Congressional mandate is clear and gives us an opportunity to leave this place for a better world. We need to take this opportunity.

Where do we need to go?

The ANPRM explains that in approaching implementation of the Congressional mandate, NHTSA is focused on alcohol impairment, but is also considering systems that could detect and respond to distraction and drowsiness. The TWG agrees that driver monitoring technologies hold tremendous promise for detecting and responding to unsafe drivers and point out that the range of driver impairments could go well beyond alcohol, distraction, and drowsiness. Impairing prescription and

recreational drugs are known to negatively impact driving functions, as well as certain medical conditions.

When impairment is detected, interventions could include more than the two options – warnings or preventing vehicle operation – that are discussed in the ANPRM. Vehicle systems could provide a range of responses that are aligned with the severity and the longevity of the impairment. Severe alcohol or drug impairment would require preventing vehicle operation, but policy deliberations may conclude that a slight impairment – well below the legal limit - could be met with adjustments to the vehicle collision warning\intervention systems, such as lane keeping assistance or automatic emergency braking, to compensate for predictable reductions in driver reaction time.

Moderate impairments might include a speed limiting response, which also could compensate for slower reaction time, but more importantly reduce the severity of crashes that may still occur. Temporary conditions such as distraction may be corrected by warnings that would be less effective for longer-term impairments caused by alcohol or other drugs.

While all of these possibilities should be within our vision for managing driver impairment, some of the potential detection and response options are obviously within closer reach than others. Technology is developing quickly, but for the more comprehensive systems, time is needed to calibrate and validate driver measures with safety outcomes, and to test system performance in real world conditions. Alcohol measures and their implications are relatively well understood. Measures for other types of impairment will require further development.

Rather than a single requirement for impairment prevention technology, we need a regulatory trajectory with a series of progressive requirements that incentivize technology investment, deliver life-saving benefits in the near term, and allow development time for expanded functions and even greater benefits in the longer term.

How do we get there?

The ANPRM discusses two important rulemaking approaches that can help get us where we need to be. One of these is that **technology does not need to be fully developed and ready for deployment at the time a standard is promulgated**. Safety standards can incentivize and lead technology development and encourage investments for public benefit. This is especially important for technologies such as driver impairment prevention systems where consumer interest alone is unlikely to compel manufacturers to introduce the safety advancement.

The other approach described in the ANPRM is the potential of a **phased approach to implementing the impairment prevention requirement**. A phased or incremental approach could be an essential tool for achieving near-term benefit along with commitment to longer term progress. The ANPRM describes a phased approach with respect to a system that would prevent vehicle operation if the driver was above a set BAC, suggesting that **the BAC level might be set at a higher level initially to accommodate the possibility of measurement error, with a requirement that the level be adjusted down to the legal BAC limit as measurement technology develops**.

Extending the phased approach to other system aspects that are discussed in the ANPRM could provide even greater latitude for accommodating technology development. For example, an incremental approach could **require pre-start measurement and intervention systems in initial years and rolling measurement and intervention in later years** after such systems have been fully developed and tested.

Minimum performance standards for **driver warning systems would introduce detection systems that capture sources of impairment beyond alcohol** using sensors such as driver monitoring technologies that track eye movement and head position. These technologies have tremendous potential for detecting a wide range of impairment types but may benefit from in-vehicle experience to achieve sufficient accuracy and reliability prior to being used in full driving intervention systems.

Other approaches to phasing in the mandate could include specifying an **incremental ramp-up of vehicle production certification** as used in prior Federal Motor Vehicle Safety Standards (FMVSS) such as FMVSS 216 (Roof Crush Resistance), FMVSS 301 (Fuel System Integrity) and others. Applying the **phased approach to compliance testing**, the TWG's April 2023 Views Statement pointed out that there are precedents in other FMVSS for **requirements that allow vehicle manufacturers to petition for new testing procedures** for advanced technology systems for which NHTSA does not have sufficient research to prescribe specific test protocols. Other precedents allow manufacturers to provide documentation to demonstrate that their technology will provide the safety benefits that the agency is seeking. Such allowances have been used in FMVSS 126 (Electronic Stability Control), FMVSS 208 (Occupant Crash Protection), and FMVSS 226 (Ejection Mitigation), and could provide flexibility for implementation of innovative system designs.

What route do we take?

The Technical Working Group believes that the regulatory approaches described in the ANPRM offer NHTSA a variety of pathways from which to design an FMVSS that results in near-term progress along with time-certain commitment to expanding functions to provide even greater public benefit.

As described in the TWG Views Statement, a pathway might include an initial requirement for a pre-start intervention using either a BAC measure or another measure that can be calibrated with BAC. Given the readiness or near-readiness of BAC detection technologies resulting from the Driver Alcohol Detection System for Safety (DADSS) program and other sources, this requirement could be implemented within the timeframes prescribed in the IJA with or without use of some of the regulatory tools described above.

The regulatory pathway should also include phased in date-certain milestones for implementing future system functions that may not be feasible in initial iterations. These advanced systems could be required to measure and respond to a broader range of impairment types and/or react to measurements performed during a trip in addition to pre-start. These date-certain milestones or phases will provide incentive for technology development. The ANPRM mentions several rare but feasible scenarios where a system failure could inconvenience or pose risk to motorists. The TWG recognizes that with the large number of vehicle starts each day, vehicle systems need high levels of reliability, but sees no reason that that impairment prevention systems cannot achieve or exceed the levels of performance of other complex vehicle systems.

Urgency for Action: Let's get going

Section 24220 is our opportunity to get on a path that could nearly eliminate alcohol-impaired driving and prevent thousands of deaths resulting from other forms of driver impairment. **We must act on the opportunity presented by this Congressional mandate by taking deliberate action to create a regulatory trajectory that places us on that path.**

Example of an Approach to a Federal Motor Vehicle Safety Standard that would Comply with Section 24220 of the IIJA and be Consistent with the TWG Roadmap

The following example carries the approach recommended by the TWG one step further, describing specific phases that could be included in an impaired driving prevention technology rulemaking. The TWG offers this example to demonstrate one rulemaking strategy that would comply with the Congressional mandate and follow the TWG Roadmap.

Phase 1 2-3 years following publication of final rule		Phase 2 3-4 years following publication of final rule	
Require all new passenger vehicles to comply with either:		Require all new passenger vehicles to comply with both:	
Option A	OR	Requirement A	AND
Option B		Requirement B	
Determine driver blood alcohol content (BAC) <u>before each trip</u> and prevent vehicle operation if at or above 0.08.	Detect driver impairment continuously <u>during each trip</u> and react accordingly:	Determine driver blood alcohol content (BAC) <u>before each trip</u> and prevent vehicle operation if at or above 0.08.	Detect driver impairment continuously <u>during each trip</u> and react accordingly:
BAC can be measured directly through breath or touch or indirectly by a system that measures impairment differently but can be compared to impairment at 0.08 BAC.	If the driver is at or above 0.08 BAC (measured directly or indirectly as in Option A), limit maximum speed to a level prescribed by NHTSA to reduce risk, including the possibility of safely parking the car.	BAC can be measured directly through breath or touch or indirectly by a system that measures impairment differently but can be compared to impairment at 0.08 BAC.	If the driver is at or above 0.08 BAC (measured directly or indirectly as in Requirement A), limit maximum speed to the level prescribed by NHTSA for Phase 1 Option B.
	**If the driver is fatigued to a point of high risk, activate system to warn the driver to stop and get rest.		**If the driver is fatigued to a point of high risk, activate system to warn the driver to stop and get rest.
	**If the driver is distracted to a point of high risk, activate a system to warn the driver about crash danger.		**If the driver is distracted to a point of high risk, activate a system to warn the driver about crash danger.
Potential Lives Saved: 10,000	Potential Lives Saved: 10,000		
Either Option Produces Similar Safety Benefit*			

*Allowing a choice between Options A & B in Phase 1 allows near-term development of systems that can detect and respond to a range of impairment types. The choice is justified by ensuring that the potential life-saving benefits of Options A & B are approximately equivalent. The Insurance Institute for Highway Safety has estimated that Option A will save more than 10,000 lives per year when installed in all cars. To ensure a similar potential for Option B, NHTSA would set the level of speed limitation required for alcohol impairment so that the estimated lives saved from the speed reduction plus the estimated lives saved by the fatigue and distraction warnings would equal approximately 10,000 lives per year when the systems are installed in all cars.

The feasibility of this example is supported by regulatory precedents, including the ability to phase in requirements, and to use regulation to lead technology development. Regulatory precedent also supports the strategy of accommodating innovation by allowing manufacturers to petition NHTSA to adopt test procedures (as in FMVSS 208 Occupant Crash Protection (S27.1 (a)) or requiring automakers to make available to NHTSA upon request information on how their system achieves performance requirements, as in FMVSS 126 Electronic Stability (FMVSS 126, S4, S5.1– S5.1.3, S5.6, particularly 5.6.4) and in FMVSS 226 Ejection Mitigation (S4.2.4).

**Precedent for regulatory approaches for driver fatigue and distraction warning systems can be found in the European Union requirements, Driver Drowsiness and Attention Warning (DDAW) system as defined by Article 6 of Regulation (EU) 2019/2144 and Delegated Regulation (EU) 2021/1341, and Advanced Driver Distraction Warning (ADDW) system as defined in Article 6 of Regulation (EU) 2019/2144 and Delegated Regulation (EU) 2023/2590.

For more information about the TWG Roadmap, please contact either of the co-chairs of the Technical Working Group for Advanced Impaired Driving Prevention Technology, Stephanie Manning at stephanie.manning@madd.org or Jeff Michael at jmicha30@jhu.edu.

Attachment



-June 14, 2022 Release -

A specialized group of more than a dozen auto safety technical experts announced today their formation of a new Technical Working Group to assist with implementation of advanced impaired driving prevention technology as recently mandated by Congress.

The bipartisan provision in the Infrastructure Investment and Jobs Act, signed into law in November 2021, calls on the National Highway Traffic Safety Administration (NHTSA) to conduct a technology-neutral rulemaking for impaired driving prevention and issue a motor vehicle safety standard within three years, by November 2024. Implementation in vehicles would begin two to three years after the standard is issued.

The Technical Working Group is co-chaired by Stephanie Manning, Chief Government Affairs Officer at Mothers Against Drunk Driving (MADD), and Dr. Jeffrey Michael, Distinguished Scholar at the Johns Hopkins Center for Injury Research and Policy and former Associate Administrator at NHTSA.

“The impaired driving technology requirement in the new legislation is one of the most significant advances in auto safety since the seat belt, with the potential to prevent 90 percent of drunk driving deaths when fully implemented in the vehicle fleet,” Michael said. “Congress spoke clearly in establishing the requirements for the rulemaking process that aggressive action is needed to stop impaired driving deaths.”

The Technical Working Group is an independent body comprised of experts with extensive knowledge of vehicle safety technologies, the Federal Motor Vehicle Safety Standards (FMVSS) regulatory process, and public health initiatives.

- Nat Beuse, Vice President of Safety, Aurora; MADD Board Member
- Kadija Ferryman, PhD, Assistant Professor, Johns Hopkins Bloomberg School of Public Health
- Shannon Frattaroli, PhD, Director, Johns Hopkins Center for Injury Research and Policy
- Kelly Funkhouser, Program Manager, Vehicle Technology, Consumer Reports
- Shaun Kildare, PhD, Director of Research, Advocates for Highway and Auto Safety
- Anders Lie, PhD, retired, former Board Member, European New Car Assessment Program (Euro NCAP); former Traffic Safety Specialist, Swedish Transport Administration
- Stephanie Manning, Chief Government Affairs Officer, MADD
- Jeffrey Michael, EdD, Distinguished Scholar, Johns Hopkins Center for Injury Research and Policy
- Stephen Oesch, retired, former Senior Vice President, Insurance Institute for Highway Safety
- Roger Saul, PhD, retired, former Director, Vehicle Research and Test Center, National Highway Traffic Safety Administration (NHTSA)

- Ken Snyder, Executive Director, Shingo Institute, Utah State Huntsman School of Business; MADD Volunteer and Victim of Impaired Driving
- Don Tracy, retired, former Vice President, DENSO North America
- David Zuby, Executive Vice President and Chief Research Officer, Insurance Institute for Highway Safety

The group will invite others with specific expertise to assist during its proceedings.

“We understand that this is a very significant regulatory undertaking, but it is also a necessary one since there is the potential to save so many lives and essentially eliminate impaired driving, the leading cause of traffic deaths,” Manning said. “We plan to provide the best information on currently available technologies and developments by other regulatory bodies and the supplier community around the world, to make implementation of this life-saving technology a success. We need this passive impaired driving prevention technology implemented as soon as possible to turn around the growing crisis on our roads.”

The technology mandated in the Infrastructure Investment and Jobs Act was led in Congress by Senator Ben Ray Luján and Congresswoman Debbie Dingell.

“With the passage of the RIDE/HALT Act in the Bipartisan Infrastructure Law, the United States is one step closer to putting an end to drunk and impaired driving. As the survivor of a drunk driving crash in which I was hit head-on, I am proud to lead on this initiative that will save thousands of lives each year and prevent families from receiving that painful call of losing a loved one,” said Senator Ben Ray Luján. “Now, Congress must ensure that the federal government is fully aligned to implement this law. The Technical Working Group announced today will provide essential support to ensure this bill becomes a reality.”

“We have the technology to prevent drunk driving – which is the single largest cause of traffic fatalities in our country – and it is past time we use it and save lives,” said Congresswoman Debbie Dingell (MI-12). “When Congress passed my legislation requiring car manufacturers to install drunk driving prevention technology as standard equipment in new vehicles, we sent a clear message that we need to end this trauma now. As NHTSA begins the rulemaking process, the Technical Working Group will ensure this technology is implemented quickly and effectively. Together, we can stop drunk driving in this country once and for all.”