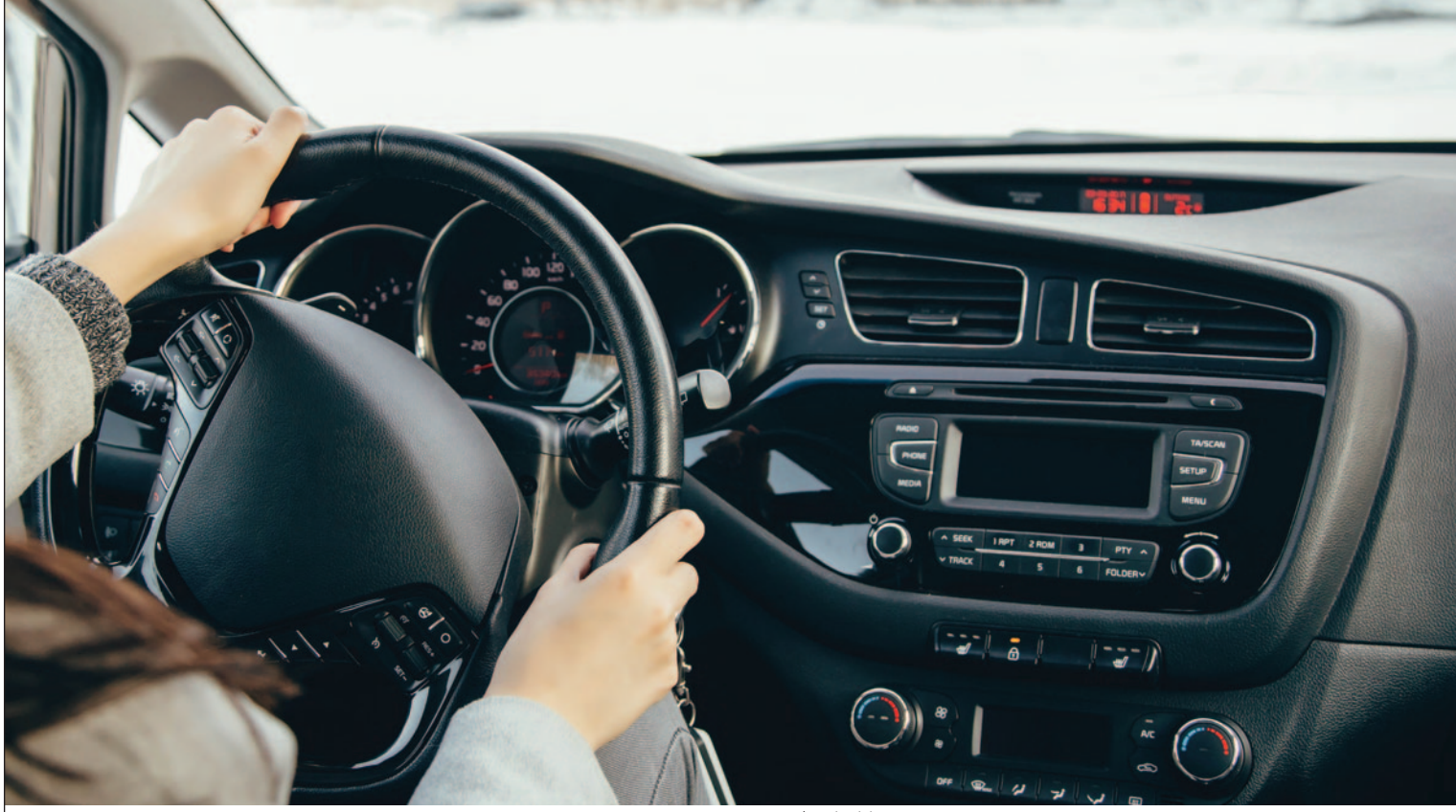

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Biden's Big Brother Hits the Road:

How the Infrastructure and Investment Act Creates the Specter of Increased Government Surveillance

The eradication of intoxicated driving continues to be an exceedingly popular political issue, so it comes as no surprise that President Biden's titanic Infrastructure Investment and Jobs Act (IIJA) contains provisions professing to do just that. Title IV of the IIJA addresses the broader subject of highway and motor vehicle safety. Both Subtitle A[1] and B[2] of Title IV address a variety of driving-related public safety issues, including multidrug impaired driving,[3] vehicular heatstroke of children left in passenger motor vehicles,[4] distracted driving,[5] and motorcycle safety.[6] Section 24220[7] of Subtitle B is titled "Advanced Impaired Driving Technology" (AIDT) and requires that "drunk and impaired driving prevention technology" eventually become standard equipment on all new passenger motor vehicles.

To comply with the general provisions of the United States Code,[8] Section 24220 begins with the usual anti-drunk driving diatribe, including the data suggesting that approximately one-third of all highway fatalities in the United States annually are caused by alcohol impairment.[9] In 2019 alone, there were 10,142 alcohol-impaired driving fatalities in the United States, with 68 percent of these crashes involving a driver with a blood alcohol concentration of .15 or higher.[10] Congress has also found that the estimated economic cost for alcohol-impaired driving was $44 billion solely in 2010.[11]

The amended bill was generally popular among both parties, having passed 69–30 by the Senate and 228–206 in the House. Ten days after the bill passed both houses, it was signed into law by President Biden. "My administration is building our capacity to end impaired driving by supporting innovative strategies that reduce impaired driving-related crashes, injuries, and fatalities,"[12] said President Biden 15 days later when he issued a proclamation in recognition of National Impaired Driving Prevention Month.

For several years prior to the passage of the IIJA, there had been a bipartisan effort to require that new cars utilize this kind of technology.[13] In 2019, Rep. Debbie Dingell (D–Mich.) introduced the (HALT) Drunk Driving Act, and this proposed legislation was eventually folded into the IIJA.[14] While many, including Pete Buttigieg and Mothers Against Drunk Driving, have lauded these provisions, a plausible unintended consequence of this technology is the very real specter of broadly increased governmental surveillance. This possibility arises from the practical implications of the technology rather than the letter of the law.

What Is Advanced Impaired Driving Technology?

The IIJA does not define advanced impaired driving technology, and consequently, the specific form of the required technology will remain ambiguous until

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the Secretary of Transportation, who is charged with the responsibly of making this determination, drafts the necessary rule. What is presently clear, however, is that the technologies that are eventually selected to fulfill the objectives of the IIJA must passively monitor one or both of two parameters: the driver's performance or the driver's blood alcohol concentration.[15] While not specifically so designated, it seems appropriate to assume that measuring impairment through driving performance is aimed at curbing, if not eliminating, drugged driving.

As it relates to driver performance, the IIJA provides that if a driver's performance "suggests impairment," then the technology must prevent or limit motor vehicle operation.[16] Additionally, it is indicated that if the technology determines that the blood alcohol concentration of "a driver" of a motor vehicle is at or above the legal limit, it must likewise prevent or limit the operation of a motor vehicle.[17] Regarding the applicable "legal limit," the bill references the Federal Code[18] that identifies .08% as the applicable standard.[19] Exactly how the technology will monitor both blood alcohol and driving performance while simultaneously satisfying all the objectives of motor vehicle safety under myriad conceivable driving conditions is also unclear.

When Will Drivers Start Seeing Such Advanced Impaired Driving Technologies?

Although new passenger vehicles may start utilizing such technology as soon as manufacturers think new car consumers want to pay for the option, the IIJA provides much time before any of the new regulations are required to go into effect. This kind of regulation takes time to write and implement, but this lengthy timeline may be due in part to a recognition that existing technology is not ready for prime time.[20] Accordingly, in the best-case scenario, manufacturers will not be required by law to incorporate such technologies for as few as five years. The reality is that it likely will take at least nine to 10 years before consumers start seeing these technologies standard on all new motor vehicles, if at all.

As mentioned, the new law does not, with any further degree of specificity, indicate what technologies are to be utilized to meet the dual objectives set forth therein. Instead, the law sets forth a timeline within which the Secretary of Transportation (SOT) is required to write the specific motor vehicle safety standard. It is indicated that not later than three years after the date of enactment of the IIJA, which was Oct. 1, 2021,[21] the SOT shall issue a "final rule" requiring that a motor vehicle safety standard addressing the incorporation of the selected AIDT be added to the relevant section of the federal code.[22] This final rule must require all new passenger motor vehicles manufactured after the effective date of that standard to be equipped with either of the technologies referenced above.

However, if the SOT determines that the agency cannot comply with the three-year deadline for promulgation of the rule, then it may extend the deadline to any date, in its sole discretion, as long as the new deadline is not more than three additional years, meaning that the SOT has a total of six years to write the rule.[23]

If the SOT has not developed the required "safety standard" within this timeline, then the agency must report to the committees responsible in the Senate and the House of Representatives its reason for not doing so, the barriers to finalizing the rule, and the status of any such technologies that are being considered. The agency must also propose a new timeline for the creation of such standard.[24] The IIJA also provides that the manufacturers have between two and three years after the date the SOT issues the rule to comply with the requirements set forth therein.[25]

It is important to note that after the final rule is proposed, it must be noticed, commented upon, and adopted in federal administrative rules.[26] Because manufacturers will have up to three years to implement this new law, the overall timeline provides a combined total of 10 years. Thus, after a combined 10 years, if such standard has still not been promulgated by the SOT, then the agency must additionally report to Congress the reasons for the overall failure, including any barriers faced, and make recommendations concerning how the standard can be met.[27]

What Existing Technologies Might Be Utilized and Adopted?

While the new law sets a timeline for the SOT to define what the AIDT solution will be, it leaves this determination solely to his discretion. The only guideline in the IIJA is that the AIDT be "advanced" and "passive" and that it either measure driver impairment through driver performance or measure driver intoxication by analyzing the driver's blood alcohol level, or both.

The IIJA also references the statute[28] that provides some guidance as to how the SOT is to exercise discretion in selecting the AIDT and fashioning the associated rule. The referenced statute provides that in exercising his discretion, the SOT should consider motor vehicle safety information that is relevant and available, and consult with the appropriate State and interstate authorities, including legislative committees. It further mentions that the SOT must consider whether a proposed standard is "reasonable, practicable, and appropriate."[29]

Systems that monitor vehicle movement, including various kinds of autonomous driver assistance technology, have already been introduced by all the auto manufacturers, and the SOT is likely to first consider the feasibility of adapting this existing technology for the intended purpose. These systems can already detect if a driver appears to be falling asleep, distracted, or suffering a medical emergency. Refining them to reliably detect driver impairment from drugs and/or alcohol versus other kinds of impairment might be difficult when each parameter is considered separately. However, when driving performance is combined with alcohol sensing technology, such discernment relative to drunk driving may be possible. MADD, whose lobbying activity was instrumental in the drafting and passage of this legislation, has indicated that candidate AIDTs could:[30]

1. Measure impairment by monitoring vehicle movement by way of vehicle warning systems that measure things like lane departure.

2. Measure driver impairment by monitoring the movement of the driver's eyes and/or head, usually by use of an embedded camera.

3. Measure a driver's blood alcohol level with embedded sensors that sample, evaluate, and measure the amount of alcohol in a driver's breath or passive perspiration.

MADD has stated publicly, however, that it is neutral as to the technology eventually selected for this purpose.[31]

According to number 2 above, drunk and impaired driving prevention technology could monitor the movement of a driver's eyes. Ethanol's effects on eye movements are well known. Ethanol intoxication slows the initiation and the velocity of saccadic eye movements and, most important, reduces the gain of slow eye movements.[32] Saccades are rapid, ballistic movements of the eyes that abruptly change the point of fixation. They range in amplitude from the small movements made while reading, for example, to the much larger movements made while gazing around a room.[33]

The scientific study of human eye movements began in the late 19th century and employed a variety of measurement techniques.[34] In the late 1940s, researchers used cameras to record eye movements of pilots in the cockpit.[35] It was the advent of digital technology and image processing in the 1970s that marked the opening of a new era of video-based eye monitoring.[36] Today many companies offer video-based eye monitoring systems at affordable prices.[37]

The technology necessary to prevent drunk driving based on eye movement is not new. In 1995 a patent was granted for technology that would, according to the patent application abstract, offer an integrated vehicle operator monitoring system for a vehicle, including a device for monitoring operator identity to ensure a vehicle operator is authorized to operate the vehicle, a device for monitoring operator intoxication, and a device for monitoring operator drowsiness.[38] It is far less clear how monitoring eye movement will reliably predict possible impairment from drugs other than alcohol.

Most passenger vehicle manufacturers have developed and started offering embedded infrared cameras that constantly monitor a variety of factors to confirm that the driver's attention is on the road. If the systems detect indicators of impairment or loss of consciousness, then the driver is first alerted and offered the opportunity to correct his or her driving. If the impairment continues, then the vehicle will begin to slow down and eventually will be disabled, bringing the vehicle to a safe stop.[39]

Likewise, Volvo has implemented a top speed limit and believes that in-car camera installation and other sensors that allow the car to intervene in distracted driving situations are the best way to address intoxication and distracted driving. These interventions potentially include "limiting the car's speed, alerting the Volvo on Call assistance service, and … actively slowing down and safely parking the car."[40] Volvo[41] and Nissan[42] both intend to use facial monitoring through an instrument-cluster-mounted camera that is facing the driver. This system is designed to monitor the driver's blinking. If drowsiness is detected, a voice message alert is triggered, and a seatbelt tightening mechanism is activated to gain the driver's attention. Finally, Nissan's concept car includes an operational behavior detection system, which monitors the driver's habits (e.g., swerving in and out of the driving lane). Like the previous proposals, a voice alert is issued when this behavior is detected, as well as the seatbelt alert mechanism.[43] Toyota also proposed a sensor to detect abnormal steering and a camera to monitor the driver's eyes along several parameters, including their orientation to the road, line of sight, and degree of alertness.[44] If any of these abnormalities are detected, the system will slow the car to a stop.[45] Presumably these technologies will each be evaluated by the SOT to determine if they are fit for the intended purpose, with or without modification.

The law is silent regarding how the government will use the information detected by advanced impaired driving technologies.

The more controversial technologies involve measuring a driver's blood alcohol level because doing so will always carry with it some degree of measurement uncertainty and, therefore, unreliability. Nissan, for example, is exploring the feasibility of implementing hi-sensitivity alcohol odor sensors that are built into the transmission shift knob to detect the presence of alcohol through the driver's palm perspiration. If an alcohol-level above the pre-determined threshold is detected, the system locks the transmission, making driving impossible. The car will also sound a "drunk-driving" voice alert.[46] Like Nissan, Toyota is also developing a detection system that determines alcohol level through the driver's perspiration. If a high-alcohol level is detected, the car will not start.[47] The idea of using perspiration for measuring bodily alcohol content goes back to the 1930s, and several studies during the last three decades have shown that there is a fairly strong correlation between perspiration alcohol and blood alcohol.[48]

Perhaps the most promising technology is the result of research engaged in by Driver Alcohol Detection System for Safety Program (DADSS), which is a private/public partnership with the federal government (NHTSA) and the Automotive Coalition for Traffic Safety (ACTS). This includes infrared breath test technology developed by SenseAir that measures the amount of carbon dioxide and alcohol (if present) in a sample of the driver's breath.[49] Carbon dioxide is used a bit like a yardstick in measuring blood alcohol on the basis that normal room air contains very low carbon dioxide percentages of around 0.04 percent,[50] whereas the amount of carbon dioxide in human breath is about 4-5 percent.[51] By comparing a ratio between a measurement of ambient CO2 and a measurement of ambient alcohol inside a motor vehicle, a BAC can be determined. This measurement is made using basic infrared technology, similar to that found in the desktop breath testing instruments used in police departments around the country.

An early version of this technology used infrared spectroscopy operating at the wavelength band at 9.5 m for alcohol detection and 4.26 m for CO2 detection. The SenseAir device consists of several monitors inside the vehicle that capture a sample of passively expired breath. An infrared light beam is passed through the captured breath samples, and using various algorithms, the device then analyzes the wavelengths to arrive at the ratio described above.[52]

An additional option also being developed by DADSS is a touch-system using near-infrared spectroscopy (NIR), which is a spectroscopic technique that allows a rapid analysis of a driver's blood alcohol. To do this, the device shines a light through the driver's skin, then measures the energy absorbed/reflected to determine the amount of alcohol in the driver's blood. The sensor can be placed anywhere a driver's skin would come into contact with an embedded sensor, such as an ignition button, gear

shift, or steering wheel.[53] Again, this technology is not new, but it has been significantly refined. In 2005 the scientists at InLight Solutions Inc., through a research study, were able to determine body alcohol concentrations more precisely using NIR spectroscopy than could be determined using a standard breath test.[54]

Will These Technologies End Impaired Driving?

These technologies will not end impaired driving. But at some point in the future AIDTs may well decrease its occurrence, perhaps even significantly. Human beings, however, are remarkably adaptive, and if countermeasures that will allow a driver to avoid detection are possible, then many drivers may see fit to employ them.

Also, as it relates to impairment by alcohol, the basic premise of the law is that a vehicle would not be operable above a .08 BAC. Due to the nature of alcohol and its interaction with the body, this cut-off leads to many difficult issues. A person's blood alcohol content is constantly changing. When a person consumes alcohol, full absorption of this alcohol, meaning the point at which an equilibrium is reached between rate of absorption and rate of elimination, usually occurs between 30-60 minutes after the last drink is consumed.[55] However, some studies have shown that full absorption can take place in as little as 15 minutes but may take as long as 138 minutes depending on pattern of drinking and individual differences in gastric emptying.[56] Some studies indicate that under some circumstances, complete absorption of alcohol takes a lot longer than 138 minutes.[57] This means that depending on the drinking pattern, if a person consumes alcohol prior to driving, but is below the legal limit when he starts the car, as few as 15 minutes later he could be above the legal limit. In these circumstances, presumably the vehicle would be incapacitated, but not until after the intoxicated driving offense has already occurred.

In addition to these potential obstacles are the underlying issues of scientific reliability and its adjuncts of instrument calibration and fatigue. There are also issues related to the limitations of such technologies which, at least as it relates to measuring blood alcohol, are irrelevant when it comes to identifying and deterring impairment caused by other substances. The CDC reports that 13% of nighttime drivers have marijuana in their systems, and marijuana users are 25% more likely to be involved in a crash.[58] Other commonly prescribed substances such as alprazolam, and dozens of other legal and illegal drugs, also have the potential to significantly impair performance.[59] Measuring only driving performance will be insufficient to discern impairment adequately and independently from these substances. Combining a measurement of driving performance with a measurement of blood alcohol will certainly increase the efficacy of any AIDT that may be utilized relative to drunk driving. AIDTs measuring driving impairment without a concomitant measurement of blood drug levels, however, will not reliably "build our capacity to end impaired driving."

Also, according to CNN, the average age of vehicles on U.S. roads has been rising for decades as cars grow ever more durable — and expensive. The average age of a car on U.S. roads rose to 12.1 years in 2021, according to IHS Markit. The average age had been 11.9 years in 2020. In 2002, the average age was 9.6 years.[60] Thus, unless the law is amended to require retrofit of existing vehicles, decades will pass before AIDTs end impaired driving of any kind.

Many Additional Legal, Scientific, Political and Practical Questions Remain

The law is also silent regarding the important legal issue of how the information detected by these technologies will be used by the government. It is anticipated that subsequent to the uniform adoption of AIDTs, the Federal Code will be amended to require that this information be collected, perhaps anonymously at first, for use by the government. More insidious is the prospect of real-time monitoring, which some interested parties may believe necessary because in most jurisdictions the statute creating the offense of driving while intoxicated does not define what it means to be in actual physical control of a vehicle. In many cases, however, whether a drunk driving arrestee is in "actual physical control" of a vehicle can mean the difference between a conviction and a judgment of acquittal. This goes to the heart of the problem and is a good part of the reason such governmental monitoring will be necessary. Consider a situation in which a person sits in the driver's seat and pushes the ignition button, and the vehicle's AIDT immediately detects a BAC at or above the .08 limit. This person has already committed a DUI in many states.[61] It

seems unlikely that law enforcement will be satisfied if the "offender" is not prosecuted. But prosecution cannot happen unless the police are notified.

An even more alarming scenario is presented when a person's BAC rises above .08 while the person is driving. Assuming the AIDT somehow safely disables the motor vehicle, is this person allowed to avoid prosecution? Again, this seems unlikely. Therefore, expect that new laws will be passed at either the state or federal level providing that this information be sent directly to the nearest police station so the allegedly intoxicated driver can be apprehended.

If a vehicle is simply rendered inoperable, but police are not dispatched to investigate or assist, then how long will the period of interoperability continue? Can another occupant of the vehicle move into the driver's seat and get the disabled vehicle back on the road? What if the vehicle is disabled in an area that is unsafe due to extreme weather or high crime? What if the driver is suffering from a medical issue requiring immediate aid? If a driver suffers injury or death because her vehicle was rendered inoperable, who will be liable to compensate the victims? It would also seem that communication with law enforcement will be essential under the circumstances, if only for operator safety. Otherwise, what will become of these stranded, allegedly intoxicated, drivers?

To overcome the obvious Fourth and Fifth Amendment issues associated with this monitoring and sharing of information, governments may attempt to amend their implied consent laws. However, these efforts are likely to prove futile, but not before much litigation.[62]

Finally, as mentioned, after AIDT starts showing up in new vehicles, it will likely take well over a decade for all used cars without it to be off the road. During the interim, there will be two classes of drivers: those who drive cars with these technologies and those who do not. Therefore, there will be two separate classes of drivers, those subject to governmental monitoring, and those who are not. This evokes thoughts about equal protection, though admittedly it will be difficult to establish both the requisite suspect class and an impact on fundamental rights,[63] making a viable equal protection claim tenuous. Nevertheless, the existence of the disparate impact on two separate classes of drivers might present yet another constitutional challenge to the implementation and implications of police remotely monitoring the quality of driving and quantity of blood alcohol level of some drivers but not all.

Conclusion

Eliminating impaired driving is a laudable goal, and the IIJA does help to reify the seriousness with which the government views this problem. However, without significant changes in the law and improvements to the technology, the solution to this problem will continue to bewilder politicians and police officers alike.

Notes

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6. *Id.* at § 24102(a)(2)(E).
7. *Id.* at § 24220.
8. 49 U.S.C. § 30102(a)(9).
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15. Jobs Act, § 24220(b)(1)(A)(i-ii).
16. *Id.* at § 24220(b)(1)(A)(i).
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