DEPARTMENT OF TRANSPORTATION
FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION

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DOCKET NO. FMCSA 2018-0037
SAFE INTEGRATION OF AUTOMATED DRIVING SYSTEMS-EQUIPPED
COMMERCIAL MOTOR VEHICLES

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COMMENTS OF
THE ASSOCIATION OF AMERICAN RAILROADS

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The Association of American Railroads, on behalf of itself and its member railroads, submits the following comments in response to FMCSA's advanced notice of proposed rulemaking requesting public comment about any FMCSA safety regulations that may need to be amended, revised, or eliminated to facilitate the safe introduction of automated driving systems equipped commercial motor vehicles ("ADS-CMV"s) onto our Nation's roadways.[1]

In the ANPRM, FMCSA asked whether ADS-CMVs should "be capable of identifying highway-rail grade crossings and stopping the CMV prior to crossing railroad tracks to avoid collisions with trains, or going onto a highway-rail grade crossing without having sufficient space to travel completely through the crossing without stopping?"[2] The answer to this question is a resounding yes.

As stated in AAR's comments to DOT's publication, *Preparing for the Future of Transportation: Automated Vehicles 3.0* ("AV 3.0"), highway-rail grade crossing accidents are a critical safety problem and present an obvious opportunity for automation of vehicles to deliver on its safety promise in substantial ways.[3] As the FRA noted in a recent study, nearly all deaths at rail-highway crossings are preventable, as "94 percent of train-vehicle collisions can be

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[1] AAR is a trade association whose membership includes freight railroads that operate 83% of the line-haul mileage, employ 95% of the workers, and account for 97% of the freight revenues of all railroads in the United States; and passenger railroads that operate intercity passenger trains and provide commuter rail service. 84 Fed. Reg. 24,449 (May 28, 2019).

[2] Id. at 24,455.

[3] *See* Docket No. DOT-OST-2018-0149-0061.

attributed to driver behavior or poor judgment."[4] The physical and legal realities that govern grade crossings are straightforward – trains cannot stop or change direction at grade crossings, so motor vehicles are legally required to yield to trains. Yet many motor vehicle operators do not obey the law, risking life and limb. In 2017, 274 people were killed at highway-rail crossings, and although this number is much lower than it was as recently as a decade ago, it is still unacceptable.[5] Designing motor vehicles to eliminate human error and poor judgment by automating vehicular behavior at grade crossings could achieve a significant reduction in fatalities and injuries at grade crossings.

Just as the behavior of ADS-CMVs must be governed as they approach busy roadway intersections, so too should their behavior be governed as they approach highway-rail grade crossings. Rail corridors must be afforded respect, regardless of whether the approach to them is equipped with active warning devices (some combination of flashing red lights, bells, or gates) or passive warning devices (the familiar white "Xs" on posts). ADS-CMVs must be able to recognize multiple types of approach warnings, including the multiple signs and pavement markings called for in the Manual on Uniform Traffic Control Devices for Streets and Highways, and the various state-adopted versions of that document.[6] The ability to recognize multiple types of advance warnings is critical, so that if any advance warnings are missing or defective - due to a vehicle accident that knocks down a sign, to a need for restriping due to repaving of a roadway, a maintenance failure or some other reason - the ADS-CMV nevertheless is able to perceive other indicia of the presence of the crossing. Similarly, as advance warning for non-public crossings is not uniform, the vehicle's ability to recognize multiple indicia of the presence of the road-rail crossing is essential.

In order to obtain even partial automation, an ADS-CMV will need the ability to visually detect approaching trains and account for any variables that might obstruct its view. In addition to the visual detection of approaching trains, an ADS-CMV should be able to recognize other signs of the presence of a locomotive and/or train, such as locomotive headlights, horns, and bells. Once the ADS-CMV has confirmed that it is safe to cross, it also should ensure a complete move through the crossing to prevent the vehicle from stopping on the tracks due to shifting gears, traffic queueing, or other reasons.

While automation has the potential to drive improvements in grade crossing safety, these improvements should be accomplished by technology that recognizes when a vehicle is approaching a highway-rail grade crossing, responds appropriately and lawfully to traffic

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[4] Federal Railroad Administration, Office of Railroad Policy and Development, "Analysis of Grade Crossing Accidents Resulting in Injuries and Fatalities," May 2016. *See also* Multer, Jordan and Yeh, Michelle, "Driver Behavior at Highway-Railroad Grade Crossings: A Literature Review from 1990 – 2006." DOT/FRA/ORD-08/03. Available at: https://www.fra.dot.gov/eLib/Details/L01598.

[5] *See* FRA's safety data statistics on railroad crossing deaths, injuries and incidents from 2006-2015, showing a reduction in incidents at railroad crossings of almost 33% from 2006 to 2015. Available at: https://www.fra.dot.gov/Page/P0855

[6] The U.S. Department of Transportation, Federal Highway Administration's Manual on Uniform Traffic Control Devices for Streets and Highways can be accessed at: https://mutcd.fhwa.dot.gov/.

control inputs such as grade warning devices, recognizes when it is safe to proceed over the crossing, and completes a safe move through the crossing, all independently of any railroad signal systems.

Respectfully submitted,

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July 26, 2019