



A bold voice for transportation workers

March 2, 2018

Mr. Steve Mortensen,
Office of Research, Demonstration and Innovation,
Federal Transit Administration,
1200 New Jersey Ave. SE.,
Washington, DC 20590

Mr. John Harding,
Intelligent Technologies Research Division,
Office of Vehicle Crash Avoidance and Electronic Controls Research,
National Highway Traffic Safety Administration,
1200 New Jersey Ave. SE.,
Washington, DC 20590

RE: Autonomous Bus/Vehicle Notices
Docket No. FTA-2017-0024
Docket No. FTA-2017-0025
Docket No. NHTSA-2018-0009

Dear Mr. Mortensen and Mr. Harding,

On behalf of the Transportation Trades Department, AFL-CIO (TTD), I am pleased to provide comments on the Federal Transit Administration (FTA) and National Highway Traffic Safety Administration's (NHTSA) solicitations for information on autonomous transit buses and autonomous vehicle design. By way of background, TTD consists of 32 affiliate unions representing workers in all modes of transportation, including those who will be impacted by the development and deployment of automated driving systems. We therefore have a vested interest in the rulemaking.¹

¹Attached is a complete list of TTD's 32 affiliate unions.



In its dockets, FTA requests information on the regulatory, policy, and legislative barriers to the development, demonstration, deployment, and evaluation of automated transit buses. FTA also requests information on the state of the automated transit bus technology and related data. NHTSA's docket similarly requests information on regulatory barriers in the existing Federal Motor Vehicle Safety Standards (FMVSS) to the testing, compliance certification and compliance verification of motor vehicles, particularly as they may apply to a future in which there is no human operator in a vehicle.

While considering the barriers to the deployment of automated vehicles, including transit buses, the Agencies must also consider the barriers to the safe operation of these vehicles. It is incumbent on DOT and its modal agencies to ensure that its efforts to promote these technologies do not result in putting unsafe, untested and unreliable vehicles on the nation's roadways where they can imperil riders, fellow motorists, and pedestrians. Critically, as the government promotes automated commercial and transit vehicles, it also has a clear responsibility to mitigate the job loss and displacement in automated transportation industries as well as train and retrain workers when appropriate. Inaction in this regard by the federal government has potentially dire consequences for workers and the national economy. Further, DOT, its modal agencies, and Congress need to take steps to address these considerations before displacement and training issues arise, not after. Some of our immediate concerns are discussed below.

Public Data and Publishing

It is necessary that the testing and development of automated buses be conducted in the most transparent method possible. NHTSA can foster this environment by requiring public disclosure of performance and testing data that will inform policymakers and the public about an automated vehicle's safety. This may include information such as the level of automation, capabilities of the automated driving system, safety exemptions, reengagements during testing (incidents in which a human operator must take control over from the automated system), performance under differing weather and road conditions, and the number of miles driven solely by the autonomous system as opposed to the human operator. Most importantly, crash or near miss data on public roads must be reported to NHTSA and promptly made available to the public.

Any concerns manufacturers may have about protecting trade secrets cannot trump the rights of the public to know whether a bus they are riding on and sharing the streets with is safe. Similarly, we urge NHTSA to reinstate its recommendations in favor of information sharing between manufacturers in the next version of its automated driving systems guidance. Unfortunately, this recommendation was removed from the publication of "Automated Driving Systems: A Vision for Safety 2.0". Regarding all data, collected through mandate or voluntarily, NHTSA should make the information available to the public in a clear, transparent method. This is particularly important given the limited amount of data currently available.

Certification

As both Agencies remark in their notices, current regulations anticipate a human driver in the vehicle. With regard to NHTSA's FMVSSs, this underlying assumption has informed how vehicles of all types are constructed, and to what standards they are held. Manufacturers of traditional vehicles self-certify that their products meet these standards and determine that their vehicles are safe at the point of first sale without direct federal oversight.

In the event that manufacturers overcome the multitude of technical issues related to successfully developing autonomous transit buses, TTD firmly believes that the existing regulatory regime is inadequate for these vehicles. When Congress passed the National Traffic and Motor Vehicles Safety Act of 1966, the law vested NHTSA with responsibility for protecting the public against accidents created by the improper design, construction, or performance of motor vehicles. For AVs, NHTSA has chosen to provide voluntary, unenforceable guidelines that do not uphold the agency's founding mission of ensuring safety and protecting the public. By allowing manufacturers to deviate from or otherwise ignore the guidelines, this approach may create a dangerous patchwork regime of noncompliance.

Notably, manufacturers must not be permitted to introduce autonomous buses to public roads using only their own private data as evidence of their safety. These vehicles must be subject to greater and more proactive NHTSA oversight, particularly in the event that the manufacturer is requesting exemptions from existing FMVSSs. The most effective regulatory approach is through the adoption of a functional safety standard. This standard would dictate the process by which a vehicle is designed, manufactured, and deployed to ensure the product will function safely as a whole. The FAA currently uses a similar model. Additionally, NHTSA should require the submission of Safety Assessment Letters (SAL) by the manufacturer. Under a functional safety standard, the SAL would require the manufacturer to certify to the agency that the AV will operate properly and safely under the conditions it is designed for. The SAL should include test results and data to prove the AV system functions as designed, including any negative test results and data that may indicate the AV system did not always function as designed along with information and data indicating how these issues were resolved.

Finally, much like NHTSA requires crash test standards it should also develop and require a comprehensive safety testing procedure for autonomous vehicles. This standard should evaluate the vehicles ability to assess its surroundings, including weather, pedestrians and other obstacles, and responds appropriately.

Semi-Autonomous Vehicle Barriers

While the Agencies' notices discuss difficulties associated with high levels of autonomy (Society of Automotive Engineers (SAE) Levels 4 and 5), it is important that they also recognize some of the regulatory roadblocks impacting semi-autonomous operations (SAE Levels 2 and 3) in which the driver shares responsibility with the automated driving system (ADS). In particular, the Agencies should consider how to best address issues of driver distraction.

A semi-autonomous system may require the human operator to regain control of the vehicle at any time. However, ensuring that the driver maintains the situational awareness required in order to reengage with the traditional driving operations poses a substantial challenge. A fatal 2016 accident involving a Tesla in a semi-autonomous driving mode speaks to this issue – the driver was unable to reengage with the vehicle in time to avoid a crash. This is not a unique phenomenon; researchers at the University of Southampton recently demonstrated that depending on the circumstances, reengagement with the vehicle may take a driver anywhere from two seconds, to as much as 30 seconds. To that point, it is possible that the deployment of semi-autonomous technology without regulating their unique complications could actually increase accidents and

fatalities as drivers are left unprepared and ill-equipped. For large commercial vehicles like transit buses, this impact could be devastating.

To this end, we strongly recommend research and eventual regulation on maintaining situational awareness while operating a SAE Level 2/3 vehicle, particularly in regard to the vehicle's human machine interface (HMI). NHTSA should require that HMI systems are designed to maintain awareness and engagement to best ensure a safe transition between machine and human operator. Last second alert systems or passive warnings in the vehicle's manual are not adequate. Additionally, in any situation in which a human operator maintains responsibility for the vehicle, the HMI must provide information on the functionality of the ADS system to best prepare the operator to react to failures of the technology.

Job Displacement and Training

Any actions taken by the federal government that would further the development and deployment of autonomous vehicle technology into the public sphere must also recognize the potential impact of this technology on job dislocation and unemployment. This mass introduction of autonomous vehicles should be paired with proactive policies designed to minimize harm on those who are employed in fields that would be dramatically impacted.

A primary concern for the DOT and all policymakers should be the potential for the substantial dislocation of workers from AV adoption. The Bureau of Labor Statistics currently reports that approximately 170,000 Americans drive buses and nearly 6 million total workers are employed in driving-dependent occupations. For operators, the technological change caused by automation threatens to drastically alter the provision of service and the nature of the workplace. The scope and speed of AV adoption will determine the precise level and depth of employment disruption and dislocation. While those variables will play out over time, we believe it is imperative that the DOT must prepare for them at the outset, rather than then the end of this process. Waiting is not an option. Recent empirical economic research shows that market disruptions are increasingly difficult for blue-collar workers to navigate. Most notably, over the previous two decades U.S. workers who were displaced from employment face substantial and long-lasting troubles in the labor market, including elevated levels of unemployment, lowered labor force participation, and long-term wage losses. Not only does AV-based displacement create potential problems for workers but it also causes a net drag on the economy from underutilized human capital.

Given this initiative to harmonize the regulatory environment – along with decades of explicit and implicit government subsidy – in order to advance this technology, we believe the DOT and its constituent agencies must consider the workforce implications and job loss. Mitigating the impacts will require active labor market programs, and financial support. A failure to thoughtfully assist workers through this process at the front end will needlessly complicate the lives of affected workers and create unnecessary chaos with the introduction of new technologies.

Additionally, FTA and DOT, in conjunction with Congress, should offer robust training and re-training programs to best ameliorate these effects. FTA should focus on retraining employees for existing and new jobs in the transit sector that emerge with the deployment of AVs, including in maintenance and inspection.

It is also important that this training is both continuous and proactive. The rollout of autonomous technology will not happen overnight, and ongoing training efforts to ensure that transit workers have the requisite updated skills to maintain their employment is critical. FTA and the federal government should promote and deploy early response training programs which seek to train workers so they are prepared for an easier transition to other jobs before, not after, their current job is automated.

Most significantly, this is not the first nor will it be last period in which technological change has changed the mode and means for providing transit service. Indeed, the history of transit is marked by the success with which it has responded to and addressed the changing role of workers as buses and rail transit evolved and improved over many decades. It has been the strong labor management framework embraced by Congress and the agencies which have enabled the industry and its workers to partner together to prepare for and adapt to the introduction of new technology.

The introduction and application of autonomous technology calls for no less. Indeed, the stability in the industry in the face of massive technological changes is due largely to this unique, productive relationship. Transportation unions stand at the forefront of developing and training new segments of the workforce and will continue to so with rollout of these new technologies. TTD affiliate unions stand ready to move forward together to ensure that new transitions are successfully addressed. We hope to continue to cooperate with DOT and FTA in this regard.

As this technology moves forward, FTA and NHTSA must ensure that any automated technology improves, rather than diminishes safety. This is best accomplished with a hands-on regulatory approach towards both semi-autonomous and highly autonomous vehicles. We also strongly urge FTA and DOT to address job displacement issues as AV technology enters the transit sector.

We thank NHTSA and FTA for the opportunity to comment on these dockets and look forward to working with the Agencies on autonomous vehicle issues going forward.

Sincerely,



Larry I. Willis



Transportation Trades Department, AFL-CIO
A bold voice for transportation workers

TTD MEMBER UNIONS

Air Line Pilots Association (**ALPA**)
Amalgamated Transit Union (**ATU**)
American Federation of Government Employees (**AFGE**)
American Federation of State, County and Municipal Employees (**AFSCME**)
American Federation of Teachers (**AFT**)
Association of Flight Attendants-CWA (**AFA-CWA**)
American Train Dispatchers Association (**ATDA**)
Brotherhood of Railroad Signalmen (**BRS**)
Communications Workers of America (**CWA**)
International Association of Fire Fighters (**IAFF**)
International Association of Machinists and Aerospace Workers (**IAM**)
International Brotherhood of Boilermakers, Iron Ship Builders,
Blacksmiths, Forgers and Helpers (**IBB**)
International Brotherhood of Electrical Workers (**IBEW**)
International Longshoremen's Association (**ILA**)
International Organization of Masters, Mates & Pilots, ILA (**MM&P**)
International Union of Operating Engineers (**IUOE**)
Laborers' International Union of North America (**LIUNA**)
Marine Engineers' Beneficial Association (**MEBA**)
National Air Traffic Controllers Association (**NATCA**)
National Association of Letter Carriers (**NALC**)
National Conference of Firemen and Oilers, SEIU (**NCFO, SEIU**)
National Federation of Public and Private Employees (**NFOPAPE**)
Office and Professional Employees International Union (**OPEIU**)
Professional Aviation Safety Specialists (**PASS**)
Sailors' Union of the Pacific (**SUP**)
Sheet Metal, Air, Rail and Transportation Workers (**SMART**)
SMART-Transportation Division
Transportation Communications Union/ IAM (**TCU**)
Transport Workers Union of America (**TWU**)
UNITE HERE!
United Mine Workers of America (**UMWA**)
United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial and Service
Workers International Union (**USW**)

These 32 labor organizations are members of and represented by the TTD

