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Written Statement of

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Committee on Transportation & Infrastructure
Subcommittee on Highways & Transit

Hearing on
The Road Ahead for Automated Vehicles

Thank you, Chair Norton, Ranking Member Davis, Chair DeFazio, and Ranking Member Graves for providing us this opportunity to present our views on the future of autonomous vehicle (AV) technology. The Transport Workers Union of America (TWU) represents more than 150,000 working people who are on the frontlines of our passenger and freight transportation systems. These members include bus operators, mechanics, and other transit workers serving both large and small urban areas across the country. In New York City, Philadelphia, San Francisco, Houston, Miami, Columbus, Ann Arbor and many other areas, our members are the ones most at risk of job loss and displacement if automated vehicles are deployed haphazardly or in ways that undermine workers' interests. As this committee considers legislation that

addresses how and if AVs are integrated into our transportation system, the decisions you make will have profound effects on the frontline employees, passengers and motorists, and on the future of mobility across America.

At the start, let me be clear: the TWU fully supports pro-worker,[1] pro-safety[2] technology. We frequently spend our own capital in bargaining to force our employers to install automatic braking, blind-spot monitoring, and other key technologies that empower workers to perform their jobs safely and efficiently. We would strongly endorse legislation that regulates the AV industry, holds new technologies to our existing or higher safety standards, and ensures that this industry creates and sustains good, union jobs in the United States. We look forward to working with this committee and others to advance new technology that improves the quality of life for transportation workers.

To that end, we must acknowledge that today's transportation sector is at a critical moment as new technologies, including automation features, mature and prepare for wide scale deployment. This development necessitates active involvement and oversight from the DOT – a shift from the Department's recent laissez faire approach to

[1] https://ttd.org/policy/letters-to-congress/labor-principles-for-autonomous-vehicle-legislation/
[2] TWU has endorsed the Autonomous Vehicle Tenets, Advocates for Highway and Auto Safety, November 30, 2020, a comprehensive AV safety blueprint: https://saferoads.org/wp-content/uploads/2020/11/AV-Tenets-11-24-20-1.pdf.

emerging technologies.[3] Just as with past transportation technological advancements, building coherent, consistent regulations now will ensure that AVs are deployed safely and integrated into our system in a way that preserves workers' rights and creates good, union jobs. Without a strong regulatory structure, in contrast, this technology poses an immediate threat to the safety and stability of transit and freight systems across the country.

Innovation and automation are not new to our union or our members. The New York City subway system ran a fully-automated train across Manhattan from 1962-1964, a train maintained and overseen by TWU members. Our mechanics are, right now, transitioning to electric buses – a completely different system than we've used for the past century. We have experienced thousands of technological changes, big and small, and have always provided the experience necessary to keep our systems safe and operating at maximum capacity. We've done this through representation, collective bargaining, and government action to develop our workforce, require the highest safety standards, insist on equity and inclusion, and demand a just transition to the next generation transportation technologies. 21st-century technologies, including AVs, should be no different. The DOT and all of our transportation systems have a set of

[3] See TWU comments regarding Ensuring America's Leadership in Automated Vehicles Technologies: Automated Vehicles 4.0. DOT-OST-2019-0179-0028; https://downloads.regulations.gov/DOT-OST-2019-0179-0028/attachment_1.pdf

standards and practices that work for these transitionary moments and do not come at the expense of transportation safety, affordable and accessible public transit, or good, union jobs. We should adapt and apply this system to regulate AVs on our roads and in our transit systems.

This sincere belief – that we can build and maintain a pro-worker innovation policy as a country – leads us to reject several arguments that have been made by some tech advocates and others. First among these is the "with us or against us" mentality that seeks to force a conflict between innovation and workers. Our members work with technology every day – they rely on it to do their jobs and to keep them safe. Any and all technologies that facilitate their work is, by definition, pro-worker and our members fight, on a daily basis, to deploy more of this kind of technology into our systems. However, new ideas are not synonymous with good ideas. AV technologies that haven't been properly evaluated and scrutinized by independent federal safety regulators, technologies that attempt to cut corners to address their own limitations, and technologies that are intentionally designed to displace workers should all be suspect. Moreover, we have serious concerns that, without strong federal regulation, we face a transportation future that is strictly at odds with the hundreds of billions of federal dollars that this committee has invested into safety, congestion mitigation, air

quality improvement, and equitable access to safe and reliable public transit through the surface transportation program.

Our future transportation systems should be built for the users – whether they be in vehicles or sharing the road with them – and frontline transportation workers, not companies.[4]

The TWU also rejects arguments of those who claim that any limitation on innovation somehow creates a global competitive disadvantage for our nation. We know that auto manufacturers, technology companies, and startups, buoyed by significant federal investments, are pouring billions into autonomous vehicles. General Motors and Ford alone have said they'll spend a combined $65 billion on autonomous and electric vehicles through 2025. These and other investments by large companies such as Google AV spinoff Waymo have led to significant advancements that are already on our roads and highways. Clearly, we are in no danger of falling behind on idea generation. We are at risk, however, of losing hundreds of thousands of manufacturing and frontline transportation jobs if Congress fails to act decisively and the AV industry is left completely unregulated. The public interest in AVs is in the number of good, union

[4] John Samuelsen, The Future of Transit Should Be Determined by the People, Not Big Tech, September 2, 2020, Morning Consult: https://morningconsult.com/opinions/the-future-of-transit-should-be-determined-by-the-people-not-big-tech/.

jobs the industry creates in America and the safety benefits the technology ultimately delivers. Tellingly, we have seen no plan from the most vocal proponents of AV deployment that would condition federal support or non-intervention on requirements to produce jobs or meet promises on safety.

As Congress considers AV legislation, we will be advocating, together with the other transportation unions and our allies, for a robust title from this committee. This title must establish clear benchmarks for safety regulation, retention and creation of good jobs, data collection and transparency, and ensure that a strong worker voice is present – early and throughout the innovation process – as AV's are developed and implemented.

With this backdrop, the TWU offers the following recommendations for a federal response to the future of AV deployment.

A Worker- and Safety-Centric Transportation and Infrastructure Committee Title Must be a Part of any House AV Legislation

The TWU and other unions have actively made the case that AV legislation must uphold and boost safety standards and create good, union jobs. Neither of these goals are possible without a comprehensive title written by this committee.

Already our transportation network is dotted with AV experiments that have placed numerous, unproven autonomous passenger and freight vehicles of various sizes and configurations on our roads. It is critical that this committee meet the moment as we see a deluge of accidents from these vehicles while suffering through a significant lack of transparency and available data for proper analysis. AV operations need federal regulation and oversight. There are 9.1 self-driving car accidents per million miles driven versus 4.1 per million miles among regular vehicles.[5] These are not just statistics to be analyzed and debated; they are a warning sign to lawmakers and regulators that rigorous, enforceable regulations are needed before we unleash millions of AVs onto our roads and into our transit systems.

DOT's Transportation Innovation Principles Provide a Strong Foundation

Secretary of Transportation Pete Buttigieg has recently unveiled a new set of principles around transportation innovation.[6] These principles serve as a powerful backdrop for how the federal government can use its authority and resources to ensure shared prosperity and a "seat at the table" for frontline workers as new transportation innovations, including AV applications, are developed and implemented. We believe this vision represents a necessary turning of the page by the DOT from the previous

[5] The Dangers of Driverless Cars, May 5, 2021, The National Law Review: https://www.natlawreview.com/article/dangers-driverless-cars.
[6] US DOT Innovation Principles, as released in January 2022: https://www.transportation.gov/priorities/innovation/us-dot-innovation-principles.

Administration's ill-advised, hands-off approach to AV oversight by putting workers and job creation at the center of the innovation development process. Core elements of these principles include:

- Creating high quality jobs and increasing opportunity for all Americans.
- "Empowering workers" by expanding access to skills, training and the "choice of a union" as well as giving workers a "seat at the table in shaping innovation."
- Allowing for experimentation but requiring open data and transparency to ensure we learn from both successful and failed deployments.
- Forging partnerships with the private sector while protecting the "interests of the public, workers, and communities" and remaining "technology neutral."

The TWU has publicly praised this approach[7] and believes a government-wide philosophy that mirrors these principles will begin to change the trajectory of emerging technology and how it affects workers and jobs. In particular, the DOT's new principles are consistent with the objective and values that our union has emphasized as we continue to make the case for worker-centered AV policies. We urge this committee to embrace the Administration's new principles as you craft AV legislation.

[7] TWU President John Samuelsen statement in response to the US DOT innovation principles: https://www.twu.org/twu-president-samuelsen-dot-innovation-principles-will-ensure-transportation-workers-have-a-seat-at-the-table/.

A Qualified Human Operator Must Be On-Board All Passenger Buses and Other Commercial Use Vehicles Regardless of Level of Automation

Our nation's public transit sector is a centerpiece of Americans' mobility needs. These services have always been about providing access and opportunity for everyone. They connect people to their jobs, communities, and our national economy. Without these services, millions of Americans will suffer severe social and economic consequences. At the core of these services are the essential workers who safely operate our vehicles, provide customer service, report issues to law enforcement, enable accessibility features, and otherwise aid riders in the journeys. These workers perform all of these duties simultaneously and professionally; they manage the unexpected and the dangerous operations in large and small ways under often difficult circumstances. Just as in aviation and rail, these workers serve a critical safety role that cannot be replaced by automation.

The Transportation and Infrastructure Committee has already noted the perils of overreliance on automation in its report on the Boeing 737-MAX crashes. The report highlights that the malfunctioning system which caused these crashes overruled commands from the pilots that would have saved hundreds of lives. Other pilots who

faced the identical malfunction ultimately survived by simply turning off the failing system.[8] Automated systems must have this human oversight in order to truly be safe.

Just a few miles from the Capitol building, 9 people, including the train operator, were killed 52 injured in 2009 due to WMATA's overreliance on automation. The National Transportation Safety Board (NTSB) found that "the Metrorail automatic train control system stopped detecting the presence of [a stopped train] … and allowed speed commands to be issued to [the following train which struck the back of the stopped train]." The record of the investigation shows that the operator of the striking train saw the stuck train ahead of her and attempted to stop her train but was overruled by the automated systems.[9]

Already, we are seeing certain interests use terms like "monitor" to describe the workers who remain on-board during AV pilots. Our members and all transit workers are not monitors; they are safety professionals and sometimes first-responders who keep riders safe. While a bus or van may one day achieve Level 4 or 5 automation, that technological capability does not eliminate the need for a qualified operator on-board

[8] https://transportation.house.gov/imo/media/doc/2020.09.15%20FINAL%20737%20MAX%20Report%20for%20Public%20Release.pdf

[9] NTSB/RAR-10/02; https://www.ntsb.gov/investigations/AccidentReports/Reports/RAR1002.pdf

every vehicle, any more than the autopilot features in commercial aircraft at 35,000 feet should ever replace two skilled pilots in the cockpit.

Transportation Labor's AV Principles

TWU has joined 34 other unions to develop the "Labor Principles for Autonomous Vehicle Legislation."[10] This is an important resource for the committee as you write AV legislation as it provides specific recommendations. These principles provide a sensible approach to AV's focused on:

- ensuring Congress and the DOT establish and enforce vigorous safety standards;
- treating commercial applications of AV's differently to reflect the safety-sensitive work performed by commercial operators of buses, trucks and smaller vehicles such as vans, delivery bots and other alternative design vehicles;
- ensuring there is a workforce plan that advances together with any AV bill; explicitly protecting consumer rights, equity and accessibility,
- and committing to clear policies that ensure the AV manufacturing sector creates US union jobs across the entire supply chain through strong Buy American policies and incentives to buy American- and union-made vehicles.

[10] Transportation Trades Department, AFL-CIO, TWU and other affiliated unions, and the International Brotherhood of Teamsters, Labor Principles for Autonomous Vehicle Legislation: https://ttd.org/policy/letters-to-congress/labor-principles-for-autonomous-vehicle-legislation/.

AV Technology Requires Clear Safety Standards and Transparency

TWU is deeply concerned that, in the absence of federal leadership and regulation, there will be too many companies that believe they are free to test or even implement their "driverless" technology whether or not it is safe to do so. We have witnessed the ongoing, public dispute between the National Transportation Safety Board (NTSB) and Tesla over the company's testing of "full self-driving" systems in its cars.[11] Let us be clear: the use of the term testing implies there are laboratory conditions. Actually, the laboratory is our roads and the NTSB is calling out Tesla for failing to respond to the agency's recommendations about "design shortcomings" in the wake of crashes involving Tesla automated features. NTSB Chair Jennifer Homendy spoke clearly about this concern[12]:

It's clear that if you're marketing something as full self-driving and it is not full self-driving, and people are misusing the vehicles and the technology, you have a design flaw and you have to prevent that misuse … And part of that is how you talk about your technology. It is not full self-driving … It's misleading."

[11] NTSB Chair criticizes Tesla over vehicle self-driving feature testing, Reuters, October 25, 2021: https://www.reuters.com/business/autos-transportation/tesla-submits-partial-response-us-auto-safety-probe-memo-2021-10-25/.

[12] NSTB Chair interview regarding Tesla's improper testing of "full self-driving" technology, CNBC, October 26, 2021: https://www.cnbc.com/2021/10/26/ntsb-head-criticizes-teslas-self-driving-features-calls-them-misleading.html.

This dispute should alarm the country and regulators. It underscores why Congress and the Biden Administration must act and gain control over the way this industry rolls out driverless technologies. There must be clear policy:

- Requiring any company to be held accountable for how it markets and tests AV technology;
- Mandates transparency and open data collection and reporting;
- Ensures crash and safety incident data are available in real-time and that the NTSB has the authority it needs to act forcefully;
- Scrutinizes how driverless technologies are sold and marketed to transit agencies, and
- Ensures the DOT regulates how transit agencies test these technologies given the safety implications for passengers[13] that participate.

Workers Must Have a Seat at Every Table as New Technologies Emerge

Workers must have, as Secretary Buttigieg has said repeatedly, a "seat at the table" throughout the innovation process. This means requiring, for example, transit agencies to work and negotiate with their unions in the decisions around testing and implementing new technology-enabled innovations, including AV vehicles.

[13] Self-driving shuttle company ordered to stop carrying passengers after injury, The Verge, February 26, 2020: https://www.theverge.com/2020/2/26/21154532/easymile-columbus-ohio-nhtsa-suspension-injury.

Congress recognized the centrality of this issue as part of the recently passed Infrastructure Investment and Jobs Act.[14] As a condition of federal aid for electric buses, transit agencies must conduct a review of their worker training needs and build a workforce training plan to ensure that mechanics, drivers, and others are learning to use new equipment rather than face displacement. The bill also allocates 5% of each federal grant for electric bus procurement towards implementing these plans. This Committee passed a version of this plan which would have also applied to AVs and other new technologies in transit.

If the policies and investments we advance are to create public good, they must center workers at every stage of the innovation process. Wherever AV's and other technologies are being developed and considered for adoption, the frontline people who will be directly affected should be at the table with a strong voice. Unions should be involved, as a matter of explicit policy, upstream in federal research and development programs. TWU has offered a set of common sense reforms that mainstream worker voice in the agency's R&D programs.[15]

[14] P.L. 117-58 Section 30018

[15] Transport Workers Union, comments to the Department of Transportation regarding the agency's R&D programs, January 31, 2022. DOT-OST-2021-0160-001

These principles can be achieved if they are anchored in strong policies and in the longstanding collective bargaining mechanisms that have been a cornerstone of how America prepares its workforce for advancements in transportation innovation. Transportation Secretary Pete Buttigieg shares our views, as reflected in an opinion article he wrote recently about the agency's newly released innovation principles[16]:

Our innovation strategy must support workers, knowing that our choices will help to define whether any given technological development meets its potential to create economic benefits for all.

Experience teaches us that collective bargaining provides a proven platform for considering new technologies, addressing job threats and workforce transition and preparedness issues, and developing appropriate safety and training protocols. None of this will occur unless Congress advances sensible legislation and the Administration issues clear regulations that live up to the values of a truly worker-centered approach to AV development and adaptation.

[16] Secretary of Transportation Pete Buttigieg, in TechCrunch, Steering innovation toward the public good, January 6, 2022: https://techcrunch.com/2022/01/06/steering-innovation-toward-the-public-good/?utm_medium=TCnewsletter&tpcc=TCtransportationnewsletter.

Unified Oversight and Coordinating Mechanism Needed Inside the US DOT

While the National Highway Traffic Safety Administration (NHTSA) has been the most active modal agency working on AVs recently, its mandate is limited and the technology is already being applied to larger, commercial vehicles outside of NHTSA's purview. AVs in transit, trucking, and elsewhere (as well as aviation drones, autonomous maritime shipping, and other modes) require oversight and regulation by the department. It is essential that the Department not only act immediately to regulate the entire scope of the industry, but that the actions taken by each of the DOT's constituent agencies are coordinated to support a unified approach to scrutinizing how or if these technologies are implemented.

The newly authorized Nontraditional and Emerging Transportation Technology (NETT) Council[17] would serve well as the body responsible for this kind of work. The Council consists of the Administrators of the relevant agencies, as well as the Secretary's office. It is specifically charged with "coordinat[ing] the response of the Department of Transportation to nontraditional and emerging technologies." With some clear direction from Congress and additional authority specific to AVs, this group would be well suited to ensuring each of the modal agencies can move in tandem to

[17] P.L. 117-58 Section 25008

preserve the public interest as autonomous technology increases its presence in our transportation systems.

Conclusion

The Transportation & Infrastructure committee has set the standards for our transportation systems since the very first Congress. Your leadership – which directed the development of clipper ships, railroads, diesel engines, and hyperloops – is urgently needed as the DOT addresses emergent AV technologies. It is imperative that AV legislation is comprehensive, addresses gaping holes in our safety and cybersecurity regulations, directs the DOT and its modal agencies to close those holes, places limits on the use of waivers and exemptions from federal vehicle safety requirements, requires a qualified operator on-board in any commercial operations, mandates workforce involvement in development, testing and eventual deployment of AV's, normalizes transparency for planning and data collection and reporting, and ensures that the AV industry is an American industry employing US workers across the entire supply chain.

Thank you for giving the Transport Workers Union an opportunity to express our views and concerns regarding the future of AV technology deployment. We look forward to working with the committee to ensure the federal government steps up to

this moment with a robust policy plan to properly regulate this emerging industry and protect the workers who are on the frontlines of our transportation system.