



INTERNATIONAL UNION, UNITED AUTOMOBILE, AEROSPACE & AGRICULTURAL IMPLEMENT WORKERS OF AMERICA – UAW

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March 31, 2021

James C. Owens
Deputy Administrator
National Highway Traffic Safety Administration
U.S. Department of Transportation
1200 New Jersey Avenue SE
Washington D.C. 20590

Re: Comments on NHTSA's development of a framework for Automated Driving System (ADS) safety; Docket No. NHTSA-2020-0106-0478

Submitted by Josh Nassar, UAW Legislative Director at: <https://www.regulations.gov/document/NHTSA-2020-0106-0478>

Deputy Administrator Owens:

The more than one million active and retired members of the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW) appreciate the opportunity to comment on the National Highway Traffic Safety Administration's framework for Automated Driving System safety. Our comments concern four areas of interest regarding autonomous vehicles (AV) and connected transportation in the United States. First, the UAW believes American manufacturers and workers must lead in the research, design, and manufacturing of the advanced vehicles of tomorrow. Second, we believe there are intrinsic national security, privacy, and safety concerns that require autonomous vehicles and key strategic and mission critical components to be manufactured in the United States. Third, U.S. policy should ensure that manufacturing and transportation workers whose work will be disrupted by the new technology should not only be held harmless – but the system should be designed to allow workers to share in the gains, providing more middle class, union jobs. Finally, autonomous vehicle policy should create a public good – that does not increase congestion, environmental degradation, economic or racial disparities, with substantial worker and community input.

UAW members have been building electric vehicles (EV) and plug-in hybrids for some time and will play an increasing role as output increases. The same holds true for AVs. The question is not whether AVs will play a role in the future of transportation. Rather, how will the growth of the AVs impact workers and communities.

The United States Must Lead in Advanced Technology Manufacturing

We have long called for a comprehensive industrial policy that supports American manufacturers and workers. It is not only that for every dollar spent on domestic value-added manufacturing, another \$3.60 of economic activity

is generated elsewhere across the economy,¹ but that the offshoring of American manufacturing has made the United States less secure and less prosperous. The last year has painfully demonstrated the economic, public health, and national security risks of offshoring critical supply chains. Not having critical domestic production of pharmaceuticals, medical equipment, and advanced technologies has cost lives, hampered our recovery, and diminished the United States' standing in the world. The current shortage of semiconductors is hampering US production as we speak.

While the United States has historically enjoyed a competitive advantage in research, design, and innovation – public and private disinvestment has significantly eroded our standing. For decades, federal and state governments, universities and research institutions, and private companies in the U.S. supported cutting edge research and development with the shared understanding that technologies developed in American labs would drive the economy and provide good jobs to American workers. However, the offshoring of production was eventually followed by the offshoring of engineering, research, and development. Today, many U.S. manufacturers have R&D facilities in foreign countries that rival or surpass their investment in the U.S. The current sea change occurring in industrialized products towards more connected, autonomous, and electrified goods threatens to further diminish America's industrial commons. The UAW is deeply concerned that without policy interventions, the United States' current trade, regulatory, and tax policy could further unravel the ideal that the American economy works for everyone.

Our country needs policies that both spur innovation and ensure domestic manufacturing. We are badly in need of an industrial strategy where American manufacturers, transportation operators, workers, and communities lead on the technology of tomorrow. The UAW sees autonomous vehicles, and its underlying components, as strategic, enabling technologies that will position America's manufacturing plants and workers to lead in the 21st century.

To spur American innovation and domestic manufacturing, the UAW supports:

- Uniform national rules to allow domestic manufacturers to scale up and compete globally. However, these regulations should allow proper scaling for development, testing and implementation, while ensuring that new technologies or business models are not harmful to workers, communities, or consumers. AV regulations must ensure that the pace of AV deployment is driven by safety, security, sustainability, and efficacy and not used as a strategy to limit companies' liability, silence communities' choices, or destroy good quality jobs.
- High standards in testing and design. American consumers must be protected against products being brought to market too quickly or allowing companies to claim misleading capabilities.² Approval for non-traditional vehicle designs or autonomous capabilities should not undermine vehicle safety or crashworthiness standard relative to the current fleet. Due to the complexity of autonomous vehicles, and the substantial addition of new components and capabilities, AV vehicles and AV-specific components should have to pass safety tests. Finally, original equipment manufacturers (OEMs) and AV operators must not be able to self-certify capabilities and safety of these new vehicles, rather the National Highway Traffic Safety Administration (NHTSA) must develop necessary standards to accomplish these important objectives.
- Autonomous vehicle operators must establish clear chain of custody and employment relationships that demonstrate shared goals in testing and operations. This would require data storage, analysis, monitoring, dispatch, customer service, and remote driving occurring within the community being served, and all jobs

¹ <https://www.nam.org/facts-about-manufacturing/>

² See Tesla's Full Self-Driving claims.

related to operations to be quality direct-hire positions and not modelled on the “gig-economy”, with low-wages, contract labor, lack of benefits and job security. Considering the seriousness of an operations failure, jobs in autonomous vehicle operations and maintenance need to provide steady well-paying jobs with proper training to prioritize the safety of riders and the community.

- Any federal supports through procurement, tax incentives, grants, or subsidies should be designed so final assembly, strategic components, and the needed infrastructure are manufactured in the United States in facilities that meet high labor standards.
- Federal grants to support autonomous vehicle research and development must limit commercialized products’ licensing to require domestic manufacturing.
- Workers need and deserve a just transition that finds a win-win solution, by improving productivity, job satisfaction, and earnings and benefits. Workers and communities should be held harmless by rapid technological change – and should share in the gains and thrive in the newly create job market.
- Strict trade controls. Many of the core software and hardware components of an autonomous vehicle have dual military purposes and importing them would pose serious national security and privacy concerns. For those components that do not raise these concerns, all strategic, cutting-edge components should be shielded from low-wage country competition. If these supply chains are not established in the United States at the nascent stage of AV development, it will be very difficult to reshore them later. We have one shot to get it right.

Autonomous Vehicles, Strategic Components, and Infrastructure Must be Built in the U.S.

As the industry invests billions to launch new AVs and reshape its manufacturing footprint, it raises important questions for auto workers. Will AVs and key components be made in the U.S. or will it result in a new wave of outsourcing? Will new AV jobs meet industry standards, or will companies use new technologies as an excuse to erode industry job quality?

The growth of autonomous vehicles presents an opportunity to re-invest in American manufacturing, with union workers making the vehicles of the future. But, to make sure this disruption does not leave American workers behind, government policies that allow for the transition to new technology must be paired with a commitment to locate these jobs in the United States at comparable wages and benefits to the jobs they replace. In addition to creating quality jobs making AVs, components, and connected infrastructure, any potential job loss in the AV transition must be made up through bringing back vehicle and parts production to the United States and easing impediments to workers at non-union automakers to collective bargaining. We must ensure our laws level the playing field and give workers a voice on the job, which is why we are calling on Congress strengthen our labor laws and pass the Protecting the Right to Organize (PRO) Act (H.R. 842). As the nation invests in a transition to innovative technology, we must seize upon these opportunities to preserve and increase quality jobs in the manufacturing.

It is important the U.S. domestically manufacture AVs and key components, because mass deployment of AVs could reduce the number of vehicles manufactured each year. This could result in the erosion of U.S. manufacturing capacity and manufacturing employment. It is estimated the average vehicle being sold today is utilized approximately 5% of the time, sitting at work or home the remainder of the time. To drive down costs autonomous vehicle operators intend to increase utilization above 50%, potentially resulting in far

fewer vehicles needed to transport the same number of goods and people. Further, autonomous vehicles are being designed to last for millions of miles, using modular designs to increase ease of repair and allow for mid-life refreshes. Together, this could result in a material decrease in vehicles manufactured per year. The combination of potentially reduced manufacturing volume and continued reliance on imported vehicles and components will harm workers and the U.S. manufacturing base. To offset these risks, regulatory, procurement, safety, national security and trade policy must be coordinated to ensure Americans will manufacture tomorrow's vehicles.

As vehicles become more connected and complex it is imperative that mission critical and strategic components are manufactured in the United States. These include semiconductors (DRAM, NAND, CPU, GPU, FPGA, NPU, ASIC (Logic), low-powered chips in routers and switches), sensors (lidar, radar, camera), lithium-ion battery cells, electric and data architecture, and electric motors. This is not only to offset the potential disruption in final assembly jobs, but also because these will be strategic components for America's economic and national security well-being. Additionally, outsourcing critical software and hardware increases the risk of technology espionage (both commercial and military³), and potentially introduces vulnerabilities risking Americans' privacy and safety.⁴ These components will enable technologies for not only autonomous vehicles, but AI, quantum computing, IoT, advanced robotics and logistics, and other transformational technologies. Falling behind in the manufacturing of these technologies could have detrimental, long-term, consequences for our economic and national security.

Additionally, to optimize safety and relieve congestion, connected (level 3 and 4) and autonomous vehicles will need a connected infrastructure based on 5G, Vehicle to Vehicle (V2V), and Vehicle to Everything (V2X) technology. To save against disruption, interference, and purposeful hacks these systems should be independent closed loop systems, where access is regulated by the federal government. Additionally, to protect against technological espionage, or the introduction of vulnerabilities critical inputs should be manufactured domestically.

Finally, AV data storage, analysis, and other remote tasks [i.e., remote driving, customer service] must be done domestically on consumer privacy and safety, and national security grounds.

In the event these vehicles, components, and infrastructure inputs are manufactured in the United States by companies headquartered abroad, appropriate steps must be taken to insulate their U.S. operations. U.S. operations' corporate governance, talent, software, data, and hardware [product and manufacturing know-how] must not be allowed to comingle with operations in their home countries.

The Vehicle and Transportation Disruption Must Create a Shared Prosperity

The U.S. government has a duty ensure, to the extent possible, that this new market will pay dividends to American workers and communities. Considering the potential for autonomous vehicles to seriously disrupt employment, job quality, and communities, the U.S. government must fully assess these disruptions up front, and develop mitigation strategies that seek, at a minimum, to hold workers and communities harmless, and strives to see them flourish through an increase in good middle-class jobs and better transit.

To ensure autonomous vehicle and connected transportation adoption does not harm workers, the UAW

³ It is not lost on the UAW that the race to commercialize autonomous vehicles had its origins in the Defense Advanced Research Projects Agency (DARPA) Grand Challenge competition in 2004.

⁴ Including, but not limited to, movement, communication, and transaction monitoring; denial of service attacks, file or data modifications, slow downs, etc.

supports:

- **Employment Disruption Assessment.** Before any policy change, the DOT must conduct a job disruption investigation. One study predicts that autonomous passenger vehicles and heavy-duty trucks could combine to eliminate 1.3 to 2.3 million transportation workers' jobs by 2050. Many more transportation jobs will be radically changed. Further, if autonomous vehicles, components, or connected infrastructure aren't manufactured in the United States, hundreds of thousands of manufacturing workers could face disruption.

Any such investigation must require OEMs and operators to provide detailed roadmaps of occupations and wages and benefits anticipated from the shift to autonomous vehicles. These should include worker transition plans, showing how incumbent workers and new hires [employed by OEMs and in the supply chain] will be trained for next generation jobs [advanced manufacturing, safety drivers, software operators, remote drivers, dispatchers, mechanics, cleaners, call center operators or customer service workers]. Plans should provide timelines, wages, benefits, and job numbers. The findings from this investigation should be made public and regularly updated.

- Government and transit agencies that deploy autonomous vehicle technology should be required to do job impact assessments. Any federal money supporting deployment of autonomous vehicle technology should require recipients, at minimum, to submit job impact assessments, plans to mitigate job losses, and commitments that deployment will not result in out-sourcing, sub-contracting, or erosion of job quality.
- To help policymakers, stakeholders, and the public better understand the impacts of AVs on domestic manufacturing, autonomous vehicles should be included in NHTSA's American Automobile Labeling Act Reports.
- Requiring autonomous vehicle operators to submit individualized employment plans with any AV licensing. Such plan would detail training, pay and benefits, and occupations of its operations. If the company, or a controlling entity, has a collective bargaining agreement with workers, the company would be required to allow union input on the plan. Vehicle operators that fail to implement their plan must face consequences, including having their license revoked.
- Manufacturing and transit unions must have significant presence on all advisory boards, task forces, stakeholder committees, and all other consultative groups formed by public agencies. Furthermore, they must be structured so that public interest advocates – including representatives of local communities, labor unions, equity and accessibility advocates, and environmental organizations – carry the majority of decision-making authority.
- Federal guidance for state and local deployment of autonomous vehicles should include best practices for incorporating input from key stakeholders and federal financial support for AV deployment should require that local entities establish mechanisms for input from local communities, labor unions, equity and accessibility advocates, and environmental organizations.

Communities and Workers Must Have Input on How the AV Infrastructure is Built

Industry, analysts and government officials have recognized that AVs have the potential to be disruptive and transformational. While this disruption is often seen in glowing terms – like increased productivity and safety - it is important to keep in mind that past disruptive technologies or business models have fallen well short of their promises. For example, ride sharing promised reduced congestion and greater opportunities for workers – when

in fact, in many instances it did the exact opposite – increasing congestion and leading to more precarious jobs with no safety net. Considering the amount of public investment and required regulations needed to create the autonomous vehicle market, we have a collective obligation to get it right.

Autonomous vehicle policy should create a regulated public good – that does not increase congestion, environmental degradation, economic or racial disparities, with substantial worker and community input.

Autonomous vehicle infrastructure can be seen as analogous to the early stages of the internet. Instead of transporting data, it will be transporting goods and people. How we structure it will have long term implications. As policy is developed ALL shareholders need to be in the room with industry stakeholders: Consumer groups, community groups, privacy groups, and, of course, transit and manufacturing labor groups must play a significant role.

Designing a System That Rejects the Bad Practice Business Models of the Tech Industry

While the technology and industry are still developing, there are some areas that are worthwhile commenting on early to try to ensure that the autonomous vehicle industry does not engrain some of the worst practices of the tech industry – specifically in regard to data, business practices, race, economic disparity, and local input:

- **Right to be forgotten**: Workers and consumers should have the right to have their data forgotten. Citizens should not be compelled to allow companies or governments to build data profiles based on where they have worked, past discipline, where they have travelled, or what services they use. There should be an easy, and accessible way embedded in any system to have *all* of your data erased.
- **No Forced Arbitration**: Employers and operators should be barred from requiring adhesion contracts that force binding arbitration on employees and riders. The innovative technology that enables AVs should not be used as an excuse for companies to absolve themselves from maintaining workplaces free of hazards and discrimination, nor limiting their liability from consumers.
- **No Non-Compete Clauses**: Outside of the sharing of trade secrets, workers’ post-employment job opportunities should not be limited solely because they work for an autonomous vehicle operator.
- **Direct-Employment**: All jobs related to operations must be direct-hire positions and not modelled on the “gig-economy”, with low-wages, contract labor, lack of benefits and job security. Individuals working on autonomous vehicle operations and maintenance should be properly incentivized to prioritize the safety of riders and the community.
- **Algorithms and Business Models Must be Assessed for Biases**: The federal government must assess that technology being developed does not have a disparate impact based on a rider or pedestrians’ race, ethnicity, gender, or ability.⁵ During testing and operations providers should record data on rider race, gender, age, and ability. Aggregate data for each metropolitan area an operator is testing or operating in should be published on an annual basis.

Business models must be assessed to ensure they provide access to ALL communities – regardless of race, ethnicity, or class. Specifically, operators should not be allowed to limit or deny access to poorer riders and communities of color. Further business models should not be allowed to balkanize regional transportation

⁵ See research that finds people with darker skin are more likely to be hit by autonomous vehicles:
<https://www.mhlnews.com/technology-automation/article/22055534/researchers-say-autonomous-vehicles-could-be-racist>

options. AV operators must provide equal access to services in a metro area – unless bargained over and consensus is reached with appropriate authorities in an MSA area.

- Federal Policy Should Be Designed to Empower Local Communities: Considering the cost of mapping many of America’s small and midsize communities, matched with reduced revenue opportunities, many of these communities will be a winner take all proposition by operators. Local governments and transit systems should retain authority to define community goals, intercede if AV operators increase congestion, coordinate AV operations with mass transit operations.

Thank you for considering our views on this important matter.