

December 3, 2018

Office of the Secretary of Transportation  
Department of Transportation  
1200 New Jersey Avenue SE,  
West Building Ground Floor, Room W12-140  
Washington, DC 20590

**Re: Docket No. DOT–OST–2018–0149/AV 3.0**

Dear Secretary Chao,

United Spinal Association appreciates the U.S. Department of Transportation’s (DOT) leadership in continuing a national dialogue on Autonomous Vehicles (AV). And we welcome this opportunity to comment on Autonomous Vehicles 3.0 (AV 3.0).

United Spinal Association is the largest non-profit organization, founded by paralyzed veterans, dedicated to enhancing the quality of life of all people living with spinal cord injuries and disorders (SCI/D), including veterans, and providing support and information to loved ones, care providers and professionals. United Spinal has over 70 years of experience educating and empowering almost 2 million individuals with SCI/D to achieve and maintain the highest levels of independence, health and personal fulfillment. United Spinal has over 50,000 members, 52 chapters, close to 200 support groups and more than 100 rehabilitation facilities and hospital partners nationwide including 10 distinguished Spinal Cord Injury Model System Centers that support innovative projects and research in the field of SCI. United Spinal Association is also a VA-recognized veterans service organization (VSO) serving veterans with disabilities of all kinds.

DOT Secretary Elaine Chao has aptly characterized AV 3.0, as only the “beginning of a national discussion about the future of our surface transportation system.” United Spinal concurs because there is much more work to do. Still, as a general framework for the integration of automation in the surface transportation system and encompassing a multimodal approach to the safe rollout of AVs, AV 3.0 represents many positive developments. Specifically, AV 3.0 is a great step forward in DOT exercising its sizable capacities to guide and help lead the future of AV development including full universal access for the disability community, especially for individuals who use wheelchairs.

In the larger AV transportation and related infrastructure ecosystem, we wholeheartedly agree with Deputy Assistant Secretary for Transportation Policy Finch Fulton’s comments at a recent joint DOT - U.S. Department of Labor (DOL) Office of Disability Employment Policy (ODEP) AV Forum that DOT must now put its words into action. As United Spinal recently shared with the U.S Access Board, “the clock is ticking. At this moment, entire fleets of autonomous vehicles have already been ordered, AV test beds throughout the country are ongoing. Billions upon billions have already been spent on AV research and development. “And yet, little, if anything, has been done to ensure what United Spinal President and CEO James Weisman has called for, a universal design in AV ensuring access for all.”

Creating an autonomous transportation system in which virtually all could travel independently would help address the critical national crisis of isolation for those in the disability community identified in AV 3.0: “An estimated 25.5 million Americans have disabilities that make traveling outside the home difficult, according to the Bureau of Transportation Statistics report Travel Patterns of American Adults with Disabilities.<sup>1</sup> An estimated 3.6 million with disabilities do not leave their homes. People with travel limiting disabilities are less likely to own a vehicle or have vehicle access than people without disabilities...An estimated 71 percent reduce their day-to-day-travel, while an estimated 41 percent rely on others for rides.” But President Weisman’s vision will also serve populations well beyond the disability community. When current news headlines are screaming, “Nearly half of Americans report feeling alone”<sup>2</sup> and “Loneliness Is As Bad For Your Health As Smoking 15 Cigarettes A Day”<sup>3</sup>, it is abundantly apparent that travel through AV can help heal a multitude of populations which suffer within the isolation crisis.

It bears repeating that transportation is the vital link that allows individuals to raise a family and contribute to the economy whether through a job, engaging retail businesses of all kinds, furthering their education and preserving their health from recreation and gym visits to visiting medical professionals. Transportation allows citizens to fulfill their civic responsibilities and obligations as members of their community. In short, a true democracy of transportation depends upon one bedrock principle: equal access. The promise autonomous vehicles hold for people with disabilities, especially those who use wheelchairs, is to open the doors of our transportation democracy to the disability community and all those shuttered in place for reasons beyond their control. Please know, United Spinal stands ready to assist the DOT in any way possible because we view the promise of AV to deliver a reliable, on-demand, safe and accessible mode of transport as a life game changer for all people with disabilities as well as for the aging population and every other segment of the U.S. population.

In the following comments, we present recommendations built upon our previous comments to DOT, anticipating AV 3.0, particularly those calling for a process in which to formally work with DOT on AV issues. Additionally, United Spinal calls upon DOT to strengthen its tone in future versions of AV 3.0 in making recommendations regarding disability accessibility and inclusion. In short, DOT must more often employ stronger action-oriented verbs, such as, “must,” rather than “should,” in guiding industry and State and local entities, including public transit, to incorporate universal design, development and deployment of AV technologies and services. Finally, United Spinal makes a number of recommendations below that will also assist with DOT’s goals to advance multi-modal safety and reduce policy uncertainty as well as outline a process for working with DOT.

### **Working with DOT**

To DOT’s credit, AV 3.0 references “stakeholder(s)” 77 times in 80 pages. But recognizing the importance of the role stakeholders can play in building a successful national AV transportation system is only part of the equation. In order to better coordinate, streamline and widely share innovative ideas and needed research and data across federal agencies, other public and private sector stakeholders, United Spinal strongly recommends

---

<sup>1</sup> Brumbaugh, Stephen. Travel Patterns of American Adults with Disabilities (Washington: Bureau of Transportation Statistics, 2018), <https://www.bts.gov/travel-patterns-with-disabilities>”.

<sup>2</sup> <https://www.marketwatch.com/story/america-has-a-big-loneliness-problem-2018-05-02>.

<sup>3</sup> <https://www.iflscience.com/health-and-medicine/loneliness-is-as-bad-for-your-health-as-smoking-15-cigarettes-a-day/>

formalizing a stakeholders' information sharing process, into a long-term organization. This would foster DOT's vision of "operating agencies within the U.S. DOT...working together and with stakeholders to support a flexible and transparent policy environment to accommodate the safe development and integration of ADS technology." A formal information-sharing vehicle will aid working with DOT as well as reducing policy uncertainty and ultimately leading to multi-modal safety. In United Spinal's previous comments anticipating 3.0, we called upon DOT to establish a "a Federal Advisory Committee (FAC) on AV with a subcommittee on Disability Access, as well as reach out to the U.S. Access Board for their consideration and recommendations." Most recently, United Spinal recommended to the U.S. Access Board that it "establish an inter-agency Federal Advisory Committee on AV Accessibility or at least a memorandum of understanding (MOU) that partners with the Society of Automotive Engineers to rewrite design accessibility standards and includes the Department of Health and Human Service's (HHS) Administration for Community Living (ACL), the DOL's ODEP, DOT and perhaps the Department of Agriculture's Rural Development." United Spinal now renews its call for a formal process to be established that could be used to speed consideration and input from stakeholders, including the disability community.

Because of the critically short timeline currently involved with AV design, development and deployment in order to provide universal access to all, United Spinal requests that the DOT, if it has not already done so, appoint a DOT federal representative to the U.S. Access Board. Further, as the U.S. Access Board, DOT and related agencies undertake further AV research and development, United Spinal requests DOT fully partner with the Board to address the Board's funding needs regarding the focus on AV issues.

United Spinal requests that the DOT develop an accessible online idea sharing platform, such as IdeaScale, one dedicated solely to AV and related transportation infrastructure. IdeaScale is an idea management platform that uses crowdsourcing to help government, nonprofits, small businesses share and develop ideas and priorities. The DOT and its AV partners should routinely solicit ideas, request examples of current transportation barriers as well as examples of what transportation components work well, by frequently introducing different topics online with its Ideascale to stimulate stakeholder feedback.

### **Multi-modal Safety**

United Spinal applauds the DOT's focus on connections between modes of transportation. If not acted upon, any potential gap in the transportation system presents a critical barrier to people with disabilities. As AV 3.0 points out, "U.S. DOT encourages developers and deployers to work proactively with the disability community to support efforts that focus on the array of accommodations needed for different types of disabilities, and ways to improve mobility as a whole—not just from curb to curb, but also from door to door." While we would prefer the statement read "from curb cut to curb cut"... we strongly agree that door to door AV and related modes of transportation must be seamless to be inclusive, efficient and effective.

In order to create a seamless AV transportation system, the scenario planning tools that AV 3.0 references, allowing "states and metropolitan planning organizations (MPOs) to review multiple scenarios for how automation technologies could be adopted and used, and analyze issues including infrastructure investment, congestion, operations, and other transportation needs," must include all segments of the disability community on all levels. Fully including the disability community as scenario designers, researchers and reviewers is as equally important as fully engaging the community as research test beds. It is incumbent upon DOT and the Federal Highway Administration to include the disability community in their support for "scenario development for State and local agencies to use for incorporating automation into transportation planning processes." DOT

must insure State and local agencies make the same commitments of inclusion with the disability community in the respective roles with DOT scenario development.

United Spinal requests expanding the Voluntary Safety Self-Assessments (VSSA) referenced in AV 3.0 to include addressing issues related to disability accessibility in AV. To ensure AV related companies are including people with disabilities in the design and development of AVs, an expanded VSSA could mirror the Disability Equality Index (<https://www.disabilityequalityindex.org/>) and serve as a model for inclusion. Additionally, such an index would allow designers and developers to report in public and consistently on what measures they are taking to include universal access in their AV designs. Future versions of AV 3.0 should make disability community inclusion and its transparency a major priority. Just as AV 3.0 points out safety concerns, the expanded VSSA would support allowing “the public to see that designers, developers, and innovators are taking” disability accessibility “seriously and that” disability “considerations are built into the design and manufacture of vehicles that are tested on our roadways.”

### **Reduce Policy Uncertainty**

Much like the economic efficiencies and effective policy outcomes that can be achieved from universal accessible AVs and a related seamless national AV transportation infrastructure network by building both from the ground up, DOT can reduce future policy uncertainties for all stakeholders by helping direct AV related entities to integrate more people with disabilities in all capacities throughout the design, development and deployment of AV. In other words, putting the cart before the horse, serves no public good. Retrofitting vehicles, regulations and laws are inherently more expensive to all stakeholders, foremost the American taxpayer.

DOT can begin directing a campaign of disability inclusion from the bottom up with its Accessible Transportation Technologies Research Initiative (ATTRI). To foster such inclusion, United Spinal recommends DOT build upon the current disability community ties across its University Transportation Centers (UTC) Program. DOT should offer financial and other technical resources to UTCs that need to strengthen their individual ties with the disability community. By DOT not only guiding, but, supporting a national cohesion between UTCs and the disability community, DOT will help ensure a clearer policy outcome from research and development in AV that individual UTC's and/or consortiums conduct.

As AV 3.0 outlines, ATTRI's mission is broad and surely will, sooner or later, intersect with the individual missions of UTCs many networks. For instance, AV 3.0 ATTRI's discussion touches upon a critical systemic transportation barrier discussed above, gaps between modes of AV transportation. Whether it is an ATTRI application in “wayfinding and navigation, pre-trip concierge and virtualization, safe intersection crossing, robotics and automation” or pick up / drop off infrastructure development, integrating our community's members into the research process through the UTCs can drive innovation for greater travel efficiencies for a larger traveling population, including our nation's seniors and the very young alike, all who, like us, share limited mobility options.

Further, AV 3.0 references, “machine vision, artificial intelligence (AI), assistive robots, and facial recognition software solving a variety of travel-related issues for persons with disabilities in vehicles, devices, and terminals, are also included to create virtual caregivers/concierge services and other such applications to guide travelers and assist in decision making,” relative to horizons ATTRI and universal design and access could encompass. These passports to travel independence will be critical variables in reimagining our nation's transportation infrastructure and system.

But United Spinal strongly believes, reimagining, redesigning and redeveloping our transportation system will take broader federal government support beyond “where market incentives may otherwise lead to underinvestment.” This is particularly true in public transit, an absolute lifeline to our community, and of course, to millions upon millions more.

AV 3.0 points out that, “one area of particular interest among public transit agencies is exploring the use of vehicle automation to solve first mile/last mile mobility issues, possibly providing connections for all travelers to existing public transportation or other transportation hubs.” Please be aware that United Spinal shares this interest because the first mile / last mile issues are, more often than not, the missing links in independent travel. DOT rightly advises public transit to begin considering reviewing its terminals and stops to incorporate AV, but if the first mile / last mile scenario is widely adopted, public transit will have to look far beyond its core terminals and current stops. Conceivably, nearly every address in a transit agency’s entire service area could become a pick-up / drop-off destination. Given the current funding levels of public transit, it would be impossible for an individual transit agency to subsume the costs of integrating AV into its operations.

Within this challenge, United Spinal finds opportunity to engage State and local governments and private sector transit providers, as well as federal governments assets. Each of these entities will be paramount to realize efficiencies in planning, designing and deploying the state and local lay of the AV land. United Spinal strongly urges DOT to employ ATTRI to create a national dialogue on developing best practices to realize the need for coordination with public transit on all fronts, including how capital will be realized and applied equitably among stakeholders to provide for the most effective AV deployment. DOT, through ATTRI, must fully invest in actual AV public transit service demonstration projects of varying scale, from small, medium and large communities to rural, urban and economically challenged and sound service areas.

Some final thoughts on ATTRI. To prevent ATTRI’s research outcomes from being relegated to a shelf in a DOT warehouse or to a server’s file archives, DOT must establish a formal conduit for ATTRI to work in concert with public and private sector transportation standards bodies. These bodies, whether public or private, should be provided with the necessary public financial resources to support incorporating ATTRI’s findings into their operations so the public good that results from universal design and access to a national AV transportation system can be maximized.

United Spinal, along with numerous other disability organizations, are eager to assist in mustering members of our community to engage in ATTRI on every level. From participating as research participants to being employed for hands on formulating research design and development and translating research into policy outcomes, United Spinal is prepared to urge its members and networks to action and full participation.

To conclude, despite all the advances in technology, the United States remains a mobile nation. Now that the forces of technology are marshaling their focus to facilitate an autonomous national transportation system, the federal government’s outlook must be as expansive in scope and inclusive in embrace as imaginable. Clearly, by partnering with the HHS and DOL on ATTRI, DOT is acknowledging the tremendous positive impact transportation can have on an individual’s life through a multitude of pathways. As we made the case earlier, multiple populations will be served by AV. And while United Spinal applauds ATTRI, we implore DOT, HHS and DOL, not to view ATTRI as the sole source of the federal government’s commitment to AV universal design. A true and full commitment to AV universal design will ultimately be measured by the extent “those unable or unwilling to drive” are integrated from the ground up and throughout all levels of design, development and deployment of AVs and related infrastructure. United Spinal calls on DOT to conduct a federal government wide

survey and forum on AV to gather what resources additional agencies could bring to bear, specifically, calling on contributions from the Departments of Defense, Veterans Affairs and Commerce for their research capabilities as well as the Federal Communications Commission and its Disability Advisory Committee.

Throughout policy discussions and decision making, United Spinal will continue to advocate for comprehensive safeguards, sufficient government oversight and industry accountability that are of course essential to both testing and ultimately deploying autonomous vehicle technologies to be accessible for all. Our concerns about safeguards include the following: minimum performance standards, cybersecurity and electronics system protections, safety mechanisms requirements and sufficient resources for federal regulatory authorities all must be ensured.

United Spinal joins in supporting the Consortium for Citizens with Disabilities Transportation Task for (CCD TTF) AV Principles as well as comments from We Will Ride coalition members in response to DOT's Notice of Request for Comments: Preparing for the Future of Transportation: Automated Vehicles 3.0 (AV 3.0). As part of our advocacy work, United Spinal has joined with five other disability advocacy organizations: Ability360, American Association of People with Disabilities; Disability Rights Education and Defense Fund, National Council on Independent Living, Paralyzed Veterans of America to form We Will Ride, <https://joinwewillride.org>, to advocate for the development of universally-accessible vehicles that can meet needs of all people.

Again, please know that United Spinal stands ready, willing and able to assist DOT whenever possible. We look forward to continuing our work together. Thank for this opportunity and for considering our comments. Please do not hesitate to contact Kent Keyser, Public Policy Fellow, with any questions at [kkeyser@unitedspinal.org](mailto:kkeyser@unitedspinal.org) or (718) 803-3782.

Sincerely,

A handwritten signature in black ink that reads "Alexandra Bennewith". The signature is written in a cursive, flowing style.

Alexandra Bennewith, MPA  
United Spinal Association  
Vice President, Government Relations