January 31, 2020
Submitted via Regulations.gov

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The Disability Rights Education and Defense Fund (DREDF) is pleased to submit comments in response to the request for information for the Inclusive Design Challenge. DREDF is a leading national civil rights law and policy center directed by individuals with disabilities and parents who have children with disabilities. Our mission is to advance the civil and human rights of people with disabilities through legal advocacy, training, education, public policy and legislative development.

DREDF demonstrated an early interest in the development of equitable autonomous vehicle (AV) policy in its drafting of the 2015 National Council on Disability (NCD) report, Self-Driving Cars: Mapping Access to a Technology Revolution.1 DREDF maintains an ongoing interest and: is participating in a California Public Utilities Commission Accessible AV working group; has attended and provided comments at USDOT events; has provided a fully accessible vehicle working checklist on our website for discussion purposes; and is a signatory to the 2018 Consortium for Citizens with Disabilities Transportation Task force AV Principles.2

The Need for an Inclusive Design Challenge

Nearly 1 in 5 people in the U.S. has a disability (more than 57 million). In 1990, Congress passed the bipartisan Americans with Disabilities Act (ADA). In enacting the ADA, Congress sought to “provide a clear and comprehensive national mandate for the elimination of discrimination against individuals with disabilities.” As a result, 99% of public buses are equipped with ramps, far more curb ramps benefit the public, and there is improved provision of accessible transit to people with sensory disabilities. Yet, significant barriers to accessible, affordable transportation remain across modes.

Many people with disabilities are currently unable to obtain a driver’s license, and cannot afford to purchase an accessible vehicle. It’s critical that ride-share and on-demand services provide disability access, but many do not. Ensuring access is easier, and cheaper in the long run, if it is integrated at the outset, yet news accounts of AV testing and deployment timelines often fail to mention accessibility.3,4,5 DREDF knows well that if access is not baked into
technology, history will likely be repeated. Accessible vehicles will be needed, and retrofitting will be more expensive for providers in the long run.6

DREDF recognizes and appreciates Secretary Chao’s stated commitment to ensuring improved mobility for disabled travelers and submits the following recommendations in support of those efforts.

**Category 1: Challenge Topic and Design**

*Category 1, Question 1. The Challenge could address elements of independently using a passenger vehicle, as described above. Are crucial elements missing? If so, please describe the missing element(s) and discuss how they create challenges for independent travel.*

Please consider including in vehicle use solutions how individuals with disabilities will interact with the vehicle as a pedestrian. Interactions may include approaching or crossing in front of the vehicle and entering a public right of way such as a crosswalk. If the crosswalk does not have an audible pedestrian signal or light, how will pedestrians, including those with cognitive and sensory disabilities, know it is safe to cross in front of the vehicle? How will vehicles identify people with disabilities, including service animal and wheelchair users?

*Category 1, Question 2. Is there benefit to including an option for the development of a full concept design for inclusive vehicles (i.e., in reimagining the vehicle design)? If so, please explain why and describe what requirements should be considered as part of this concept proposal.*

There is tremendous benefit to including an option that incentivizes reimagining the vehicle design to be inclusive and fully accessible. In fact, without reimagining, the vast majority of light duty AVs used in fleets for on-demand or micro-transit service will continue to exclude people with disabilities. Passenger vehicle AVs that are available for purchase may not be able to be modified at all (depending on the location of batteries or other AV equipment). In addition, modifications will be, as stated in the RFI, “expensive and cumbersome.” Not reimagining vehicle design ensures continued discrimination; requiring additional costs for people with disabilities and their families to enjoy the same access to mobility as non-disabled vehicle owners.

In addition, full concept design vehicles would likely lead to efficiencies and lower costs when mass-produced, and allow transit agencies or other service providers savings when purchasing required accessible vehicles. Finally, a fully inclusive vehicle design is necessary to ensure a safe, user friendly and accessible mobility experience. And, as has been the case for most advances in accessible design, the non-disabled public is likely to benefit as well.

Requirements to be considered should include all tasks listed in vehicle use in the challenge features, as well as interaction with the vehicle as a pedestrian with a sensory, cognitive or physical disability.
Category 1, Question 4. Stakeholder engagement is an important aspect of the Inclusive Design Challenge. In what ways should DOT continue stakeholder engagement throughout the project to support teams in receiving valuable feedback on their designs (e.g., expert panels, public webinars that solicit feedback etc.)?

Teams submitting grant applications must be required to include members of the disability community as advisors to ensure the projects will be successful and meet identified needs. Disability community involvement from the start of any project is essential. Also, we recommend DOT encourage participation of people with disabilities with professional training on design teams.

Any additional DOT stakeholder engagement would be welcome, including online or in person convenings, and public webinars. Stakeholder engagement, convening attendance, and review of the applications should include the U.S. Access Board, the National Council on Disability, NHTSA, FTA and ATTRI staff, as well as interested CCAM members.

Category 1, Question 6. Do the proposed Challenge background, purpose, and challenge features sections above provide sufficient information to inform proposals? If not, what additional information would be helpful?

Additional background, purpose and clarification may prove useful for engineers and industry stakeholders who are not aware of current accessibility requirements or mobility barriers for people with disabilities. Information to be provided could include:

- clarification of the term light duty passenger vehicle, the number of passengers that might be accommodated, the weight of the vehicle, and potential seating configurations;
- whether designs must meet current federal motor vehicle safety standards, and in the case that they do not, whether new standards should be developed; and
- operational design domains in which the solution would be implemented, including whether fully accessible infrastructure such as crosswalks with audible pedestrian signals, accessible sidewalks, and curb ramps would be necessary.

Design proposals could also include infrastructure needs and potential future standards to be compiled for future policy discussions, reports or guidance.

DOT should provide or reference a clearinghouse of relevant research, reports and presentations, including the October 2018 joint DOT, US Department of Labor Information Gathering Session report, and the 2019 Auto Alliance accessibility workshops report and presentations. DOT should also provide a list of all applicants for the inclusive design grant funding similar to the list provided for the 2019 automated driving systems grant funding.
**Category 2: Evaluation**

**Category 2, Question 1. How can DOT evaluate proposals on the basis of:**

- a. Inclusiveness?
- b. Production feasibility?
- c. Expected user experience?

DOT could evaluate proposals on inclusiveness and expected user experience by prioritizing proposals that address a range of needs and challenge features, that provide accessibility and usability as part of the original manufacturing process, and that demonstrate usability testing by individuals with disabilities in a variety of contexts.

**Category 2, Question 2. What evaluation criteria are most important when considering how proposals can best enable access to AVs for persons with disabilities?**

Of the evaluation criteria options provided, the most important would include (b) proposals that demonstrate a realistic understanding of users and their unique needs, as well as (g) consideration of a range of needs and limitations, including income, and those without access to smartphones or bank accounts.

A recent Bureau of Transportation Statistics (BTS) study of adults with disabilities found that roughly half of respondents 18 to 64 reported living in a household with income under $25,000. Only 45% of rental households with individuals who use wheeled mobility devices own a personal vehicle.  

In addition, inaccessible transportation remains a barrier to employment and contributes to significantly lower employment rates for people with disabilities. According to the Bureau of Labor Statistics, only 21% participate in the labor force, while 8% are unemployed compared to 68% and 4% of non-disabled individuals respectively.

**Category 2, Question 3. How would evaluation criteria be different if there were two types of proposals being considered (such as components and full design)?**

We ask DOT to only consider, or at the very least highly rank, solutions that do not require aftermarket modification, and allocate funds in such a way to ensure solutions are being developed and address the needs for all disability types. Solutions proposed should aim to not only decrease, but **eliminate** the need to modify Level 4 and 5 AVs post-production, or to, again, **eliminate** the cost of retrofitting AVs for use by persons with disabilities, including wheelchair users.

In addition, where there are solutions that are not proposed for each element of vehicle use, DOT should convene stakeholders to consider alternative development methods.
Conclusion

Thank you again for the opportunity to comment on the inclusive design challenge. DREDF is a member of the We Will Ride Coalition and also encourages consideration of fellow coalition partners recommendations.

As has been noted, AVs have the potential to improve access to employment and the broader community. However, the promise and safety of AVs will only be realized if the vehicles and the surrounding infrastructure are fully accessible, and the safety elements consider the needs of people with disabilities.

DREDF views the proposed grant funding as a reflection of DOTs commitment to access and mobility, and we appreciate DOT’s focus on this important issue as we mark the 30th Anniversary of the Americans with Disabilities Act. We look forward to supporting your work and remaining engaged in these vital conversations. Please do not hesitate to contact Carol Tyson at ctyson@dredf.org or (202) 878-9186 with any questions.

Sincerely yours,

Susan Henderson
Executive Director


