



September 21, 2022

Acting Administrator Ann Carlson
National Highway Traffic Safety Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

RE: GM and Cruise Petition for Exemption from Various Requirements of FMVSS

Acting Administrator Carlson,

On behalf of the Urbanism Next Center at the University of Oregon, I am pleased to submit the following feedback in response to NHTSA's request for comments regarding the GM and Cruise request for exemptions. The Urbanism Next Center is a multidisciplinary research center focused on the impacts emerging technologies, such as autonomous vehicles, are having and will continue to have on communities.

Urbanism Next is strongly supportive of continued rigorous research in the development of autonomous vehicles and for a better understanding of the opportunities and challenges related to the impacts of widespread deployment of these vehicles. The promises for improvements in safety and increases in accessibility for certain populations are both strong arguments for this continued research.

That said, we have serious concerns about the current request from GM and Cruise and do not support the granting of this exemption at this time. While we were surprised by the lack of evidence in the exemption request around safety equivalency, we will focus on public interest arguments asked for comment by NHTSA. This topic is squarely aligned with the research and work of the Urbanism Next Center.

Public Interest Arguments

Many of the public interest arguments described in the GM and Cruise application as a basis for approving the exemption have not been proven and some are not supported by current research. Below is a discussion of some of the key areas described by GM and Cruise as well as other areas asked for comment by NHTSA:

- **Congestion:** GM and Cruise state that the Origin vehicle, in its rideshare capacity, will be a significant step towards reducing traffic congestion. While ADS vehicles are not in wide circulation, legacy vehicles used in rideshare are widespread throughout the country and can serve as a reasonable model for how ADS vehicles will perform. Rideshare in the US has



been shown to significantly increase congestion in multiple studies.¹ This is mostly due to large increases in the total amount of vehicle miles travelled (VMT) per productive trip (the portion of travel when a passenger is in the vehicle). Rideshare vehicles often travel effectively ‘empty’ (without a passenger) as they move to pick up a passenger and then relocate after dropping that passenger off. This has been shown to increase total VMT per productive trip by between 83.5% to 157% depending on the context and level of pooled rides.² If current rideshare examples are indicative of ADS rideshare models, and we believe they are, widespread ADS rideshare deployment could result in significant increases in congestion.

- **Environmental Benefits:** GM and Cruise argue that the exemption will allow it to take ‘an important step towards unlocking potentially significant environmental benefits,’ and go on to discuss how their rideshare service would reduce greenhouse gas (GHG) emissions due to their vehicles being electric. Electric vehicles have been shown to reduce GHG emissions per VMT and GM and Cruise’s own research has shown their ADS vehicles potentially reducing lifecycle GHG emissions per VMT by approximately 60%.³ This, however, may not lead to an effective reduction in overall GHG emissions. The GHG emission improvement per VMT is reduced or effectively erased when the large overall increases of VMT per trip that are described above are taken into account. This would lead to ADS rideshare with similar emissions to legacy vehicles, but with the addition of increased congestion.
- **Environmental Justice:** GM and Cruise argue that vehicles with ADS systems can be assets for communities historically impacted by environmental injustice and we applaud their work with EVNoire in engaging directly with these communities. GM and Cruise, however, give no evidence of how the benefits they seek are reliant on the exemption being granted as these benefits can be investigated and realized with their current FMVSS compliant ADS fleet.

¹ San Francisco County Transportation Authority, “TNCs and Congestion” (San Francisco County Transportation Authority, October 2018), <https://www.sfcta.org/emerging-mobility/tncs-and-congestion>; Melissa Balding et al., “Estimated TNC Share of VMT in Six US Metropolitan Regions (Revision 1)” (Fehr and Peers, August 6, 2019), <https://drive.google.com/file/d/1FIUskVkj9IsAnWJQ6kLhAhNoVLjfFdx3/view>; Mi Diao, Hui Kong, and Jinhua Zhao, “Impacts of Transportation Network Companies on Urban Mobility,” *Nature Sustainability* 4, no. 6 (June 1, 2021): 494–500, <https://doi.org/10.1038/s41893-020-00678-z>.

² Bruce Schaller, “Can Sharing a Ride Make for Less Traffic? Evidence from Uber and Lyft and Implications for Cities,” *Transport Policy* 102 (March 1, 2021): 1–10, <https://doi.org/10.1016/j.tranpol.2020.12.015>; Alejandro Henao, “Impacts of Ridesource - Uber and Lyft - on Transportation Including VMT, Mode Replacement, Parking, and Travel Behavior” (Doctoral Dissertation, University of Colorado, Denver, 2017).

³ David Rubin, “Cruise’s Approach to Cleaner Transportation for All” (Automated Road Transportation Symposium 2022, Garden Grove, California, July 20, 2022).



- **Transportation Accessibility:** GM and Cruise argue that their petition will assist in advances in vehicle accessibility (such as adaptations to assist the blind or wheelchair ramps) as well as increasing access to ‘affordable, accessible, and sustainable’ transportation. While we applaud GM and Cruise in these pursuits, they again fail to give evidence of how these goals are better met via the exemptions they seek in this petition. All the vehicle modifications they describe are possible – and some have already been applied – within their current FMVSS compliant ADS fleet. They also do not discuss the number of vehicles in their fleet that will have these modifications, an important point in measuring the degree of impact the modifications could have on users.

In addition, the increased accessibility they describe for disadvantaged communities needs further support. Rideshare services have thankfully improved accessibility to lower income communities when compared to taxi services⁴ but have historically been expensive, with costs and access to technology being a key factor in limiting use by lower-income communities⁵ and older adults.⁶ Understanding costs per trip would be critical to understanding accessibility to ADS vehicles in lower-income communities and older adults – especially as to how these costs compare with current transportation options, or how ADS services might impact the availability of current transportation options. Additionally, understanding the geographic reach of deployment will help ascertain the degree to which lower-income communities have access to these services.

We will mention again that the public interest benefits listed above can be tested and evaluated with the current FMVSS compliant ADS fleet in operation. We believe there is important research still to be done in this area with the vehicles that are currently in use.

Data Sharing Needs

NHTSA asks for comments on conditions should this exemption be granted. Based on the issues described above, if this exemption request were to be granted, we would urge NHTSA to request specific data to help assess if the stated public interest benefits are actually being achieved or approached. These requests do not pose an undue burden on the petitioners as it is data easily gathered and much of it is presumably already being gathered. This data is not an exhaustive list and does not focus on safety-related data, particularly crash data, which others are more qualified

⁴ Anne Brown, “Ridehail Revolution: Ridehail Travel and Equity in Los Angeles,” Dissertation (University of California Los Angeles, 2018).

⁵ Mischa Young and Steven Farber, “The Who, Why, and When of Uber and Other Ride-Hailing Trips: An Examination of a Large Sample Household Travel Survey,” *Transportation Research Part A: Policy and Practice* 119 (January 1, 2019): 383–92, <https://doi.org/10.1016/j.tra.2018.11.018>.

⁶ Laura Fraade-Blanar et al., “Older Adults, New Mobility, and Automated Vehicles” (Portland, OR: Urbanism Next Center, RAND Corporation, and AARP, February 2021), <https://www.urbanismnext.org/resources/older-adults-new-mobility-and-automated-vehicles>.



to evaluate and propose. We believe it is critical for NHTSA to request the data listed below to ensure that safety improvements, if achieved, are not being gained at the expense of non-safety related public interests and stated goals of the USDOT.

Data NHTSA should request include:

- **Quarterly reporting of Vehicle Miles Travelled (VMT) of each vehicle**
 - Total VMT.
 - VMT with a passenger onboard (whose primary reason for being in the vehicle is transport and not vehicle-related activities such as oversight or maintenance).
 - VMT on freeways versus other roadways.
 - Total energy use and emissions data per vehicle.

 - This data would allow NHTSA to analyze the following congestion and environmental benefit concerns:
 - Energy use and emissions per total VMT
 - The proportion of total VMT traveled that are productive VMT (as in transporting a passenger) versus empty VMT (as in not transporting a passenger).
 - The total energy use and emissions per productive VMT. (This metric is the one that can be compared to existing, non-ADS vehicles to determine GHG emission benefits).
 - All of the above, based on freeway versus non-freeway driving.
 - Increases in congestion.

- **Demographic Information**
 - Aggregated demographic data (particularly race, age, and income) of all census block groups where vehicles are picking up and dropping off passengers.
 - Aggregated demographic data (particularly race, age, and income) of all census block groups that have at least 50% of their roadways mapped.
 - Aggregated demographic data of populations served by the vehicles.
 - Costs charged per trip.

 - This data would allow NHTSA to analyze the following environmental justice and transportation accessibility concerns:
 - Demographics of areas served (or to be served)
 - Demographics of individuals served
 - Access barriers of particular populations
 - Affordability of travel



Conclusion

As stated previously, we are strongly supportive of continued research into ADS vehicles and the impacts of their deployment. There is a strong need for increased understanding of how this deployment will impact communities – not only regarding safety concerns, but also regarding accessibility, equity, environmental impacts, and social justice. We appreciate this opportunity to provide comments to NHTSA and hope they are helpful in your continued work around ADS deployment.

Sincerely,

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