

## **Comment from David Chase**

Comments on proposed rule on Automated Driving Safety,  
NHTSA-2020-0106-0478.

When evaluating safety of automated-driving-vehicles (ADV), be sure to weight miles driven by where they are driven and the exposure to pedestrians, cyclists, and other vulnerable road users (VRUs).

Particulate pollution and noise both damage the health of people near roads, and to the extent that ADVs can be designed to reduce these emissions, they should. This might be accomplished through better management of speed, braking, and cornering, and also simple reduction in vehicle size.

ADV will be able to pass other ADVs with smaller clearances than human drivers need, and because of this, could more regularly leave more space when passing pedestrians, cyclists, other VRUs. People can stumble or swerve; any resulting crash would not be directly caused by an ADV, but an ADV could take steps to avoid or mitigate it. Eventually, ADVs can allow narrowing of lanes in general. This will free up more room for pedestrians and cyclists, making them more comfortable and reducing their conflicts (bikes on the sidewalk, pedestrians in the bike lane).

ADV should not use street parking in urban areas; they should instead drop-off and pick-up their passengers at loading zones, and then proceed to off-street parking. This maximizes convenience for their users, and allows street space to be reclaimed for other purposes.

ADV can provide improved road comfort for cyclists and pedestrians. Two examples are better crosswalk interactions with pedestrians and better approach to red lights around cyclists. For crosswalks, the best-for-pedestrian behavior is to make it clear to a pedestrian, as soon as it is seen that they wish to cross, that you understand, and will certainly yield to them. A driver might slow down significantly well before the crosswalk and flash headlights (on a bicycle, it works to call out "I see you" and wave/nod). When approaching a red light, human drivers sometimes drive at full speed to the end of a line of cars, passing cyclists along the way who later reach and pass the driver. ADVs can be designed to avoid such no-time-saved passing; reduced acceleration and braking will also reduce noise and energy use.

Any automatically driven truck should include sensors at all of the usual truck blind spots, and such trucks should moderate speed whenever there is a risk of a pedestrian movement (e.g. a stumble) that might cause an overrun.

NHTSA should work to defuse the vehicle-size “safety” arms race. ADVs provide a means for doing this with the promise of an order of magnitude reduction in crashes (if that's not possible, I'm not sure why we are so excited about ADVs), but probably not until their adoption is widespread. Till then, any ADV owner will likely worry about sharing the road with fallible human drivers and upsize accordingly. NHTSA could address this earlier with independent regulations on vehicle size; larger vehicles reduce safety for other road users, so this is absolutely within any mission to increase road safety. Or perhaps, require anti-collision radar on all vehicles above a certain weight (for example, 3000lbs), to help provide assurance that a vehicle good at avoiding its own crashes is less likely to be hit by a larger human-piloted vehicle. This will also help mitigate problems caused during ADV adoption, where ADVs will respond to hazards much more quickly than the humans around them (in particular, behind them); putting more vehicles on the road now with anti-collision radar would reduce this future problem.

I would hope that I do not need to provide references to support claims that particulate and noise pollution are bad for health, but just in case:

(particulate pollution)

<https://news.mit.edu/2013/study-air-pollution-causes-200000-early-deaths-each-year-in-the-us-0829>

<https://www.nber.org/papers/w21787>

<https://www.sciencenews.org/article/list-diseases-linked-air-pollution-growing>

(noise pollution)

[https://www.who.int/quantifying\\_ehimpacts/publications/e94888/en/](https://www.who.int/quantifying_ehimpacts/publications/e94888/en/)

<https://www.newyorker.com/magazine/2019/05/13/is-noise-pollution-the-next-big-public-health-crisis>

For "better practices" around pedestrians and cyclists, I have video, collected on my daily commute through Cambridge, MA.

(signaling to pedestrians in crosswalks)

<https://www.youtube.com/watch?v=bkrrJ7fOF9I>

<https://www.youtube.com/watch?v=icw5q9pGkcU>

(passing cyclists unnecessarily)

<https://www.youtube.com/watch?v=ftpaxn1SP0Y>

<https://www.youtube.com/watch?v=8x6wpt26DV0>

This last example is quite long, but demonstrates that if ADVs had wider knowledge of traffic jams and red lights, they could make more use of safer, quieter, and energy-saving use of no-more-speed-than-necessary to make it to reach their goal. This driver was notably aggressive, yet

saved no time at all.

<https://www.youtube.com/watch?v=aZp2Ml5nYz8>