

May 8, 2021

Dear Secretary Buttigieg and Administrator Pollack,

I'm writing to offer feedback on the proposed revised MUTCD, based on my experience as a professional software developer and as a road user.

I have about eight years' experience developing software which is used by billions of people around the world. This experience has given me strong reservations about Part 5, the proposed approach to automated vehicles. Several of the key private-sector parties developing automated vehicle products adhere to the corporate philosophy known variously as "launch and iterate," "move fast and break things," etc. This practice, which consists of releasing products in a "minimum viable" state then refining them in response to collected data, is appropriate for certain applications like internet advertising, but is unacceptable for life-or-death applications such as automobiles.

The FHWA and DOT must take a strong and unambiguous stance that the onus is on manufacturers of such technology not to deploy their products on public roads until they can guarantee with high certainty that they will perform safely under all relevant conditions. Obviously, taking that stance is a broad effort that will extend beyond the scope of traffic control device rulemaking, but the Manual should be a key starting point. In laying out guidance of design features that "should be considered to better accommodate machine vision," the proposed Manual inverts this responsibility, setting up an expectation that public rights of way will be adapted to accommodate AV technology, and not the other way around. Although changes like greater line widths may seem benign at face value, they set an unacceptable precedent.

As software developers and engineers, we are trained that it is a practical and ethical imperative that our software remain robust and "fail gracefully" in response to even the most extraneous inputs; we cannot simply hope that data and user behavior will conform to our wishes. Software and hardware that do not meet this bar are not ready for public use, and the role of regulators should be to measure and enforce this worst-case readiness, not to tweak roads in ways that make best-case performance slightly easier to achieve.

The guidance in Part 5 should be removed, and replaced with guidance directed toward AV manufacturers and operators, indicating that they must not assume that the application of practices in the manual will be perfectly consistent, nor that challenging technical problems in computer vision can be regulated away.

Finally, speaking as a road user, I'd also like to comment more broadly on the Manual as applied to urban contexts. Various experts including the NACTO, Angie Schmitt, and several advocacy organizations and municipal departments of transportation have already documented their specific concerns, and I endorse that feedback. City officials must be given the tools and flexibility to create streets that are safe for pedestrians, bicyclists, and transit users. While consistency is a laudable goal, urban streets are not interstate highways, and the Manual must go further in allowing them to look and behave differently, if we are to reverse the alarming rise in pedestrian deaths and injuries on our country's streets.

Thank you for your consideration,  
Tommy Martino  
Software Developer

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Disclosure: I am employed by Google, where I develop web browser technology. These comments reflect my personal opinions, not Google's or Alphabet's, and are not based on any nonpublic knowledge of Waymo or other automated vehicle development.