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ON

"AUTONOMOUS VEHICLES: PROMISES AND CHALLENGES OF EVOLVING
AUTOMOTIVE TECHNOLOGIES"

SUBMITTED TO THE UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON ENERGY AND COMMERCE SUBCOMMITTEE ON
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Good Morning, Chairwoman Schakowsky, Ranking Member McMorris-Rodgers, thank YOU, Chairman Pallone and Ranking Member Walden for the opportunity to share a city perspective on the promises and challenges of autonomous vehicles.

My name is Jeffrey Tumlin and I am the Director of Transportation for the San Francisco Municipal Transportation Agency. We have responsibility for operating the country's 7th largest transit system as well as for designing and operating the streets to protect the safety of all users – including cyclists and pedestrians.

We are home to several of the world's leading autonomous vehicle companies. These companies hope to provide "robo-taxi" service in fleets of autonomous vehicles, and about 200 of their cars, test on our streets each day. Companies come to San Francisco to challenge their technology on our notoriously complex roadways and take advantage of our diverse terrain, reflecting both the urban and suburban neighborhoods of many of your districts.

We face many challenges in San Francisco. Chief among them is road safety. Every year 3,000 people are injured and 30 people die in collisions on our streets. The people who are most vulnerable in crashes are older adults and people with disabilities. In my role, I get a text message every time someone is injured or killed in a crash, and this happens at least twice a day. I am very hopeful that autonomous vehicles can help us end this human suffering –as soon as the technology has proven it is really ready.

Recently, we all learned a great deal from the National Transportation Safety Board report on the Uber fatality in Tempe, AZ. The NTSB found that the autonomous vehicle that killed Ms. Hertzberg did not *accurately classify* her as a pedestrian and thus failed to *predict her path* and avoid

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her. Even though the vehicle perceived her in plenty of time to stop, these *classification and prediction failures* contributed to her death. Autonomous vehicles in San Francisco must traverse a much more chaotic driving environment to navigate around thousands of people and vehicles who share the streets. In fact, one company noted that vehicles testing in San Francisco encounter 32 times as many "potential interactions" as they encounter on suburban Arizona roads. These interactions reflect the number of other roadway users and objects in the vehicle's path for which the system must accurately perceive, classify, and predict a path so it can execute a safe response.

While the autonomous vehicle driving behavior that *we witness* on our streets appears to be *cautious,* we can't be certain whether this *is careful driving,* or whether the technology is having trouble handling these critical processing tasks.

We can't just *hope* that the industry can dramatically reduce road injuries. We need the industry to *prove* they can do so in dynamic, urban environments like San Francisco before they are allowed to deploy at scale.

We think there are two essential elements for federal AV legislation:

First, Congress should require companies to include event data recorders in autonomous vehicles that preserve all information from sensors before a collision. This information will help us understand what kinds of circumstances cause collisions for these vehicles -- what challenges their capabilities.

Second, Congress should ensure that every safety incident involving an autonomous vehicle is documented in a national database that is available to researchers and the public. A national database will ensure

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we have tools to measure whether these vehicles actually ARE driving more safely than humans.

These two steps will help build a foundation for assessing when the industry is ready to scale up production and increase the number of autonomous vehicles on our nation's roadways.

There is one thing it is important to *exclude* from AV legislation: any change to the existing federal preemption language.

The motor vehicle safety act currently preempts state and local governments from enacting laws that conflict with an existing federal safety standard. The industry wants to flip this rule on its head so state and local governments are preempted from taking action even when the federal government has not enacted a safety standard. We understand it may take the National Highway Traffic Safety Administration up to **10 years** to develop safety standards to govern automated driving. During this time, it would be irresponsible for Congress to interfere with the ability of state and local officials to protect the public from risks we learn of through the testing process.

Cities and states are nimble and can rapidly innovate to pave the way for this new technology. Several states have developed autonomous vehicle permit programs that currently guide testing activities.

This is a new frontier. We are only beginning to understand the problems autonomous vehicles **can solve** and the new ones they may create. The industry wants to offer ride service in cities. We will all learn more as different cities and states try different strategies to incorporate these vehicles safely into our stream of traffic. This is a time for all levels of government to work and learn together to deploy this technology to serve the public good.

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