A March 18 fatal accident involving a self-driving Volvo SUV operated by Uber in Arizona continued to produce reactions and ramifications across the autonomous vehicle policy community this week. Here are some of the latest updates on what policymakers are doing in the wake of the crash, what the crash tells us about autonomous vehicle technology and what it means for Uber and others.

Policymakers & the Uber Crash

Arizona Gov. Doug Ducey announced this week he was suspending Uber’s tests of self-driving cars on Arizona roads in the wake of the March 18 accident in Tempe in which pedestrian Elaine Herzberg was struck and killed crossing the street with her bicycle. Uber had previously said they would suspend self-driving operations in all cities immediately following the incident. And this week the company announced it will not renew a permit to test autonomous vehicles on public roads in California when it expires Saturday, according to the Associated Press.

In a letter to Uber CEO Dara Khosrowshahi, Ducey wrote: "Improving public safety has always been the emphasis of Arizona’s approach to autonomous vehicle testing, and my expectation is that public safety is also the top priority for all who operate this technology in the state of Arizona. The incident that took place on March 18 is an unquestionable failure to comply with this expectation."

As the Associated Press noted, the move by the governor represented a major step back from the state’s recent approach to self-driving vehicles. It was only earlier this month that Ducey signed a new executive order authorizing self-driving vehicle companies to run tests without a person in the car to act as a safety operator.

Ducey came in for some criticism this week when The Guardian reported that e-mails between Uber and the governor’s office showed a relationship that some described as chummy and secretive prior to the issuance of the executive order.

Wired magazine predicted the governor’s move to suspend testing now is “an early example of what promises to be a flood of incremental, local self-driving-car rules that start to patchwork the country. Even if Congress finally gets its act together and writes national rules governing robocars, local actors will have plenty of ways to block, or at least constrain, their deployment. Everytown, USA, may not be able to ban all AVs from its streets, but it could do everything from charging them extra fees to making it harder to get the requisite business license for them to tote people around and charge them money.”

A Streetsblog USA post last week looked at how policymakers should react to the crash. The piece argues in favor of “better land use planning that avoids hopscotch development … coupled with streets designed for slower speeds” as possible considerations that might prevent future such accidents. The author, Ryan Snyder of Transpo Group, also argues in favor of equipment requirements for autonomous vehicles, including black boxes to record every crash. But Snyder also notes that “In the long run, AVs will probably be much safer than human-driven vehicles. They also have potential to
bring enormous benefits to access, equity, health, community livability, reduction of greenhouse gases and more. Because of this, calls to stop all testing and insistence on perfection are misplaced. AVs will have crashes, especially in the early stages. Because of the potential enormous benefits to society, we need to let this nascent technology proceed through its learning curve. But the safety and other benefits will only occur with the right public policies in place. Given this, we should proceed to test and develop AV technology. But let’s proceed more cautiously.”

An essay in Wired magazine last week [10] argued that cities need to take a more active role in shaping the future of autonomous vehicles but not in the way that the city of Tempe and the state of Arizona did.

“If politicians simply introduce self-driving cars without conditions, we can expect tragedies on multiple levels,” writes Susan Crawford. “Cities should do the planning, not car companies.”

The mayor of San Francisco, Mark Farrell, is among the city leaders who have weighed in since the Uber crash. While regulation of autonomous vehicles is the jurisdiction of state government in California, Farrell believes cities have an important role to play.

“Autonomous cars are the future of the streets of San Francisco and many other cities around the globe,” Farrell said at a recent event reported on by Transport Topics [11]. “Incidents like (the Arizona crash) are exactly why I’m asking these (driverless vehicle) companies to come to San Francisco and partner with us as a local government so we can all collectively put public safety first.”

Technology & the Uber Crash

A video of the crash released last week [12] prompted initial speculation that the incident suggested a “catastrophic failure” by Uber’s technology.

“This is exactly the type of situation that Lidar and radar are supposed to pick up,” Arizona State University professor David King told The Guardian newspaper [13].

But The New York Times reported [14] that Uber’s self-driving cars weren’t meeting expectations long before the Tempe incident.

“The cars were having trouble driving through construction zones and next to tall vehicles, like big rigs,” the Times said. “And Uber’s human drivers had to intervene far more frequently than the drivers of competing autonomous car projects.”

Reuters also reported this week [15] that when Uber retired a fleet of Ford Fusion cars the company was using to test autonomous driving and moved to Volvo SUVs in 2016, they chose to scale back on the number of safety sensors to detect objects in the road.

A spokesman for Aptiv, the auto parts maker that supplied the radar and camera on the Volvo SUV said Monday Uber had disabled the standard collision-avoidance technology in the vehicle.

Waymo CEO John Krafcik expressed confidence that the software on his company’s self-driving cars would have handled the situation better, Bloomberg reported [16].

Intel Corp’s Mobileye, which makes chips and sensors used in collision-avoidance systems, used video of the Uber crash to test its own software.

A top executive of Velodyne Lidar, which makes the laser radar autonomous vehicles use to see their surroundings, expressed surprise that the car didn’t detect Herzberg, the pedestrian who was killed.
The top engineer at BMW, Dr. Klaus Frohlich, said last week that no automaker or tech company has current sensor and computer systems advanced enough for production-ready Level 4 or Level 5 self-driving, Forbes magazine reported. With Level 4 (high automation), the vehicles will be able to handle themselves if something goes wrong even if a human driver does not intervene. With Level 5 (full automation), no human control of a vehicle is needed whatsoever. The Uber that crashed was technically Level 3 (partial automation), which requires that a human be on hand to intervene if things go wrong. But video of the crash showed the safety driver was clearly not paying attention when the crash occurred.

“At the moment, with the quality and ability of the sensors and the computer processing speed and performance, there is no possibility to have highly autonomous cars without accidents,” Fröhlich said. “The path towards autonomous driving is a very long path. It's not a race.”

Bijan Khosravi, a contributor to Forbes magazine, argues in a piece this week that “Autonomous cars will become a reality, but it won’t happen until 5G data networks are ubiquitous. … 5G promises to connect everything around us to a network that offers the speed, responsiveness and reach to unlock the full capabilities of technologies such as virtual reality, artificial intelligence and the internet of things.”

Streetsblog USA reports that a bike industry representative recently raised the possibility that cyclists and perhaps others in the future may need to wear sensors in order to be detected by self-driving cars.

Uber & the Autonomous Vehicle Industry

There also has been reporting over the last week that Uber was under great pressure to create a dependable driverless car service by the end of the year and improve an image tarnished by recent missteps and that may have prompted the company to take shortcuts such as allowing test drivers to go on solo runs when they had previously worked in pairs. As the title of one article noted “Almost Everyone Uses Two People For Testing Autonomous Cars Except Uber.” Two former Uber safety drivers who spoke with City Lab said fatigue and in-vehicle distractions made something like the Tempe incident almost inevitable. “We saw this coming,” one said.

Prior to the incident, Uber's new CEO reportedly had been considering canceling the entire self-driving car project and he had been expected to go to Arizona soon for a make-or-break demonstration. Others also conjectured that financial realities, Uber’s risk-taking culture and competition from other self-driving car makers were all adding to the pressure the company was under. An article from Ars Technica makes the argument that Uber should divest itself of the company’s self-driving car business. There were reports earlier this month that Uber was negotiating the sale of self-driving technology to Toyota.

Several analyses of the Uber crash (including this one, this one, this one, this one, this one and this one) take a look at whether the accident could have been avoided and what or who may have been to blame. In the immediate aftermath of the crash, Tempe Police Chief Silvia Moir said it may have been unavoidable because Herzberg emerged from the shadows and was not crossing at a crosswalk.

But Angie Schmitt at Streetsblog USA argued that the video of the crash, which shows a clearly distracted safety driver, upends a “blame the victim” narrative, something she says is common in the aftermath of traffic crashes.

“It’s a template that police have followed after countless pedestrian deaths caused by human
“drivers,” she writes. “Every action of the victim is conveyed in the most accusatory light, while the driver’s actions aren’t questioned at all.”

Others have examined the legal liability issues in the wake of the Tempe crash. The Atlantic had a piece on that part of the story last week. It was also a major theme at the CSG Autonomous and Connected Vehicle Policy Academy last year.

It was announced this week that Uber already has reached a settlement with the family of Herzberg, the woman killed in the Arizona crash, ending the chances for a potentially more costly, protracted legal battle. Terms of the settlement were not announced.

What Other Autonomous Vehicle Industry Players, States and Cities Are Doing

In the wake of the Tempe crash, a number of autonomous vehicle industry companies, states and cities have taken action to pause testing or operations. But others are still full speed ahead or will be again soon:

- Toyota suspended its own self-driving car tests following the Uber crash but the company’s North America CEO Jim Lentz said today testing could resume soon, USA Today reported.
- Chipmaker Nvidia Corp. suspended self-driving tests across the globe, Reuters reported.
- After temporarily suspending testing last week, Boston Mayor Martin Walsh spoke with autonomous rideshare providers Optimus Ride and nuTonomy about safety policies and lifted the suspension this week, The Boston Herald noted.
- A spokesman for the city of Las Vegas said there are no plans to take a driverless shuttle off the road, The Las Vegas Sun reported. “Our focus is always on providing safe, reliable and efficient transportation services to the residents and visitors of our city,” said spokesman Jace Radke.
- Tribune News Service reports that finding out whether public road testing of autonomous vehicles is happening in Texas is made more difficult by a 2017 law that does not require companies to tell state or local officials when they are putting vehicles on the roads with no humans at the controls. The legislation as it was originally proposed would have required three state agencies to be informed about when such testing would begin and the general geographic location where it would occur.
- Waymo, Google’s self-driving tech spinoff, announced a partnership this week with Jaguar Land Rover to build a fleet of 20,000 electric, fully autonomous vehicles over the next two years for Waymo’s driverless car service, which is expected to launch in Phoenix, Arizona later this year, Curbed reported. The Atlantic has more about what the announcement could mean.
- The city council in Portland, Oregon (a city that does not currently have automated vehicles on public roads) examined autonomous vehicles and safety as part of a discussion on a 20-year blueprint for transportation investments, The Oregonian reported.

Further Reading

- “Autonomous Vehicle Reality: Planners must be realistic. Autonomous vehicles will probably provide smaller net benefits, including safety benefits, than optimists predict.” Planetizen, March 27, 2018.
- “Google’s Waymo CEO: We’d Fight a Ban on Human Driving.” Jalopnik, March 27, 2018.
- “Here’s the real nightmare scenario for self-driving cars: The ad-supported business model that ruined the internet could come for transportation next.” Vox, March 27, 2018.
“Self-Driving pods could be the (boring) future of urban transport,” [54] The Verge, March 26, 2018.
“From prototypes to mishaps, here’s all you should know about driverless cars,” [58] The Economic Times, March 25, 2018.
“The significant challenges (and opportunities) AVs will present to city infrastructure: Optimizing intersections, streetscapes, pedestrian facilities, parking and land-use are some of the issues urban leaders must tackle as more driverless vehicles hit the streets,” [66] Smart Cities Dive, March 22, 2018.
“Elaine Herzberg’s Death Isn’t Uber’s Tragedy. It’s Ours.: No one knows when self-driving cars will work. Until then, people are the solution,” [70] The Drive, March 21, 2018.
“30 states allow self-driving cars. Will this change now that a pedestrian was killed by one?” [74] USA Today, March 20, 2018.
“How much testing will prove automated cars are safe?” [78] Automotive iQ, March 7, 2018.

By:
Thursday, March 29, 2018 at 05:15 PM

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