

PARESH DAVE BUSINESS APR 10, 2023 7:00 AM

# Dashcam Footage Shows Driverless Cars Clogging San Francisco

Videos obtained by WIRED from public transit vehicles reveal self-driving cars causing delays and potential danger to buses, trains, and passengers.



PHOTOGRAPH: JUSTIN SULLIVAN/GETTY IMAGES

**THE BUS WAS** stuck. San Francisco's eastbound 54 Felton line was heading up a narrow residential street when a white SUV coming the other way stopped in the middle of the road. It was a rainy Sunday evening last month, and the bus driver leaned up to the windshield and peered through the haze at the SUV's pulsing hazard lights before slumping back and exclaiming in surprise, "What the hell? No driver of the car?!"

The 54, brought to a halt by an autonomous vehicle belonging to Alphabet's Waymo, isn't the only bus that's run into trouble with San Francisco's growing crowd of driverless vehicles. Bus and train surveillance videos obtained by WIRED through public records requests show a litany of incidents since September in which anxiety and confusion stirred up by driverless cars has spilled onto the streets of the US city that has become the epicenter for testing them.



A San Francisco public transit bus encounters a Waymo autonomous vehicle in its path on March 5. COURTESY OF SFMTA

As the incidents stack up, the companies behind the autonomous vehicles, such as Waymo and General Motors' Cruise, want to add more robotaxis to San Francisco's streets, cover more territory, and run at all hours. Waymo and Cruise say they learn from every incident. Each has logged over 1 million driverless miles and say their cars are safe enough to keep powering forward. But expansions are subject to approval from California state regulators, which have been pressed by San Francisco officials for years to restrict autonomous vehicles until issues subside.

Driverless cars have completed thousands of journeys in San Francisco—taking people to work, to school, and to and from dates. They have also proven to be a glitchy nuisance, snarling traffic and creeping into hazardous terrain such as construction zones and downed power lines. Autonomous cars in San Francisco made 92 unplanned stops between May and December 2022—88 percent of them on streets with transit service, according to city transportation authorities, who collected the data from social media reports, 911 calls, and other sources, because companies aren't required to report all the breakdowns.

“We're seeing a significant uptick in chaos on our streets.”

— JEFFREY TUMLIN, DIRECTOR OF TRANSPORTATION, SAN FRANCISCO

The records obtained by WIRED are more focused. They follow a previously unreported directive to staff of the San Francisco Municipal Transportation Agency handed down last October to improve record keeping of incidents involving autonomous vehicles. Muni, as the agency is known, standardized the term “driverless car” when staff report “near-misses, collisions or other incidents resulting in transit delay,” according to the directive. Agency logs show 12 “driverless” reports from September 2022 through March 8, 2023, though Muni video was provided for only eight of these cases. Overall, the incidents resulted in at least 83 minutes of direct delays for Muni riders, records show.

That data likely doesn't reflect the true scale of the problem. Muni staff don't follow every directive to the letter, and a single delay can slow other lines, worsening the blow. Buses and trains cannot weave around blockages as easily as pedestrians, other motorists, and cyclists, saddling transit-dependent travelers with some of the biggest headaches caused by errant driverless cars, according to transit advocates.

San Francisco officials say they want to be supportive of new technology, but they first want to be shown progress on addressing failures—like random stops in front of buses and trains. “What we're seeing is a significant uptick in traffic and other kinds of chaos on our streets,” says Jeffrey Tumlin, Muni's director of transportation. “We are very concerned that if autonomous vehicles are allowed limitless, driverless operations in San Francisco that the traffic impacts grow exponentially.”

“This one not smart yet. Not good.”

— A BUS DRIVER COMMENTS ON A SELF-DRIVING CAR BLOCKING THE ROUTE.

For Muni's 54 bus, which traverses San Francisco's southern edge, the vehicle blocking its way early last month was a driverless Waymo that got stranded between rows of parked

cars. A human driver would have reversed, clearing space for the bus, which isn't allowed to back up without a supervisor. Instead, the Waymo Driver, as the company calls its technology, alerted a remote "fleet response specialist" to help. Waymo spokesperson Sandy Karp says that this worker provided guidance to the car that "was not ideal under the circumstances" and made it challenging to resume driving.

That left the Muni driver in a bind. "I can't move the bus," the driver said to one of two riders on board. "The car is automatic driving." The driver radioed managers and doffed their cap: "Whoosh ... Half hour, one hour. I don't know. Nothing to do." Thirty-eight stops and about five miles remained ahead for the 54. The driver, looking out at the Waymo, expressed disappointment: "This one not smart yet. Not smart. Not good."

A San Francisco bus driver gestures at passengers in apparent confusion after a Waymo driverless stopped in the middle of the road, blocking the bus. COURTESY OF SFMTA

Waymo's Karp says one of the company's roadside assistance crews arrived within 11 minutes of being dispatched to drive the SUV, clearing the blockage about 15 minutes after it began. Karp declined to elaborate on why the remote responder's guidance failed but said engineers have since introduced an unspecified change that allows addressing "these rare situations faster and with more flexibility."

The Transport Workers Union, which represents Muni train and bus drivers, deferred comment for this story to Muni. The agency declined to make drivers described in this story available for comment. But Tumlin, the Muni director, says San Francisco's transit workers are frustrated. "When you encounter a vehicle with no human on board, it is dispiriting and disempowering," he says. "There's no one there to communicate with at all."

Muni drivers can honk at other hindrances, including Uber, Lyft, and delivery drivers, and reliably expect that they will move. But driverless cars, while they can hear sounds, leave everyone guessing as to when they will give way. Tumlin wants companies operating driverless vehicles to prioritize responding to problems along key transit routes and worries that crews will struggle to keep up if fleets expand. There's a lot at stake. Delays affect perceptions of reliability for public transit, driving away riders with other options. That could worsen transit funding shortfalls caused by soaring inflation and declining usage since the start of the pandemic. Similar driverless services are also being tested in other major US transit cities, including Austin, Los Angeles, and New York.

Even seemingly small incidents can have outsize impacts. On September 30, 2022, a Muni light-rail train, or streetcar, that was full of celebrating baseball fans began driving from a station into an intersection. An empty Cruise robotaxi at a stop sign to the train's left then also drove forward, video shows.

A San Francisco light-rail train nearly collides with a Cruise autonomous vehicle in footage from cameras on the train's front and the side, and in the driver's cabin. COURTESY OF SFMTA

Five seconds later, brakes slammed on both vehicles. Cruise spokesperson Hannah Lindow says the Cruise came to a complete stop first, averting a near collision. The sudden stop by the train, which was traveling at 7 mph, alarmed some of its 50-or-so riders, a number of whom shouted "whoa!" in unison.

Passengers on a San Francisco light-rail train were jolted when it braked to avoid a near collision with a Cruise autonomous vehicle. COURTESY OF SFMTA

The driver danced in relief, swaying their arms and letting off a big breath, "Wooo," before radioing in that "it came close, but no contact."

Cruise employees arrived within one minute, Lindow says, and there were no injuries or damage, nor would there likely have been in a collision because of the slow speeds involved, according to Carl Berkowitz, a transit accident reconstruction expert who reviewed the footage for WIRED.

At least a dozen pedestrians and passengers took to the intersection to snap images of Cruise's Chevy Bolt, which was blocking the front side of the train car. One transit rider flipped a middle finger at the Bolt and dropped their face mask to yell something in its direction before storming off. Inside the train, one passenger asked, "Why are we still at this spot? Why are we not moving?"

A train passenger shows a middle finger to a Cruise autonomous vehicle after it almost collided with a light-rail train. COURTESY OF SFMTA

The ordeal wouldn't be over for the light-rail train driver until much later. "That's what pisses me off," the driver told a rider, referring to having to file a report at the end of their shift about the incident. "Now I've got to take an hour and write this crap up even though I didn't hit. He hit me. It's one of those cars that drive itself."

It was seven minutes before the driverless car cleared the track and the train started again, drawing cheers from riders. The train driver was apparently left shaken. Nine minutes after the service resumed, they can be heard repeatedly whispering, "That was close." Drivers are held responsible if any decision they made contributed to a collision, putting stress on them to be perfect.

Though drivers were not made available for interview, Tumlin says that at least one, known as "Mack" on Twitter, has not held back on expressing their concerns. Last month, Mack commented about a Muni bus that had just been rear-ended hard enough by a Cruise driverless car to crumple its hood, an incident from which no injuries were reported. "When an autonomous vehicle causes a collision, it wasn't tired, or intoxicated, it didn't get

distracted or try to get away with something it knew better than to do,” [Mack tweeted](#). “It ‘believed’ it was driving correctly. They don’t work as advertised, and they shouldn’t be on the road.”

Cruise said in a [blog post](#) on April 7 that the bus’s movements had not been unusual but that its vehicle braked too late due to an “error related to predicting the movement of articulated vehicles.” The company says a software update rolled out across its fleet fixed the issue.

Mack was not involved in that Cruise incident, but on one trip in December [that he tweeted about](#) he slowed his bus to 5 mph from 19 mph when a Waymo at a stop sign took a left turn in front of him, according to the Muni footage obtained by WIRED. The Waymo “pulled out inappropriately,” Mack radioed managers while stopped to report the incident. “It was definitely a hazardous condition.”

A bus slows after a Waymo autonomous vehicle pulls out to take a left turn in front of the oncoming transit vehicle. COURTESY OF SFMTA

Waymo spokesperson Karp says the company’s driverless vehicle spotted the bus over 300 feet away and completed the turn 78 feet ahead of the bus. The company confirmed in a [virtual simulation](#) after the fact, Karp says, that “regardless of whether the bus slowed down or continued at its original speed, there was enough clearance for the Waymo Driver to execute its turn safely.” A bus driver, however, has to react within a split second using their own judgment of an incident’s potential outcomes.

Other incidents captured on closed-circuit television are less disputable. On January 22, a Cruise at a green light wouldn’t budge, preventing a San Francisco light-rail train from moving for nearly 16 minutes. As the train driver headed out to investigate, a passenger said, “Nobody in there, huh?” Over a span of 10 minutes, the driver chatted with passengers, checked with managers over the radio, and walked around the motionless Cruise vehicle. Someone wearing a reflective vest and holding a tablet eventually got into the Cruise and drove it away.

Cruise spokesperson Lindow says its self-driving system was designed to be conservative and come to what it deems a safe stop when the technology “isn’t extremely confident in how to proceed.” The company aims to have staff on scene within 15 minutes in such incidents and alerts San Francisco’s Department of Emergency Management when traffic is significantly affected. “Ensuring our vehicles are operating safely with as minimal impact to public transit and city services as possible has been a point of emphasis,” she says.

On January 21, a Muni bus with a couple of riders aboard had lost six minutes because a Cruise was lingering across an intersection crowded by police and fire vehicles, video shows. While other cars maneuvered past, the Cruise did not. “I have one of those autonomous cars in front of me, so I’m stuck,” the driver radioed. “I could make this turn on Sixth Avenue if this car wasn't in front of me.” The bus was finally able to pass after the Cruise moved slightly.

A bus gets stuck behind a Cruise autonomous vehicle near an emergency scene in San Francisco. COURTESY OF SFMTA

Footage obtained by WIRED also shows passengers unnerved by delays caused by the driverless cars. In December, a Cruise paused beside a temporary stop sign and blocked a bus for over three minutes before inching away. A Muni passenger, who apparently did not notice the robot vehicle, feared that the bus was experiencing mechanical problems. “Something must be wrong with the bus,” the rider can be heard saying while wearing headphones. “I hope this bus is OK. I am not about to get off. It’s too cold to be standing around.”

A San Francisco bus driver uses a smartphone to capture the scene after a Cruise autonomous vehicle blocks the route. COURTESY OF SFMTA



In November, one light-rail passenger called it quits after waiting nearly six minutes for a Cruise driverless car in front to move. “There’s nobody in the car,” the driver told the person as they stepped off the train. Another passenger was more forgiving. “It’s not you,” that rider told the driver.

A Cruise autonomous vehicle stops on the tracks as a San Francisco light-rail train approaches. COURTESY OF SFMTA

Cruise’s Lindow apologized for inconveniences to transit riders. Autonomous vehicles “are still novel, and certain behavior understandably attracts a lot of attention, but we’re proud of our safety record and remain committed to doing everything possible to make roads safer,” she says.

As driverless cars keep racking up the miles, San Francisco transit advocates propose a variety of measures to lessen their impact. Jaime Vilorio of [Equity on Public Transit](#), a grassroots group of riders in the Tenderloin neighborhood, says companies operating autonomous vehicles should be fined for causing delays. “They need to learn from their mistakes,” he says. Bob Feinbaum, president of [Save Muni](#), a small group of riders that meets monthly to discuss the agency, suggests letting authorities enter a code to move driverless cars to the side. “It’s crazy that these vehicles can stop in the middle of the road and police can show up and have no way of dealing with it,” he says.



Giving transit more priority on the roads of San Francisco and across the US—for example by creating more transit-only lanes—would also help. “We don’t need to blame the new guy entirely for a problem that was really created by our fixation and focus on cars for so long,”

says Richard Marcantonio, managing attorney for [Public Advocates](#), a group that sues for transit improvements.

The issues and delays caused by robotaxis plaguing San Francisco do not seem to be abating, and the thirst for more data and understanding about the emerging technology is growing. Tumlin hopes driverless car companies work with the city to set performance goals, on which expansions would be contingent. “If we don't help industry do a better job of performing on urban streets,” he says, “public opinion will rapidly turn against this very important technology.”

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