

Date of Hearing: March 13, 2023

ASSEMBLY COMMITTEE ON TRANSPORTATION  
Laura Friedman, Chair  
AB 316 (Aguiar-Curry) – As Introduced January 26, 2023

**SUBJECT:** Vehicles: autonomous vehicles

**SUMMARY:** Restricts an autonomous vehicle (AV) with a gross vehicle weight (GVW) of 10,000 pounds or more from being operated on public roads for testing purposes, transporting goods, or transporting passengers without a human safety operator physically present in the AV at the time of operation. Specifically, **this bill:**

Defines a “human safety operator” to mean a person operating an autonomous vehicle or vehicle equipped with autonomous technology who is trained in operating and shutting off the vehicle. A human safety operator shall meet all federal and state qualifications for the type of vehicle being operated, whether in automated or nonautomated mode.

**EXISTING LAW:**

- 1) Authorizes the operation of AVs on public roads for testing purposes under certain circumstances specified in regulations the Department of Motor Vehicles (DMV) has.
- 2) Defines “autonomous vehicle” to mean vehicle equipped with technology that makes it capable of operation that meets the definition of Levels 3, 4, or 5 of the Society of Automotive Engineers (SAE) International's Taxonomy and Testing of Autonomous Vehicles Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles, standard J3016 (APR 2021). (Vehicle Code (VEH) Section 38750)
- 3) Defines “autonomous technology” to mean technology that has the capability to drive a vehicle without the active physical control or monitoring by a human operator. (VEH Section 38750)
- 4) States that an AV does not include a vehicle that is equipped with one or more collision avoidance systems, including, but not limited to, electronic blind spot assistance, automated emergency braking systems, park assist, adaptive cruise control, lane keep assist, lane departure warning, traffic jam and queuing assist, or other similar systems that enhance safety or provide driver assistance, but are not capable, collectively or singularly, of driving the vehicle without the active control or monitoring of a human operator. (VEH Section 38750)
- 5) Prohibits the operation of AVs on public roads for non-testing purposes unless the manufacturer of the vehicles submits an application to DMV that is approved pursuant to DMV regulations.
- 6) Requires DMV, by January 1, 2015, to adopt regulations setting forth requirements for the application to operate AVs on public roads for non-testing purposes.

- 7) Requires DMV to approve an application submitted by a manufacturer for the operation of AVs for non-testing purposes if DMV finds that the applicant has submitted all information and completed testing necessary to satisfy that the AVs are safe to operate on public roads and the applicant has complied with all requirements specified in DMV regulations.
- 8) Authorizes DMV to impose additional requirements it deems necessary to ensure the safe operation of AVs if those vehicles are capable of operating without the presence of a driver inside the vehicle.

*Existing DMV regulations:*

- 1) Requires AV manufacturers to have a testing or deployment permit to operate an autonomous vehicle in California.
- 2) Restricts the testing and deployment of autonomous vehicles to vehicles under 10,001 pounds and excludes motorcycles.
- 3) Authorizes both the testing and deployment of AVs without a human operator inside the vehicle.

**FISCAL EFFECT:** Unknown

**COMMENTS:** In 2012, the Legislature passed SB 1298 (Padilla), Chapter 570, Statutes of 2012, which permitted AVs to be operated on public roads for testing purposes by a driver under certain conditions. In 2014, DMV released regulations to allow for testing AVs with a test driver, and in April 2018, DMV finalized regulations for the testing and deployment of AV's on public roads without a driver, with certain limitations. 41 companies currently have a testing permit with a driver (down from a high of 58), and seven companies have received a testing permit without a driver. Three companies has received a deployment permit without a human driver (For a time one company had a deployment permit with a human driver.)

DMV regulations prohibit the testing or deployment of AVs over with a GVW of 10,001 pounds or more. This was initially done for safety reasons, as vehicles with heavier weights are capable of causing significantly more damage in a collision. DMV held a public workshop on January 27, 2023 to receive public comment to potentially start a new regulatory process to consider authorizing the testing and deployment of AVs over 10,000 pounds after years of lobbying efforts to expand testing and deployment permits for heavier vehicles.

According to the author, "AB 316 places a needed guardrail on the deployment of autonomous medium- and heavy-duty vehicles on California's public roads. Testing and deployment of light-duty AVs in California has been fraught with malfunctions including AVs blocking traffic by suddenly stopping in the middle of the road, driving through emergency response scenes, impeding emergency vehicles, and causing accidents. As California considers expanding autonomous technology to include trucks, buses and other large vehicles, AVs have greater potential to injure and kill Californians and displace large portions of the workforce. This bill requires that a certified human safety operator supervise AVs when they are on public roads, so that a human can respond to unanticipated driving situations and emergencies. By requiring a human safety operator, this bill allows the technology to continue to develop, while also protecting public safety and providing a path to help California's transportation workforce adapt to AV technology."

*Unclear if AVs are safer than humans.* According to a RAND Corporation report *Driving to Safety: How Many Miles of Driving Would it Take to Demonstrate Autonomous Vehicle Reliability*, it may take decades before we know if AVs are safer than human drivers. Despite tens of thousands of deaths on the road every year, humans are capable of driving a remarkable number of miles between collisions. Americans drive 3 trillion miles every year. In 2013, there were 2.3 million injuries reported, a rate of 77 injuries per 100 million miles driven. The 32,719 deaths from car crashes that year correspond to a rate of about one fatality per 100 million miles driven. AVs have not driven anywhere near that many miles, and already at least one person has been killed by an AV in Tempe, Arizona.

AV companies often cite a report from the National Transportation Safety Board (NTSB) that concluded that 94% of all collisions are because of human error, and because of that AVs have the potential to save tens of thousands of lives. According to the Insurance Institute for Highway Safety (IIHS), “It is likely that fully self-driving cars will eventually identify hazards better than people, but we found that this alone would not prevent the bulk of crashes.” IIHS estimates that only a third of the collisions caused by human error would be expected to be avoided because AVs will potentially have more accurate perception than human drivers and are not vulnerable to incapacitation. Avoiding the other two thirds would require AVs that are programmed to prioritize safety over speed and convenience.”

*AVs performance in California.* The vast majority of AV testing and deployment in California has occurred in San Francisco. In January 2023, the San Francisco County Transportation Authority asked the California Public Utilities Commission to reject Waymo’s request to allow commercial deployment throughout the entire city. The letter notes a series of 9-1-1 calls that the city has received related to AVs. The letter states “managers in the City’s Department of Emergency Management began to notice a number of calls to 9-1-1 from people who witnessed or were affected by driverless AVs obstructing travel lanes. Sometimes these AVs caused extended traffic backups. Callers also complained of erratic driving (including signaling in one direction while moving in the other direction) or a Cruise AV blocking a transit vehicle. In other cases, callers reported evasive maneuvers by other road users such as driving on a sidewalk to get around a blockage caused by a disabled AV. The duration of these unplanned AV stops obstructing travel lanes appeared to range from minutes (extending through many traffic light cycles) to hours. Additional incidents were posted on social media or reported by the media. The number of reported incidents is likely a fraction of the total unplanned stops because most are reported during late night hours when few people are on the streets to notice them and because many people would not think to call 9-1-1 in these circumstances...Unfortunately, the AV failure incidents reported by the public have been significantly concentrated on streets of great importance in the City’s transportation network: downtown streets, streets with transit service, streets on the bike network, intersections, and streets on the City’s High Injury Network (the 12% of San Francisco streets that account for more than 68% of severe or fatal injury crashes).”

The incidents described by San Francisco were only known to them because of 9-1-1 calls and will never be reported to DMV because DMV only requires disengagement reports for vehicles with a testing permit, but not a deployment permit. Companies also do not consider disengagements where a human operator is not present in the vehicle as a reportable disengagement under DMV regulations, allowing AV companies using remote operators to take over driverless vehicles to avoid reports to DMV about disengagements.

The Cruise LLC vehicles involved in these incidents have a deployment permit. In order to get a deployment permit from DMV, a company must self-certify that the “autonomous technology is designed to detect and respond to roadway situations in compliance with all provisions of the California Vehicle Code and local regulation applicable to the performance of the dynamic driving task in the vehicle’s operational design domain, except when necessary to enhance the safety of the vehicle’s occupants and/ or other road users.”

DMV is permitted to suspend or revoke a deployment permit based upon the performance of the vehicles if they determine the vehicles are not safe for public operation. To date, DMV has not suspended or revoked a testing or deployment permit for this reason, even after Cruise LLC in June of 2022 had to issue a recall for 80 vehicles after one of their vehicles got into a crash in San Francisco injuring two people after making an unprotected left turn (law enforcement contributed the other vehicle with mostly being at fault).

Despite the numerous incidents of Cruise LLC vehicles documented by San Francisco above, Cruise LLC has not only never had their deployment permit suspended or revoked, but has received approval from DMV to expand their hours of service operation, increase their allowable speed, and test a vehicle incapable of being operated by a human operator that still has a pending application for approval for use by the National Highway Traffic Safety Administration (NHTSA). The only time an AV testing or deployment permit has been suspended has been for a failure to report to DMV in a timely manner the suspension of several test drivers who received traffic tickets while operating personal vehicles.

*Truck safety implications to consider.* According to the Federal Motor Carrier Safety Administration, in 2020, 4,998 large trucks and buses were involved in fatal crashes, a 5% decrease from 2019. From 2019 to 2020, large truck and bus fatalities per 100 million vehicle miles traveled by all motor vehicles increased from 0.162 to 0.177, 14% below the 21st-century peak of 0.205 in 2000, but higher than the total fatality rate for all vehicles, which was 1.34 deaths per 100 million miles. According to NHTSA, from 2016 to 2020, large truck and bus injury crashes decreased 4% (from 112,000 in 2016 to 108,000 in 2020). The majority, 83%, of fatalities were not occupants of the large truck.

The critical precrash event for 63% of the large trucks in fatal crashes was another vehicle, person, animal, or object in the large truck’s lane or encroaching into it. Twenty-three percent of the large trucks in fatal crashes had critical precrash events of their own movement or loss of control. In 2020, at least one driver-related factor was recorded for 32% of the large truck drivers in fatal crashes, compared to 55% of the passenger vehicle drivers in fatal crashes. Speeding was the most frequent driver-related factor for drivers of both vehicle types.

The encroachment collisions for trucks can potentially be reduced by AVs that have faster brake time reaction than a human operator. However, simpler technology may already play a role in reducing those collisions. The Bipartisan Infrastructure and Investment Act of 2021 required NHTSA and the Federal Motor Carrier Safety Administration to require automated emergency braking (AEB) technology in two years. NHTSA is currently seeking public comment on the matter. NHTSA in a November 2022 study found AEB technology reduced injury crash collisions by 54% an overall crash reductions of 49%.

Another safety implication to be taken into account are road fires. According to the National Fire Protection Association, large trucks have a higher rate of deaths per 1,000 fires than highway vehicle fires over all, with tires playing a large role in large truck fires. An estimated 212,500 vehicle fires in 2018 caused 560 civilian deaths, 1,500 civilian injuries, and \$1.9 billion in direct property damage in the US. Truck drivers are required to carry fire extinguishers in their vehicles. Removing a human safety driver would potentially remove hundreds of thousands of individuals from California roads that could help put out those fires, including ones caused by AV trucks.

The California Labor Federation, the co-sponsor of this bill, argues “The havoc created by passenger vehicles that can be moved by first responders would be exponentially worse when caused by an 80,000 pound truck or bus. Accidents due to malfunction are just the beginning. Hard-braking, which was an issue with passenger vehicles, could cause mass casualty accidents if a big rig suddenly braked on the freeway. Another risk is that autonomous technology can be hacked to turn trucks into weapons, which is especially dangerous when they are carrying hazardous freight. Technology could also be used to monitor and track drivers and pedestrians without their knowledge. Autonomous technology also raises complicated issues for law enforcement when pulling over vehicles and investigating accidents.

AB 316 tackles the challenge of autonomous vehicle technology by requiring a human safety operator on autonomous medium and heavy-duty vehicles. The human safety operator will be trained and licensed appropriately. They will have the ability to take over the vehicle in case of malfunction, takeover by hackers, or to make human decisions in emergencies. The human operator will make sure that technology benefits the public and not just the company that patented it.

AB 316 strikes a balance between technological advancement and the public good. It allows for the testing and further development of autonomous heavy-duty vehicles on public roads. Companies can continue to test fully driverless technology on private tracks as they work out the bugs and further develop the technology. The bill also protects jobs and public safety as the technology is tested and advanced.

This bill helps ensure that technology benefits workers and is not just a cost-cutting strategy borne on the backs of workers. Human drivers also have what the technology can never replicate – compassion and solidarity. Those human qualities are what move drivers to risk their lives to save lives and are critical as autonomous vehicles are tested on our streets.”

*Economic opportunities and job losses from AV Trucking.:* According to the American Trucking Association, long haul trucking has been characterized by turnover rates of nearly 100% in recent years. The profession has become unattractive because of concerted efforts to pay drivers less and the increased movement towards encouraging drivers to operate as independent contractors.

The Silicon Valley Leadership Group, an opponent of this bill, released a study in April 2022 that found that AV trucks in California could increase the state’s economy by upwards of \$6.5 billion or more and that the industry could generate 2,400 new jobs in California.

The report estimates that approximately 461,481 long distance tractor-trailer drivers may be at risk of having their jobs eliminated upon full adoption of AV trucks, but estimates the layoff rate will be slow and that long distance drivers will be able to get jobs as short distance drivers (making an assumption that short distance truck drivers will not be automated).

According to *Impact of Automation on Long Haul Trucking Operator-Hours in the United States*, an additional 70,000 jobs for employment associated with operating truck stops may also be impacted. Further, “Automation is likely to dramatically reduce the need for labor, which constitutes roughly 40% of the cost of trucking. It is also likely to eliminate hours of service (HOS) requirements. As a consequence, automation will reduce the amortized capital cost of the truck, which constitutes another 16% of the cost of trucking (Finally, the elimination of HOS requirements will make trucking faster than it is today, since the trucks will no longer have to stop for driver breaks. Cost and delivery time reductions in the delivery of freight through automated trucking may result in increased demand for trucking shipments.” Researchers estimate this could shift freight currently being routed through air, train, or inter-modal services to long haul trucking.

Some job increase models for trucking are based on the transfer-hub model where long haul trucks are automated while short haul trucks are not because of the increased difficulty of AV trucks operating in urban areas. Some in the AV industry have suggested this model will increase short haul truck jobs because automation will allow more goods to be shipped. However, *Impact of Automation on Long Hall Trucking*, noted that 40% of long hall truck workers they interviewed for the research currently level in rural areas and its possible the geographical shift would prove a barrier to transitioning current operations to short haul jobs.

*Legislating Safety Standards.* The Autonomous Vehicle Industry Association, California Chamber of Commerce and a broader coalition of industry groups write in opposition to this bill stating we should trust the regulator. They argue “SB 1298 established a thoughtful framework to ensure that autonomous vehicles were allowed on state roads only at such time as they were demonstrably safe. Rather than legislating safety standards, the Legislature tasked safety experts at the CHP and DMV, in consultation with NHTSA, to determine rules for testing, and then deployment of autonomous vehicles. This is the framework currently in place for light duty vehicles, and the Administration recently held a public workshop in advance of initiating a regulatory process to consider the appropriate regulatory structure for heavy-duty vehicles. We strongly believe this is the appropriate way for the state to fully, and thoughtfully, develop appropriate safety standards – not a one-size-fits all technology ban.

Finally, this bill is part of a wave of troubling legislation. In recent weeks, a number of proposals have been advanced that, in one way or another, seek to stymie innovation and the development of cutting edge technologies that have the potential to benefit all Californians. California’s economy has swelled in recent decades based largely on the success of its robust technology sector. We believe California policymakers should focus on promoting and encouraging continued growth in this sector – rather than crafting harsh legislative barriers to future growth.”

*Committee comments:* The fundamental question this bill asks is if the Legislature should trust DMV to properly decide when an AV over 10,000 pounds is capable of operating without a human operator, or whether the Legislature should have a say on when that moment has arrived, if it ever does.

DMV has permitted companies to test AVs without a human driver since 2018 and issued the first deployment permit in 2021. Since that time, DMV has never suspended or revoked any deployment permits issued for operational failures, including an incident where at least five vehicles stopped operating for hours until they could be physically reviewed, a collision that injured several individuals that resulted in a recall, AVs continuously getting stuck in a dead-end street in a residential neighborhood, an AV temporarily fleeing a police stop by driving several hundred feet away without operating headlights at night, and an AV driving into a construction zone. All of these actions occurred after under penalty of perjury the companies certified with DMV their vehicles were capable of driving themselves and follow all of the rules of the road in California. DMV not only never suspended a permit for operational reasons, but also often within a matter of weeks of the events described above expanded the hours these vehicles were permitted to operate and permitted the testing of an AV incapable of being operated without a human operator that was still in the process of seeking NHTSA approval to operate on public roads.

*Related Legislation:*

AB 96 (Kalra) of 2023 requires a public transit district to provide written notice to an exclusive representative of the workforce affected by autonomous transit vehicle technology, among other provisions. That bill is pending before the Assembly Public Employment and Retirement Committee.

*Previous Legislation:*

AB 2441 (Kalra) of 2022 would have required a public transit district to provide written notice to an exclusive representative of the workforce affected by autonomous transit vehicle technology, among other provisions. That bill was vetoed by the Governor.

SB 336 (Dodd) of 2019 would have required a transit operator on every fully-automated transit vehicle until January 1, 2025. That bill died in this committee.

AB 1141 (Berman) of 2017 would have required DMV to adopt regulations setting standards for AVs operating freight by September 30, 2018. That bill died in Assembly Communications and Conveyance Committee.

SB 1298 (Padilla), Chapter 570, Statutes of 2012 established conditions for the operation of AVs upon public roadways.

**REGISTERED SUPPORT / OPPOSITION:**

**Support**

CA Conference Board of the Amalgamated Transit Union (co-sponsor)

CA Labor Federation, AFL-CIO (co-sponsor)

ABATE of California

American Federation of State, County, and Municipal Employees (AFSCME, AFL-CIO)

CA Association of Highway Patrolment

CA Conference Board of the Amalgamated Transit Union

CA Conference of Machinists

CA Labor Federation, AFL-CIO

CA Professional Firefighters  
CA School Employees Association  
CA State Legislative Board of Sheet Metal, Air, Rail and Transportation Workers,  
Transportation Division  
Engineers and Scientists of CA, IPTE Local 20, AFL-CIO  
International Union of Operating Engineers Local 3  
International Union of Operating Engineers, Cal-Nevada Conference  
League of California Cities  
UAW Region 6  
UNITE HERE International Union, AFL-CIO  
Utility Workers Union of America

### **Opposition**

Abate-A-Weed  
Alliance for Automotive Innovation  
Association for Uncrewed Vehicle Systems International  
AT Industrial Products  
Aurora  
Autonomous Vehicle Industry Association  
AUVSI  
Bay Area Council  
California Alliance for Freight Innovation  
California Asian Chamber of Commerce  
California Chamber of Commerce  
California Clothing Recyclers  
California Delivery Association  
California Hispanic Chamber of Commerce  
California Manufacturing & Technology Association  
California Retail Hardware Association  
California Small Business Association  
Cavnue  
Chamber of Progress  
Coalition of Small Disabled Veteran Businesses  
Consumer Technology Association  
Einride  
Fairfax Lumber and Hardware  
Family Business Association of California  
Gatik  
Inland Empire Chamber Alliance  
Inland Empire Economic Partnership  
International Warehouse and Logistics Association  
Kodiak Robotics  
MEMA, the Vehicle Suppliers Association  
Mountain View Chamber of Commerce  
Rich Desmond, Board Chair, Sacramento County  
San Gabriel Valley Economic Partnership  
San Jose Chamber of Commerce



Seabreeze Charts and Books  
Silicon Valley Leadership Group  
Spartan Radar  
Star Milling Co.  
Sunnyvale Chamber of Commerce  
Silicon Valley Leadership Group  
TechNet  
TuSimple  
Uber Freight  
US Xpress  
Waabi  
Waymo

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