

Date of Hearing: April 15, 2024

ASSEMBLY COMMITTEE ON TRANSPORTATION

Lori D. Wilson, Chair

AB 2286 (Aguiar-Curry) – As Amended April 8, 2024

**SUBJECT:** Vehicles: autonomous vehicles

**SUMMARY:** Restricts an autonomous vehicle (AV) with a gross vehicle weight (GVW) of 10,001 pounds or more from operating 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:**

- 1) 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.
- 2) Requires manufacturers to report to the Department of Motor Vehicles (DMV) disengagements and collisions for AVs with a GVW over 10,001 pounds.
- 3) Requires DMV to issue a report to the Legislature by January 1, 2030, or five years after the commencement of testing, evaluating the performance of AV technology and its impact on public safety and employment in the transportation sector for AVs with a GVW of 10,001 pounds or more. The report is required to include a recommendation on whether the Legislature should remove, modify, or maintain the requirement for an AV with a GVW of 10,001 pounds or more to operate with a human safety operator physically present in the vehicle, and requires the Legislature to conduct an oversight hearing.
- 4) Prohibits DMV from issuing a deployment permit for use of an autonomous vehicle with a gross vehicle weight of 10,001 pounds or more without a human safety operator earlier than one year after the oversight hearing, and only after express authorization of the Legislature and Governor.

**EXISTING LAW:**

- 1) Authorizes the operation of AVs on public roads for testing purposes under certain circumstances specified in DMV regulations. (Vehicle Code Section (VEH) 38750)
- 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). (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 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 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. (VEH 38750)
- 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. (VEH 38750)
- 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. (VEH 38750)
- 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. (VEH 38750)

*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.
- 4) Requires an AVs with a testing permit (but not a deployment permit) to report collisions to DMV within 10 days of the collision if the collision resulted in damage of property or in bodily injury or death if they have a testing permit
- 5) Requires AVs with a testing permit (but not a deployment permit) to report disengagements on an annual basis.
- 6) Defines “disengagement” to mean a deactivation of the autonomous mode when a failure of the autonomous technology is detected or when the safe operation of the vehicle requires that the AV test driver disengage the autonomous mode and take immediate manual control of the vehicle, or in the case of driverless vehicles, when the safety of the vehicle, the occupants of the vehicle, or the public requires that the autonomous technology be deactivated.

**FISCAL EFFECT:** Unknown

**COMMENTS:**

In 2012, the Legislature passed SB 1298 (Padilla), Chapter 570 which permitted AVs to operate on public roads for testing 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 AVs on public roads without a driver. 36 companies currently have a permit for testing with a driver (down from a high of 58), and six companies have received a testing permit without a driver. Three companies have received a deployment permit without a human driver. One company has a deployment permit for a level three AV, which requires a human operator. One or two companies currently have a deployment permit. One company, Cruise, has lost both its deployment permit and its permit to test without a human operator.

DMV regulations prohibit the testing or deployment of AVs 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 2286 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 autonomous vehicles (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 and buses, 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 without 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 perceptions 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.”

*Truck safety.* According to the Federal Motor Carrier Safety Administration, 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 by 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 pre-crash 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. 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.

Encroachment collisions for trucks could potentially be reduced by AVs having faster brake time reactions than a human operator. However, emergency braking (AEB) technology may accomplish the same goal. A recent NHTSA study found that automated AEB technology reduces injury crash collisions by 54% and overall crash reductions by 49%. The Bipartisan Infrastructure and Investment Act of 2021 required NHTSA and the Federal Motor Carrier Safety Administration to require automated emergency braking (AEB) technology 2025. NHTSA in a November 2022 study found

Another safety consideration for large trucks is 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 overall, 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.

*AVs performance and reporting in California.* Most 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 city. The letter notes a series of 9-1-1 calls that the city had received. The letter states “Managers in the City’s Department of Emergency Management began to notice several 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 were not 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 the DMV about disengagements.

The Cruise LLC vehicles involved in these incidents had a DMV deployment permit at the time of the incidents. To get this permit, 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 on 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 incidents of Cruise LLC vehicles documented by San Francisco above, Cruise LLC had 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. In addition, Cruise still has a pending application for approval for use by the National Highway Traffic Safety Administration (NHSTA).

The DMV only suspended Cruise's permit 24 days after one of their vehicles drove over a pedestrian that had been struck by another vehicle. The Cruise vehicle had come to a complete stop after the crash, but then proceeded to drive over the pedestrian. DMV took action against Cruise after it had discovered the company did not show them the entire video of the incident, stopping the video right after the initial crash.

The League of California Cities, writing in support of this bill, argues "In California, light-duty AVs have primarily been tested and deployed without a driver on public roads in San Francisco, highlighting the pitfalls of AV technology. AVs have repeatedly created large traffic jams when they stop working in traffic lanes. AVs have also blocked emergency vehicles from responding to calls. As a result, city officials wrote to the California Public Utilities Commission (CPUC) detailing 92 incidents occurring over seven months and asking the CPUC to narrow and constrain AV expansions.

AB 2286 provides much-needed safeguards for the continued testing of autonomous technology by prohibiting the operation of an autonomous vehicle with a gross vehicle weight of 10,001 pounds or more on public roads for testing purposes, transporting goods, or transporting passengers without a human safety operator physically present in the autonomous vehicle at the time of operation.”

*Governor Veto:* Last year Governor Brown vetoed a nearly identical bill. In his veto message, the Governor stated:

*“Among its provisions, this bill would ban driverless testing and operations of heavy-duty autonomous vehicles.*

*Assembly Bill 316 is unnecessary for the regulation and oversight of heavy-duty autonomous vehicle technology in California, as existing law provides sufficient authority to create the appropriate regulatory framework.*

*In 2012, the California Legislature provided the Department of Motor Vehicles (DMV) with the authority to regulate the testing and deployment of autonomous vehicles on public roads in California. As part of its oversight and regulatory responsibilities, DMV consults with the California Highway Patrol, the National Highway Traffic Safety Administration, and others with relevant expertise to determine the regulations necessary for the safe operation of autonomous vehicles on public roads.*

*DMV continuously monitors the testing and operations of autonomous vehicles on California roads and has the authority to suspend or revoke permits as necessary to protect the public's safety.*

*Autonomous vehicle technology is evolving and DMV remains committed to keeping our rules up to date to reflect its continued development in California. DMV held public workshops with interested stakeholders earlier this year to inform the development of future rulemakings for both light-duty and heavy-duty autonomous vehicles. This rulemaking will be a transparent, public process where subject matter experts and other stakeholders will have the opportunity to shape the regulations related to the safe operations of autonomous vehicles in California. The draft regulations are expected to be released for public comment in the coming months.*

*In addition to safety, my Administration has long been concerned with the impact of technology on the future of work - so much so that in 2019 we convened, with participation from a variety of organized labor leaders including the Teamsters, UFCW, and SEIU, a robust Future of Work Task Force. That effort led to the publication of a report that guides our work on issues of emerging technology and its impacts on California's workforce.*

*But our efforts don't end there. I am committed to incentivizing career pathways and training for the necessary workforce specifically associated with this technology. As such, I am directing the Labor and Workforce Development Agency to lead a stakeholder process next year to review and develop recommendations to mitigate the potential employment impact of testing and deployment of autonomous heavy-duty vehicles.*

*Considering the longstanding commitment of my Administration to addressing the present and future challenges for work and workers in California, and the existing regulatory framework that presently and sufficiently governs this particular technology, this bill is not needed at this time. For these reasons, I cannot sign this bill.*

*My Administration remains open to working with the author, sponsors, and other stakeholders on the right approach to safely test and deploy this evolving technology in California, while also addressing and mitigating any potential impacts to jobs.”*

While it is correct that this bill would ban “driverless” testing and operation of AV vehicles, it does not prohibit AV technology. The bill still permits AVs with a GVW over 10,001 pounds to operate on public roads so long as a human safety driver is on board. Numerous other automated vehicles, like some transit vehicles and airplanes, continue to operate with human operators on board as a fail-safe.

The Autonomous Vehicle Industry Association, California Chamber of Commerce, “AB 2286 would thwart California’s robust regulatory process. As recognized by Governor Newsom in his veto of this exact bill last year, the Legislature passed a comprehensive legislative framework in 2012, which authorized the testing and deployment of AVs under regulations adopted by the California Highway Patrol (“CHP”) and Department of Motor Vehicles (“DMV”). The Legislature did not distinguish between vehicle classes when it directed the agencies to adopt such regulations, though the regulations currently prohibit heavy-duty AVs from testing or deploying in California. CHP and the DMV—experienced safety regulators that have already established a robust regulatory regime for light-duty AVs—are now engaging on autonomous trucks, with the agencies recently taking critical steps to initiate a rulemaking process that addresses AVs over 10,000 pounds. Notably, there have been only two workshops on AV trucks and *no* draft rules released to react to, and yet AB 2286 takes the draconian step of upsetting this deliberate regulatory process. Indeed, the Department of Finance’s analysis of this same bill last year states that the bill “creates a statutory framework for heavy-duty autonomous vehicle testing, which may not be the most appropriate pathway, given that the DMV, in its five years of experience working with light-duty testers, has significant policy expertise on autonomous vehicles[.]” Instead of imposing an ex-ante human-driver requirement that would serve only to further forestall heavy-duty AV innovation and investment in the state, the Legislature should allow this public, stakeholder-focused rulemaking process to appropriately take its course.”

*Committee comments:* This bill asks if the Legislature should trust DMV to 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 permitted AVs to operate with deployment permits despite numerous incidents that showed they were still in a testing phase. These incidents include, at least five AVs stopped operating for hours until they could be physically removed. An AV was involved in a collision that injured several individuals resulting in an NHTSA recall. AVs have continuously gotten stuck in a dead-end street in a residential neighborhood. An AV temporarily fled a police stop by driving several hundred feet away without operating headlights at night. An AV drove into a construction zone. An AV struck a cyclist. An AV crashed into a fire truck. AVs went into operation on a day with heavy rains

despite their deployment permit stating they could not operate in heavy rain and shut down in the middle of the street when the rain started.

All of these actions occurred after under penalty of perjury the companies certified with the DMV their vehicles were capable of driving themselves and following all of the rules of the road in California. DMV has 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.

While DMV did ultimately suspend Cruise LLC's permit, it did not do so over 20 days later, and only after it had discovered Cruise LLC did not initially display the entire video of the event Cruise LLC ultimately did provide the entire video to DMV.

Double referral: This bill is double referred to Communications and Conveyance Committee.

*Related Legislation:* AB 1777 (Ting) of 2024 places various requirements on AVs, holds AV companies liable for vehicle code infractions and authorizes DMV to take incremental enforcement measures against AVs, including restrictions on their operating domain. That bill is pending before this committee.

AB 3061 (Haney) of 2024 requires the manufacturers of autonomous vehicles (AVs) to report to the Department of Motor Vehicles (DMV) any vehicle collision, traffic violation, or disengagement, or the assault or harassment of any passenger or safety driver that involves a manufacturer's vehicle in California starting July 31, 2025. That bill is pending before this committee.

SB 915 (Cortese) of 2024 requires local authorization for an AV commercial passenger service to operate within its limits. That bill is pending before Senate Local Government Committee.

AB 316 (Aguiar-Curry) of 2023 was substantially similar to AB 2286. That bill was vetoed by Governor Newsom.

AB 96 (Kalra), Chapter 419, Statutes of 2023 requires a public transit employer to provide written notice to an exclusive representative of the workforce affected by autonomous transit vehicle technology, and that collective bargaining commence within a certain timeframe, among other provisions.

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**

Board of Supervisors for the City and County of San Francisco  
California Association of Highway Patrolmen  
California Conference Board of the Amalgamated Transit Union  
California Conference of Machinists  
California Federation of Teachers, AFL-CIO  
California Labor Federation, AFL-CIO  
California School Employees Association  
California Teamsters Public Affairs Council  
Engineers and Scientists of California, IFPTE Local 20, AFL-CIO  
League of California Cities  
Mission Street Neighbors  
San Francisco Taxi Workers Alliance  
SMART - Transportation Division (SMART-TD)  
Transport Workers Union of America, AFL-CIO  
Unite-Here, AFL-CIO  
Utility Workers Union of America

**Oppose**

Aurora Innovation  
Autonomous Vehicle Industry Association  
AUVSI  
Bay Area Council  
California Chamber of Commerce  
California Delivery Association  
California Hispanic Chamber of Commerce  
California Manufacturers & Technology Association  
Central City Association of Los Angeles  
Chamber of Progress  
Coalition of Small & Disabled Veteran Business  
Consumer Technology Association  
Cupertino Chamber of Commerce  
Daimler Truck North America  
Einride Autonomous Technologies  
Fairfax Lumber & Hardware  
Flasher Barricade Association  
Gatik  
Inland Empire Economic Partnership  
Kodiak Robotics  
Los Angeles County Business Federation (BIZ-FED)  
Luminar

MEMA, The Vehicle Suppliers Association  
Mountain View Chamber of Commerce  
Navistar  
Palo Alto Chamber of Commerce  
Plus AI  
Relles Florist  
Spartan Radar  
Stack AV  
STAR Milling Co.  
SVLG  
Technet  
Tesla  
Torc Robotics  
Uber  
Valley Industry and Commerce Association (VICA)  
Volvo Autonomous Solutions NA, Inc.  
Volvo Group North America  
Waabi Innovation  
World Blind Union

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