Date of Hearing: April 19, 2023

ASSEMBLY COMMITTEE ON COMMUNICATIONS AND CONVEYANCE
Tasha Boerner Horvath, Chair
AB 316 (Aguiar-Curry) – As Amended April 11, 2023

SUBJECT: Vehicles: autonomous vehicles

SUMMARY: This bill would prohibit 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 unless a human safety operator is physically present at the time operation. Specifically, **this bill**:

1) States the intent of the Legislature to:

    a. To prioritize public safety, job security, and infrastructure needs in the development and deployment of autonomous vehicles on California roads.

    b. To ensure that public policy adapts to rapid advancements in autonomous vehicle technology.

    c. To revisit and amend applicable laws as necessary to reflect advancements that address threats to public safety and jobs.

2) Requires a manufacturer whose autonomous vehicle is involved in a collision to report the collision to the Department of Motor Vehicles (DMV) within 10 days of the collision, as specified.

3) Requires a manufacturer with a testing permit to submit disengagement reports on an annual basis to the DMV, as specified.

    a. Defines "disengagement" to means 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 autonomous vehicle 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.

4) Defines "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. Requires a human safety operator to 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 established by the Department of Motor Vehicles (DMV).

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) § 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.

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]*:*

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:

1) *Purpose of the bill.* The author posits that this bill is primarily about safety and jobs. "AB 316 places a needed guardrail on the deployment of autonomous medium- and heavy-duty

[1] California Autonomous Vehicle Regulations. https://www.dmv.ca.gov/portal/file/adopted-regulatory-text-pdf/

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."

2) *Legislative and Regulatory Background.* 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 have received a deployment permit without a human driver. DMV regulations prohibit the testing or deployment of AVs over with a gross vehicle weight (GVW) of 10,001 pounds or more. The weight threshold was initially adopted or safety reasons, as vehicles with heavier weights are capable of causing significantly more damage in a collision. More recently, DMV held an initial 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.

3) *AV Testing in California.* AV manufacturers are required to obtain a testing or deployment permit to operate on public roads in California. Under existing regulations, only the operation of AVs less than 10,000 pounds is authorized, henceforth referred to as " light-duty AVs". There are currently three permits manufactures can apply for: tester permit with driver, tester permit for driverless vehicles, and approval to deploy on public roads. To obtain a tester permit with a driver, the manufacturer must self-certify that the AV has been tested under controlled conditions that stimulate operational design domain in which the manufacturer intends the vehicle to operate on public roads. There are also insurance requirements, and certain requirements to qualify a driver to operate the vehicle.

   To obtain a driverless test permit, the barriers to entry are not significantly higher, although there are more requirements. For example, the manufacturer must notify local jurisdictions where the vehicle will be operated, including the list of public roads where the vehicle will be tested, the date that testing will begin, the days and times testing will be conducted, and the number of vehicles to be tested. The DMV regulations do not require that operators incorporate feedback from local jurisdictions on where the AVs will operate. The manufacturer must also self-certify that the vehicle is capable of operating without the presence of a driver inside the vehicle and that the vehicle meets the description of a level 4 or 5 automated driving system under international standards. While these regulations apply specifically to light-duty AVs, it's unclear at this point whether DMV is planning more robust testing requirements for heavy-duty AVs.

4) *AV Deployment in California.* DMV regulations define deployment to mean:

> "the operation of an autonomous vehicle on public roads by members of the public who are not employees, contractors, or designees of a manufacturer or for the purpose of sale, lease, providing transportation services or transportation property for a fee, or otherwise making commercially available outside of a testing program."

In summary, the key distinction of the deployment phase under the regulations is authorization to have passengers in the vehicle who are not affiliated with the manufacturer. To obtain a deployment permit for an AV in California, manufacturers are required to provide additional information about the vehicle's design domain and identify commonly-occurring or restricted conditions such as: fog, black ice, wet surfaces, or construction zones. 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 suspended one manufacturer's deployment permit for this reason.

In addition to the deployment programs operated by the DMV, the California Public Utilities Commission (CPUC) also administers an autonomous-vehicle program. The Commission authorized Drivered (with driver) and Driverless Pilot and Deployment AV passenger service programs to provide pre-arranged transportation in autonomous vehicles with or without a safety driver. To be eligible to participate in the CPUC's program, operators must first obtain the proper testing or deployment permits from the DMV. Under the CPUC's program, some operators are in the deployment phase and carrying passengers.

5) *This bill would prohibit the operation of heavy-duty AVs without a human safety operator under most circumstances.* While this bill falls short of an outright ban on the operation of AVs with a GVW of 10,001 or more pounds, referred to henceforth as "heavy-duty AVs", it comes close. The bill lists specified circumstances under which the prohibition applies: on public roads for testing purposes, while transporting goods, or transporting passengers. It's unclear whether the author intends to cover scenarios which arguably might not be covered such as operation on private roads, when the vehicle is empty, or on public roads when the vehicle is empty but not testing. Regardless, the prohibition is broadly applicable and clearly intends to cover most scenarios where a heavy-duty AV could pose a danger to the general public.

6) *Driving is dangerous, period. It's unclear if AVs will be safer.* Vehicles operating at any speed are inherently dangerous. While the requirement for autonomous vehicles to operate with a human safety operator would purport to make driving safer, vehicles operated by humans cause a lot of destruction. The National Highway Traffic Safety Administration ("NHTSA") estimates that nearly 43,000 traffic deaths occurred in 2021—representing a 16-year high and an 11% increase in fatalities from 2020. In California alone more than 4,000 lives were lost in motor vehicle crashes in 2021. Nearly 14% of crashes in the United States involve a truck, and 1 in 3 long-haul truck drivers experience a serious crash in their career. In one study, the U.S. Department of Transportation found that drivers of trucks over 10,000 pounds were responsible in 87% of incidents in which the truck caused the crash. Autonomous vehicles can potentially make driving safer, but it's unclear whether they will. Without sufficient data and rigorous testing that question cannot be answered definitively.

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."

7) *How much testing is needed to make a determination about AV safety?* Existing law or regulations do not establish discrete benchmarks for light-duty AVs to enter the testing phase or full deployment. For example, there is not a minimum number of miles that are required to be traveled or a maximum number of incidents before a manufacturer would be deemed qualified to deploy on public. While the regulatory process would likely benefit from more structure, those topics are outside the scope of this bill as drafted. Instead, the bill contains intent language expressing the intent of the Legislature to "revisit and amend applicable laws as necessary to reflect advancements that address threats to public safety and jobs."

   How much testing would be needed anyway to make an informed decisions about the safety impacts of heavy-duty AVs? 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. Due primarily to the fact that humans drive trillions of miles per year, with comparatively low accident rates, it is difficult to compare the two even when controlling for distance. For example, 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. It's unclear whether manufactures will ever be able to meet the benchmarks needed to provide a definitive answer on the relative safety AVs, but in the meantime it's possible that continued robust testing and minimal safety incidents can build the public's and policymaker's support for full driverless deployment in the future.

8) *Arguments in support.* The California Labor Federation, a co-sponsor of this legislation, argues that "The introduction of autonomous vehicles without guardrails puts jobs and safety at risk." They add, "The havoc created by passenger vehicles…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."

9) *Arguments in opposition.* This bill is opposed by a coalition of AV manufacturers and industry-aligned organizations. Opposition argues that this effectively bans autonomous truck deployment, which would stifle further innovation and investment in California. They write, "California was among the first states to adopt a comprehensive legislative framework for AV testing and deployment over a decade ago. AV technology has since been tested and deployed in states across the country and across modalities, and it maintains an incredible safety record. Other states have taken notice, and now, a majority of U.S. states have

recognized the numerous benefits of AVs by authorizing AV deployment, including deployment of autonomous trucks."

10) *Committee amendments.* The author may wish to consider the following amendments:

a. Require by January 1, 2029 or five years after commencement of testing, whichever occurs later, and upon appropriation by the Legislature, the Department of Motor Vehicles to submit a report to the appropriate policy and fiscal committees of the Legislature evaluating the performance of autonomous vehicle technology.

b. Upon the issuance of the report, state the intent of the Legislature to conduct an oversight hearing to assess the state of autonomous vehicle technology for vehicles over 10,001 lbs.

c. Prohibit the DMV from issuing a deployment permit earlier than one year after the oversight hearing.

REGISTERED SUPPORT / OPPOSITION:

Support

Afscme
American Federation of State, County and Municipal Employees (AFSCME), Afl-cio
California Association of Highway Patrolmen
California Labor Federation, Afl-cio
California New Car Dealers Association
California Professional Firefighters
California Rural Legal Assistance Foundation (crla Foundation)
California School Employees Association
California State Legislative Board, Sheet Metal, Air, Rail and Transportation Workers - Transportation Diivsion (SMART-TD)
Consumer Attorneys of California
International Union of Operating Engineers Local 3
International Union of Operating Engineers, Cal-nevada Conference
League of California Cities
Mayor of City & County of San Francisco London Breed
State Building and Construction Trades Council of Ca
UAW Region 6
United Food and Commercial Workers, Western States Council

Opposition

Association for Uncrewed Vehicle Systems International
Association for Unmanned Vehicle Systems International
Aurora Innovation, INC.
Autonomous Vehicle Industry Association
Bay Area Council
Cal Asian Chamber of Commerce
California Alliance for Freight Innovation
California Chamber of Commerce

California Delivery Association
California Hispanic Chamber of Commerce
California Hispanic Chambers of Commerce
California Manufacturers & Technology Association
California Small Business Association
Chamber of Progress
Citrus Heights Chamber of Commerce
Coalition of California Chambers – Orange County
Coalition of Small and Disabled Veteran Businesses
Consumer Technology Association
Contra Costa Transportation Authority
Daimler
Ema Truck & Engine Manufacturers Association
Family Business Association of California
Inland Empire Chamber Alliance
Inland Empire Chamber Legislative Alliance
Inland Empire Economic Partnership
International Warehouse Logistics Association
Kodiak Robotics, INC.
Los Altos Chamber of Commerce
Los Angeles Business Council
Los Angeles County Economic Development Corporation
Motor and Equipment Manufacturers Association
Mountain View Chamber of Commerce
Rich Desmond, Sacramento County Supervisor District 3
Safe Kids Worldwide
San Francisco Chamber of Commerce
San Gabriel Valley Economic Partnership
San Jose Chamber of Commerce
Sf.citi
Silicon Valley Leadership Group
Sunnyvale Chamber of Commerce
Technet
Tusimple
Waymo

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