

# Feedback of the AV Safety Subcommittee on HB2470 language

## Process

The AV Work group Executive Committee asked all of the subcommittees to provide feedback on the language proposed in HB 2470. To do this, we started with the feedback we had gathered on the ULC model bill and modified it with feedback on the HP 2470 in particular. The feedback is organized by HB2470 sections and represents the various viewpoints of representatives on the AV Safety Subcommittee. Because the AV Safety Subcommittee has diverse membership and perspectives, some points of feedback may seem to conflict with others.

## General

- The more than 530 people killed on Washington's roads last year is not acceptable, and automated vehicle technology holds the potential to save lives, but we need to be able to test and deploy this technology in a safe manner that doesn't expose drivers, passengers, and other road users to additional harm.
- This bill addresses only the deployment of vehicles that can provide automated operations. This would include Levels 3-5 of the [SAE standard](#). It does not address the testing of level 3-4 vehicles, which is actually the state of development where we are right now. Level 3 and 4 automated vehicles are being tested on public roads today in multiple states, and it is legal to test them on Washington's public roads as well, with the self-certification outlined in [Executive Order 17-02](#) and recently passed [HB2676](#).
- The focus on traffic safety is appreciated. In section 11 of the bill, it states "This title must be interpreted to accommodate the development and deployment of automated vehicles in a way that maintains or improves traffic safety."
- It provides a general framework that is good, but it is lacking many of the details that are very important to ensure safety. The need to regulate deployment of AV's in Washington is not urgent, and for that reason, we should spend more time addressing the issues outlined below.
- Portions of this bill act could apply to certain consumer-owned vehicles as early as 2021 if the manufacturers of those vehicles declare themselves to be an automated driving provider and define when the vehicle is in automated operation. But even in that case, not having a law of this type would not adversely affect traffic safety. The broader application of this would be to level 4 automated vehicles, and that would have larger impacts to traffic safety. We want people without licenses or are unable to drive, such as intoxicated persons, to use these level 4 vehicles for transportation, rather than driving themselves. But level 4 vehicles will likely not be deployed in any widespread use in Washington for at least another 3-5 years, so we have time to invest in more discussion and work out important details before passing legislation.
- [Regarding having people who are unable to drive operate level 4 vehicles, this is a slippery slope. SAE L4 defines an L4 vehicle as operating autonomously within a specific domain \(could be a geographic restriction \(geo facing\), or a roadway restriction, or a speed restriction, etc.\), called the Operating Design Domain \(ODD\) of the autonomy, without human intervention. However, once the vehicle can be operated in that same domain the same as a conventional, non-automated, vehicle. Especially when the vehicle reaches the condition where the autonomy can no longer operate fully autonomously it will safely park itself and stop. A drunk, unlicensed, or elderly driver may then in fact be driving the vehicle in its conventional mode and this is not "prevented" an in L4 vehicle](#)

[design \(or in the definition of an L4 vehicle\). It is not until L5 that the vehicle would not have any traditional driving controls in it.](#)

## Definitions (Sections 2-10, 12)

- Defining “automated vehicle” as a motor vehicle with an automated system may be insufficient. This definition should contain a discussion of the autonomous vehicle levels.
- [“Dedicated Automated Vehicle” is defined. Is this a new term we are going to introduce? Would it be better to stick with Highly Autonomous Vehicles, Level 1 -5 Autonomous Vehicles, or other terms widely accepted in this discussion?](#)
- [Generally, in the industry, an automated vehicle is a vehicle that has some automated systems to aid the human driver. In the SAE scale, this can be L1-L3 where supervision and intervention by the human driver is expected. Autonomous is the term we start to use for L4 and L5 vehicles where the assumption is that while the vehicle is operating in autonomous mode, the human does not need to be involved. The primary difference between L4 and L5 being the breadth of environments the vehicle can operate autonomously, and the presence of traditional operating controls to manually drive the vehicle. There is a form of human intervention, or assistance, which is expected to be utilized on vehicles L3 and above known as Teleoperations and this involves remote human intervention, usually on-demand or by request of the autonomy system. This human intervention is not considered or defined when considering the SAE L-level classification of the vehicle.](#)
- We need to have consistent definitions that align with other state and federal laws and regulations.

## Vehicle Registration (Section 13)

- [The National Highway Traffic Safety Administration \(NHTSA\) is responsible for setting standards for safe vehicle equipment standards, however they have not yet established what those standards are for automated vehicles being operated in automated operations \(not under the control of a human driver\). This bill gives the authority to Department of Licensing \(DOL\) to register vehicles as “automated vehicles” but it doesn’t provide any criteria on how to ensure that vehicle can safely operate in automated operation, beyond the assurances of the company claiming the vehicle. There are \[multiple industry organizations working on various standards\]\(#\) of how to judge automated vehicle operational safety, but they are not even close to having a commonly accepted standard. This would make it very difficult for DOL to reasonably ensure that the automated vehicles they would be asked to license are safe to operate on public roads and impact all Washingtonians.](#)
- [There may be multiple levels of operational validation which needs to be done. Federal regulation traditionally has defined the levels of safety, construction, emissions, lighting, etc, required at a national level for the design and manufacture of the vehicle. Then states have taken responsibility for defining operational safety of those vehicles and the operators of those vehicles \(e.g. speed limits, seat belt usage, cell phone usage, etc\). It was not until 1980 that all 50 US states allowed a free-right on red \(when not prohibited by signage\), and regulations regarding u-turns at intersections are still variable by state. In general, it will be up to Washington to certify that an L4 and L5 vehicle understands and can follow the traffic laws defined by the state. It may be possible for NHTSA to define national AV traffic laws \(for instance, maybe just banning U-turns, which could be problematic for Michigan who has a specific intersection design called a Michigan-left that requires a U-turn after passing through the intersection where the left-turn is desired\).](#)
- Something not addressed in this bill is how to do safety assessments or set performance standards. As a matter of equipment, the safety assessments should be done by the federal agency that governs vehicle equipment, NHTSA. These assessment and performance standards need to prioritize safety for all road users, not just a goal of improvements in traffic safety.

## Infractions/Citations (Section 16)

(1) states *“An automated driving provider shall take reasonable steps to comply with chapter 46.61 RCW during automated operation of an associated automated vehicle.”*

- This is concerning to some, because you either do comply with the law or you don't. Suggest replacing “...shall take reasonable steps to comply...” with “...shall comply...”
- However, there are situations where vehicles should violate law for good reasons, such as temporarily crossing a yellow line to move around a disabled vehicle or a flagger directs the vehicle, so “reasonable steps” language is intended to address these kinds of situations.
- Current proposed language is consistent with what other states have implemented. California has an exception for compliance if the AV is taking actions to improve road safety which may violate traffic laws, such as crossing a double yellow line to move around a stalled vehicle, an accident, construction, or if a police officer is manually directing traffic.
- It could also be an option that the AV, in these circumstances, is required to be operated by a remote human (a teleoperator) who will be able to ascertain far easier whether violating a traffic law is safe and prudent.
- We could provide examples, but generally you don't see those in laws. It opens up a rabbit hole of “the statute did not include example X, so does that mean it does not apply?” A situation which a human remote operator can likely deal with much easier than a pre-programmed autonomy algorithm.
- Is there a better way to capture the legislative intent in this language, defining “reasonable steps” more clearly?
- How is this addressed with human drivers? The LE officer doing enforcement is the one determining if the violation was reasonable to not.
- Ultimately, the standard for the AV should be the same as a human driver.
- This definitely will continuously be a rabbit hole because standards for human drivers often assume that there is a human making a reasonable judgement. An AV system is still a highly trained computer algorithm that doesn't have human levels of reasoning and understanding; and won't for decades. Most likely, road regulations will need to be simplified for AVs. A simple example of this is school zones with a 20mph speed limit “when children are present”. AVs will likely just assume 20mph at all times, or during certain hours but technically “when children are present” could be on a Sunday afternoon, or Thursday evening at 10pm, or...

(2) states *“An automated driving provider is responsible for a violation of chapter 46.61 RCW during automated operation of an associated automated vehicle.”*

- This is consistent with other states, such as CA and AZ.
- Concern over how we hold the automated driving provider (ADP) responsible.
- If a violation is observed by a police officer, how do they stop the vehicle if it is in automated mode? Both CA and AZ require LE Interaction plans for any driverless testing on their roads. Waymo has provided a sample LE interaction plan, that includes:
  - How to pull an AV over
  - Sounds, sirens, visual profiles of police and emergency vehicles built into the AVs
  - Contact information for police/emergency
  - Citations are always issued to the AV company
- Should a law enforcement interaction plan be required for all ADP's in WA too? This could be done in a law or in rulemaking. Most likely, yes, and this is another example of where WA probably needs

[to validate and certify that an AV is able to follow the WA defined law enforcement interaction plan; or the US DOT/NHTSA need to define a nationally consistent law enforcement interaction plan.](#)

- In a dual use vehicle (level 3 or level 4), the human could be driving, or the vehicle could be in control. If there was someone in the driver's seat, it is unclear how law enforcement would conclusively know if the person was driving that vehicle or the vehicle was in automated operation. [In an L3 vehicle, the human driver is required to supervise the safe operation of the vehicle and so in this case the human receives the citation \(whether or not the L3 system was activated\). In an L4 vehicle the situation described could apply and there may in fact be vehicles that operate in L3 in some environments and L4 in others.](#)
- If a carsharing company is operating an AV, the autonomy system fails, a teleoperator they work with takes over remote control of the vehicle, then a violation occurs – who would be responsible for the violation?
  - Note: The ULC model (which this bill is based on) does not address remote driving at all, and that may be a key safety measure for driverless vehicles. [The teleoperator is responsible for the lawful operation of the vehicle when remotely driving the vehicle. For equipment violations \(a burned out headlight, or faulty turn signal, expired registration, etc\) the vehicle owner has to be held responsible for violations.](#)
- For fleet owned vehicle, the violation would always go to the ADP, but for personal AV ownership, this raises many questions. Is a violation issued to the ADP or the person in the driver's seat?
  - [The approach Volvo/Waymo etc. have taken seems reasonable. Volvo/Waymo will take liability for its autonomy system; presumably this refers not just in the case of accidents but also for violating traffic laws.](#)
- There can be dual-use vehicles – geofenced area scoped for level 4 automated operation, then when it reaches the end of the geofence, it notifies the driver they need to take over and manually drive from there. Is it the expectation that the responsibility in geofenced area is on the ADP, the responsibility in non-geofenced area is on manual driver?
- It's important that we create a situation where passengers do not have to always be able to take over driving. But even some level 4 vehicles may be controlled by the person in the driver's seat or the automated system. [In general, all L4 vehicles will have the possibility to be driven by a human.](#)
- Idea: When an officer approaches a vehicle having an infraction or violation, an external indication of the mode of operation - fully automated, remote operation, or manual - will guide the actions to be taken.
- If the ticket was actually issued to the ADP, the courts would have to modify their system to process that violation.
- Need to include rulemaking authority into the language. There should be some Washington Administration Codes (WAC) that go along with this.
  - Would the ability to contact the ADP be contained in rule or does it need to be written into statute?
  - Would contact information be posted on the vehicle? Provided electronically?
    - [Unlike vehicle ownership, which changes over the lifetime of the vehicle, the ADP of a vehicle is currently expected to remain the same for the life of the vehicle. Part of the licensing process of an AV in Washington \(and any other state\) could be a registration of the ADP and their contact information which can then be used in these situations and should remain consistent for as long as the vehicle is on the road.](#)
  - Language is consistent between states, but the mechanism varies
    - California as written in regulations, based on statute
    - Arizona Department of Public Safety issued regulations following administrative action at the Governor's level
    - Other states require it by law

(3) states “A violation of this subsection is a violation under this title. A person may not operate an automated vehicle on a public roadway if the vehicle is not: (a) Properly maintained; (b) Lawfully insured; (c) Compliant with registration requirements; or (d) Fit to be operated.”

- There is some concern about “properly maintained” and “fit to be operated” language. Who gets to decide? It seems that the intent was for vehicles to be compliant with existing equipment requirements, not just for personally-owned vehicles, but also for ride-hailing, hazardous goods transport, etc.
- Who is responsible for equipment violations? The person the car is registered to or the ADP? If a vehicle has a tail-light out and is rear-ended by another vehicle, who gets the ticket? Who goes on the collision report?
  - [My understanding is that these are today the responsibility of the operator of the vehicle. I’ve even received, in Washington, an equipment failure \(expired tabs\) ticket when driving a vehicle I didn’t own \(and the owner was actually in the passenger seat\). Following this model, the human in the vehicle should be held responsible for the vehicle being “fit to be operated”. However, exceptions will probably need to be made for “robo-taxi” services where the vehicle is fleet owned.](#)
- If the technology stops the vehicle for a police car, who do the police contact? Automated vehicles may need to be manually operated if in an accident and stopped in place, obstructing traffic. [This is exactly a scenario requiring teleoperation.](#)
  - Likely the ADP will deploy a team to resolve, but if law enforcement arrives first, there should be capabilities for either law enforcement to manually operate the vehicle out of the way or for remote control of the vehicle to move it
    - Only applicable when the self-driving system is completely disabled
    - Self-driving system should not stop mid-motion, as happens with driver assistive systems now
    - Law enforcement used to that scenario now, moving vehicles out of the way to clear for safety. This is a statutory requirement for non-injury collisions when the vehicles involved are driveable.
  - What about vehicles with no steering wheel, gas pedal, brakes, etc.?
    - Law enforcement should be able to press a button in the vehicle to signal a teleoperator to move the vehicle
    - Note that full speed vehicles are years away from federal standards that allow removal of in-vehicle controls – applicable only to low speed vehicles for now
    - Another solution being looked at are other types of controllers, such as joysticks or gaming controllers.
- This sub-section (like sub-section 2) might benefit greatly from rule making authority. Currently the WSP has rule making authority over equipment standards.

## Driver Licensing (Section 17)

Amends RCW 46.20.025 “The following persons may operate a motor vehicle on a Washington highway without a valid Washington driver’s license: (3) A person taking a completely automated trip”;

- This may be unnecessary, because currently law does not have to say that a passenger can ride in a vehicle with a licensed driver.

- This may be acceptable for completely automated trip where occupants would be in the passenger or back seat, such as the rides that Waymo is providing with Level 4 automated vehicles in Arizona. In cases like that, there is very real benefit for disabled or older people who no longer have a driver's license to be able to obtain transportation. Need a way to determine at trip start whether the trip was intended to be a completely automated trip – maybe through the law enforcement engagement plan. Transparency is key.
- If there was no back-up driver (in the car or remote) available, it is irresponsible to allow for a passenger that does not have the ability to take over the driving task in an emergency. If at any time, the person in the car might need to take control of the vehicle, they still need to understand the safety/rules of the road and the ability to drive the vehicle to their location safely.
- Regarding a person needing to take control of the vehicle, this is contradicted earlier with the expressed desire to allow unlicensed, or intoxicated, persons the use of an automated vehicle. I agree with this however, any vehicle with manual control needs a licensed and capable occupant.
- However, this doesn't allow for the stated benefits of AVs providing mobility for people with disabilities and other conditions or situations that prevent them from being able to operate a vehicle. It seriously undercuts the claimed benefits of AVs expanding mobility and creates an inequity. If the remote operator is going to be a requirement for people who can't take over operation, that needs more discussion and a system established that addresses equity issues around cost, potential communication barriers and other variables.
- A driver's license would still need to be required in cases where a person is sitting in the driver's seat and is capable of taking the vehicle out of automated operation. This would also be the case for any level 3 automated vehicle, which is not capable of a completely automated trip, and where the driver must be able to take back control within a few seconds of the vehicle notifying them.
- Perhaps there should be a requirement for auto dealers to education the “human” on how to use the auto-drive features? Should there be a requirement to provide some type of training on self-driving vehicles?

## TV Screen in vehicles (Section 20)

In response to Washington's Distracted Driving statutes, and separate from this bill, the AV Safety Subcommittee is recommending that RCW 46.37.480 Section (1) be repealed, so it would no longer apply: *“No person shall drive any motor vehicle equipped with any television viewer, screen, or other means of visually receiving a television broadcast when the moving images are visible to the driver while operating the motor vehicle on a public road, except for live video of the motor vehicle backing up. This subsection does not apply to law enforcement vehicles communicating with mobile computer networks;”*

The RCW states that no person shall “drive” ...that would seem to apply in the case of L3/L4 vehicles. If the human is driving, live video should not be visible to that driver.

## Abandoned Vehicles (Section 21)

*RCW 46.61.590 and 1979 ex.s. c 178 s 1 are each amended to read as follows: It is unlawful for the operator of a vehicle to leave the vehicle unattended within the limits of any highway unless the operator of the vehicle arranges for the prompt removal of the vehicle or the vehicle is an automated vehicle under automated operation lawfully permitted to operate in the state.*

It states that, basically, an automated vehicle cannot be abandoned. If an automated vehicle breaks down, or gets a flat tire, on the side of the freeway, it is just as abandoned as any other unoccupied vehicle along the side of the road. We suggest review of this proposed language to clearly capture legislative intent.

## Distracted Driving (Section 23)

*RCW 46.61.672 and 2017 c 334 s 1 are each amended to read as follows: "A person who uses a personal electronic device while driving a motor vehicle on a public highway is guilty of a traffic infraction and must pay a fine as provided in RCW 46.63.110(3). This does not apply to: The automated operation of an automated vehicle."*

- It is unclear how would law enforcement be able to tell if someone sitting in the driver's seat was operating the car or if the car was under automated operation. This would create significant ambiguity and confusion.
- There needs to be more clarity around when the electronic device prohibitions may not be enforced. Unless the car is in completely automated mode and able to give the driver sufficient time to take over operations, that driver must be paying attention and capable of taking over operation, or there needs to be another "back-up" system or driver. (A good example of this is the pedestrian fatality in Arizona.)
- Maybe this is unnecessary, because if the person is not driving then this would not apply to them, as they are a passenger and not the driver. But if the person was sitting in the driver's seat, how would the officer know if the vehicle is in automated operation?
- There should be more discussion around language about incapacitated or impaired persons. From a traffic safety perspective, we want to encourage intoxicated people to use an alternative to driving – and an automated vehicle ride might be a good option. But there would need to be some sort of back-up if the technology failed, because the impaired person could not take over the vehicle in any case.

### Other resources to review:

- [AAMVA's Guidelines for Testing and Deployment of Highly Automated Vehicles](#)
- [GHSA's Autonomous Vehicles Meet Human Drivers: Traffic Safety Issues for States](#)
- [NHTSA's AV Test Initiative](#)
- We should also look at what other states have done for consistency (CA, OR, AZ, etc.) at [NCSL's Autonomous Vehicles State Bill Tracking Database](#)