

**SECOND REVISED PROPOSED REGULATION OF
THE DEPARTMENT OF MOTOR VEHICLES**

LCB File No. R134-15

March 18, 2016

EXPLANATION – Matter in *italics* is new; matter in brackets ~~[omitted material]~~ is material to be omitted.

AUTHORITY: §§1-11, NRS 482A.100.

A REGULATION relating to autonomous vehicles; revising provisions relating to the control of an autonomous vehicle by a natural person; revising provisions relating to the requirements for certain operators of autonomous vehicles; and providing other matters properly relating thereto.

Legislative Counsel’s Digest:

Existing law provides that an autonomous vehicle is a vehicle equipped with autonomous technology, which has the capability to drive the motor vehicle without the active control or monitoring of a human operator. (NRS 482A.025, 482A.030) Existing regulations require an autonomous vehicle that is being tested or certified to operate on the highways of this State to have a system to safely alert the operator of the vehicle to take control of the vehicle if a technology failure is detected. (NAC 482A.110, 482A.190) **Sections 9 and 11** of this regulation require such a system to alert the operator of the autonomous vehicle to take “active control” or “physical control” of the vehicle. **Sections 7 and 10** of this regulation make conforming changes to various provisions dealing with human control of an autonomous vehicle. The terms “active control” and “physical control” are defined in **sections 3 and 4** of this regulation. “Active control” is defined to mean the electronic monitoring and control of the mechanical operations of the vehicle, and “physical control” is defined to mean the monitoring of, direct physical contact with and hands-on control of the mechanical operations of the vehicle by the operator.

Existing regulations require that two licensed drivers be present in an autonomous vehicle being tested on the highways of this State, one of whom is the operator and must at all times be seated in a position which allows the person to take complete control of the vehicle. (NAC 482A.130) **Section 10** of this regulation provides that only one licensed driver is required to be present in such a vehicle and that such a person must be able to take active control or physical control of the vehicle.

Existing law authorizes the Department of Motor Vehicles, whenever good cause appears, to issue a driver’s license with certain restrictions suitable to a licensee’s driving ability as the Department may determine to be appropriate to assure the safe driving of a motor vehicle by the licensee, such as requiring corrective lenses for certain licensees. (NRS 483.360; NAC 483.350) Existing regulations provide for Restriction JA, placed on the driver’s license of a

person who requires a restriction that does not meet the description of any other restriction or whose driver's license requires more restrictions than can be shown on the license, which requires the licensee to carry a detail form which details specific restrictions on the licensee or his or her vehicle. (NAC 483.360) **Section 10** of this regulation authorizes a person who holds a driver's license with Restriction JA to be the operator of an autonomous vehicle being tested provided that: (1) the detail form issued to the holder authorizes the holder to operate an autonomous vehicle for testing on the highways of this State through the use of active control; (2) a second person in the vehicle is a licensed driver and is seated in a position which allows the person to take active control or physical control of the vehicle; (3) there is a pilot vehicle, driven by a licensed driver, directly in front of the autonomous vehicle; and (4) the licensee proves to the Department that the holder is an employee of the licensee and has been trained in the operation of the autonomous vehicle before operating it on the highways of this State. If for any reason the pilot vehicle is unable to continue operating directly in front of the autonomous vehicle being tested, the operator of the autonomous vehicle must pull the vehicle safely to the side of the road, or the second operator must disengage the autonomous technology and take active control or physical control of the vehicle. **Section 6** of this regulation provides a definition of a pilot vehicle required for such testing of an autonomous vehicle.

Section 1. Chapter 482A of NAC is hereby amended by adding thereto the provisions set forth as sections 2 to 6, inclusive, of this regulation.

Sec. 2. *As used in this chapter, unless the context otherwise requires, the words and terms defined in sections 3 and 4 of this regulation have the meanings ascribed to them in those sections.*

Sec. 3. *“Active control” means the electronic monitoring and control of the mechanical operations of an autonomous vehicle, including, without limitation, braking, steering and adjusting the throttle of the vehicle, by the operator of the autonomous vehicle through the use of sensors or other technology without the operator physically controlling such operations.*

Sec. 4. *“Physical control” means the monitoring of, direct physical contact with and hands-on control of the mechanical operations of an autonomous vehicle, including, without limitation, braking, steering and adjusting the throttle, by the operator of the autonomous vehicle.*

Sec. 5. *“Licensee” means a person who is licensed to test autonomous vehicles on the highways of this State.*

Sec. 6. *“Pilot vehicle” means a motor vehicle that:*

- 1. Is registered pursuant to chapter 482 of NRS;*
- 2. Meets all the applicable requirements of chapter 484D of NRS to operate on the highways of this State;*
- 3. Is insured as required pursuant to chapter 485 of NRS;*
- 4. Is driven by a person who holds a valid license to operate the motor vehicle issued in the state in which the person resides; and*
- 5. Is intended to be operated pursuant to subsections 3 and 4 of NAC 482A.130 directly in front of an autonomous vehicle being operated by the holder of a restricted driver’s license.*

↪ The term does not include a motorcycle or moped.

Sec. 7. NAC 482A.010 is hereby amended to read as follows:

482A.010 As used in NRS 482A.030, the Department will interpret the term “autonomous vehicle” to exclude a vehicle enabled with a safety system or driver assistance system, including, without limitation, a system to provide electronic blind spot assistance, crash avoidance, emergency braking, parking assistance, adaptive cruise control, lane keep assistance, lane departure warnings and traffic jam and queuing assistance, unless the vehicle is also enabled with artificial intelligence and technology that allows the vehicle to carry out all the mechanical operations of driving without the active control or ~~continuous monitoring~~ *physical control* of a natural person.

Sec. 8. NAC 482A.100 is hereby amended to read as follows:

482A.100 As used in NAC 482A.100 to 482A.180, inclusive, *and sections 5 and 6 of this regulation*, unless the context otherwise requires, ~~["licensee" means a person who is licensed to test autonomous vehicles on the highways of this State.]~~ *the words and terms defined in sections 5 and 6 of this regulation have the meanings ascribed to them in those sections.*

Sec. 9. NAC 482A.110 is hereby amended to read as follows:

482A.110 1. A person may apply for a license to test the autonomous technology installed on the autonomous vehicles of the person by submitting an application to the Department on a form provided by the Department. A license issued pursuant to this section authorizes the testing of the autonomous technology installed on the autonomous vehicles of the licensee on the highways of this State even if certificates of compliance have not been issued for the autonomous vehicles pursuant to NAC 482A.190.

2. The form provided by the Department must require the applicant to affirm that, to the best of the applicant's knowledge and belief, each autonomous vehicle to be tested:

- (a) Is safe to operate on the highways of this State.
- (b) Has a separate mechanism in addition to, and separate from, any other mechanism required by law, to capture and store the autonomous technology sensor data for at least 30 seconds before a ~~{collision}~~ *crash* occurs between the autonomous vehicle and another vehicle, object or natural person while the vehicle is operating in autonomous mode. The autonomous technology sensor data must be captured and stored in a read-only format by the mechanism so that the data is retained until extracted from the mechanism by an external device capable of downloading and storing the data. Such data must be preserved for 3 years after the date of the ~~{collision}~~ *crash*. The provisions of this paragraph do not authorize or require the modification

of any other mechanism to record data that is installed on the autonomous vehicle in compliance with federal law.

(c) Has a switch to engage and disengage the autonomous vehicle that is easily accessible to the operator of the autonomous vehicle and is not likely to distract the operator from focusing on the road while engaging or disengaging the autonomous vehicle.

(d) Has a system to safely alert the operator of the autonomous vehicle to take *active control or physical* control of the autonomous vehicle if a technology failure is detected.

(e) Is equipped with autonomous technology which does not adversely affect any other safety features of the vehicle which are subject to federal regulation.

3. An applicant to operate a business to test autonomous vehicles pursuant to this section must:

(a) Submit proof to the Department that each autonomous vehicle which will be tested in this State is covered by insurance in an amount that meets or exceeds the minimum requirements for a vehicle registered in this State as set forth in NRS 485.185, and not an operator's policy of liability insurance as described in NRS 485.186. Any change in the information submitted concerning a policy of insurance pursuant to this section must be reported to the Department within 10 business days after the effective date of the change.

(b) Submit with the application proof satisfactory to the Department that one or more of the autonomous vehicles of the applicant has been driven by the applicant for a combined minimum of not less than 10,000 miles in autonomous mode. The applicant must further provide proof that such autonomous vehicle or vehicles of the applicant have been driven in various conditions for a number of miles that demonstrates the safety of the vehicle or vehicles in those conditions.

Such conditions include, without limitation, operating the autonomous vehicle in various weather conditions, on various types of roads and during various times of the day and night.

(c) Demonstrate the artificial intelligence and technology used in its autonomous vehicles to the Department for approval.

(d) Submit the proposed geographic locations where the applicant wishes to test the autonomous vehicles. The applicant must establish to the satisfaction of the Department that the autonomous vehicles of the applicant are capable of being driven in the conditions of the proposed geographic locations in compliance with the traffic laws and other laws applicable to drivers and motor vehicles operated in this State.

4. An application to test autonomous vehicles submitted pursuant to this section must be accompanied by a nonrefundable fee of \$100 and:

(a) Proof of insurance or self-insurance acceptable to the Department in the amount prescribed by NRS 482A.060; or

(b) A surety bond or deposit of cash in lieu of the bond in the amount prescribed by NRS 482A.060.

5. The Department may require such additional information, documentation and affirmations as the Department deems necessary or appropriate before approving an application to test autonomous vehicles that is submitted pursuant to this section.

6. A license to test autonomous vehicles that is issued by the Department pursuant to this section is valid for 1 year after the date of issuance and may be renewed by submitting an application in the same manner as for the initial license. To avoid a lapse in the license issued pursuant to this section, a licensee wishing to renew his or her license must submit an application for renewal at least 30 days before the date on which the license is set to expire.

Sec. 10. NAC 482A.130 is hereby amended to read as follows:

482A.130 1. ~~{Unless}~~ *Except as otherwise provided in subsection 3 or unless* otherwise approved in advance by the Department, a licensee shall ensure that at least ~~{two persons are}~~ *one person is* physically present in an autonomous vehicle at all times that the autonomous vehicle is being tested on a highway in this State, ~~{one of whom is the operator and}~~ *who* must at all times be seated in a position which allows the person to take ~~{complete}~~ *active* control *or physical control* of the vehicle . ~~{, including, without limitation, control of the steering, throttle and brakes.}~~

2. The ~~{two persons}~~ *person* who ~~{are}~~ *is* required to be physically present in an autonomous vehicle while it is tested on a highway in this State:

(a) Must ~~{each}~~ hold a valid driver's license that has been issued in the state in which the person resides, but ~~{are}~~ *is* not required to have a driver's license endorsement to operate the autonomous vehicle as provided in NAC 482A.040;

(b) Must be trained in the operation of the autonomous vehicle and have received instruction concerning the capabilities and limitations of the autonomous vehicle; and

(c) Shall ~~{each}~~ actively monitor for any aberration in the functioning of the autonomous vehicle while it is engaged.

3. *The holder of a restricted driver's license issued pursuant to NRS 483.360 with the Restriction JA described in NAC 483.360 may be the operator of an autonomous vehicle that is being tested on a highway in this State provided that:*

(a) The detail form carried by the holder authorizes the holder to operate an autonomous vehicle that is being tested on a highway in this State pursuant to this section through the use of active control;

(b) The holder is employed by a licensee who has met the requirements of subsection 5;

(c) A pilot vehicle is being operated directly in front of the autonomous vehicle; and

(d) A second person in the autonomous vehicle:

(1) Is seated in a position which allows the person to safely engage and disengage the autonomous technology and take active control or physical control of the autonomous vehicle; and

(2) Holds a valid driver's license that has been issued in the state in which the person resides.

4. If a pilot vehicle operating directly in front of an autonomous vehicle being tested on a highway in this State pursuant to subsection 3 is for any reason unable to continue to operate in such a manner:

(a) The operator of the autonomous vehicle must pull the autonomous vehicle safely to the side of the road; or

(b) The second person in the autonomous vehicle must disengage the autonomous technology and take active control or physical control of the autonomous vehicle.

5. A licensee who employs the holder of a restricted driver's license issued pursuant to NRS 483.360 with the Restriction JA described in NAC 483.360 to test autonomous vehicles pursuant to subsection 3 must obtain the approval of the Department before allowing the holder to test an autonomous vehicle on a highway in this State. The Department shall approve a request for such approval if the licensee provides to the Department:

(a) Proof satisfactory to the Department that:

(1) The holder is an employee of the licensee; and

(2) The holder has completed not less than 50 hours of training in an autonomous vehicle which:

(I) May include not more than 10 hours of operation of an autonomous vehicle simulator; and

(II) Must include not less than 40 hours of operating an autonomous vehicle that meets the requirements of NRS 482A.080 on any paved, graded or similar surface that is not a highway of this State, including, without limitation, a race track or private course; and

(b) Any other information requested by the Department.

6. An autonomous vehicle may only be tested on a highway in this State which is located in a geographic location that the Department has approved for such use for vehicles tested by the licensee and indicated on the certificate issued to the licensee pursuant to NAC 482A.120.

~~{4.}~~ 7. A licensee shall submit a report to the Department within 10 business days after an autonomous vehicle of the licensee that is tested in this State is involved in ~~{an accident}~~ a crash during the course of testing or after an operator of such autonomous vehicle is issued a citation for any violation of the traffic laws or other laws applicable to drivers and motor vehicles operated in this State during the course of testing. The report must include a copy of any ~~{accident}~~ crash report prepared regarding ~~{an accident}~~ a crash and any citation issued to the operator or licensee and such additional information as may be required by the Department.

Sec. 11. NAC 482A.190 is hereby amended to read as follows:

482A.190 1. Before an autonomous vehicle may be offered for sale by a licensed vehicle dealer in this State, a certificate of compliance must be issued for the autonomous technology installed on the autonomous vehicle by:

(a) The manufacturer of the autonomous vehicle; or

(b) An autonomous technology certification facility that is licensed pursuant to NAC 482A.220.

2. A certificate of compliance issued pursuant to subsection 1 must certify that the autonomous technology installed on the autonomous vehicle:

(a) Has a separate mechanism in addition to, and separate from, any other mechanism required by law, to capture and store the autonomous technology sensor data for at least 30 seconds before a ~~collision~~ *crash* occurs between the autonomous vehicle and another vehicle, object or natural person while the vehicle is operating in autonomous mode. The autonomous technology sensor data must be captured and stored in a read-only format by the mechanism so that the data is retained until extracted from the mechanism by an external device capable of downloading and storing the data. Such data must be preserved for 3 years after the date of the ~~collision~~ *crash*. The provisions of this paragraph do not authorize or require the modification of any other mechanism to record data that is installed on the autonomous vehicle in compliance with federal law.

(b) Has a switch to engage and disengage the autonomous vehicle that is easily accessible to the operator of the autonomous vehicle and is not likely to distract the operator from focusing on the road while engaging or disengaging the autonomous vehicle.

(c) Has a visual indicator inside the autonomous vehicle which indicates when the autonomous vehicle is engaged in autonomous mode.

(d) Has a system to safely alert the operator of the autonomous vehicle if a technology failure is detected while the autonomous vehicle is engaged in autonomous mode, and when such an alert is given, either:

(1) Requires the operator to take *active* control *or physical control* of the autonomous vehicle; or

(2) If the operator is unable to take *active* control *or physical control* of or is not physically present in the autonomous vehicle, is equipped with technology to cause the autonomous vehicle to safely move out of traffic and come to a stop. Nothing in this subparagraph shall be construed to authorize or require the modification of a system installed in compliance with the Federal Motor Vehicle Safety Standards and Regulations unless the modification can be performed without adversely affecting the autonomous vehicle's compliance with the federal standards and regulations.

(e) Does not adversely affect any other safety features of the autonomous vehicle which are subject to federal regulation.

(f) Is capable of being operated in compliance with the applicable traffic laws of this State and must indicate whether the autonomous vehicle may be operated with or without the physical presence of an operator.

(g) If it is necessary for the operator of the autonomous vehicle to be physically present in the autonomous vehicle when it is engaged, allows the operator to take *active* control *or physical control* of the autonomous vehicle in multiple manners, including, without limitation, through the use of the brake, the accelerator pedal and the steering wheel and alerts the operator that the autonomous mode has been disengaged.

3. In addition to the requirements set forth in subsection 2, the certificate of compliance must certify that an owner's manual has been prepared for the autonomous vehicle which describes any limitations and capabilities of the autonomous vehicle, including, without limitation, whether the operator of the autonomous vehicle must be physically present in the

autonomous vehicle while the vehicle is engaged in autonomous mode. A licensed vehicle dealer or a licensed autonomous technology certification facility shall ensure that a copy of such a manual is provided to the purchaser of an autonomous vehicle.

4. As used in this section, “vehicle dealer” has the meaning ascribed to it in NRS 482.020.