

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

LCB File No. R134-15

January 14, 2016

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

AUTHORITY: §§1-11, NRS 482A.100; §12, NRS 482A.100, 483.220 and 483.360.

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 5** 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 such an operator must be able to take active control or physical control of the autonomous 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. (NRS 483.360) Existing regulations set forth the various types of restrictions that may be imposed, such as restricting a driver to wear corrective lenses or to drive during daylight hours only. (NAC 483.350) **Section 12** of this regulation establishes a “testing autonomous

vehicle” restriction for a person who is physically unable to operate a conventional motor vehicle but who is able to operate an autonomous vehicle through the use of active control while the autonomous vehicle is being tested. **Section 10** authorizes a person who holds such a restricted license to be the operator of an autonomous vehicle being tested provided that: (1) the 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; and (2) there is a pilot vehicle, driven by a licensed driver, directly in front of the autonomous vehicle. 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 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 5 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, through the use of sensors or other technology without the operator physically controlling such operations.*

Sec. 4. *“Licensee” means a person who is licensed to test autonomous vehicles on the highways of this State.*

Sec. 5. *“Physical control” means the monitoring of, direct physical contact with and hands-on control of the mechanical operations, including, without limitation, braking, steering and adjusting the throttle, of an autonomous vehicle by the operator.*

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 4 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 4 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 otherwise approved in advance by the Department, a licensee shall ensure that at least two persons are 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 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}~~ *Except as otherwise provided in subsection 3, the* two persons who are 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 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 for testing autonomous vehicles described in NAC 483.350 may be the operator of an autonomous vehicle that is being tested on a highway in this State provided that:*

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

(b) The second person in the autonomous vehicle:

(1) Is seated in the front passenger seat of the vehicle in a position which allows the person to safely engage and disengage the autonomous technology and take active control or physical control of the 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 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. 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.~~ 6. 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.

Sec. 12. NAC 483.350 is hereby amended to read as follows:

483.350 1. The restrictions and compulsory requirements described in subsection 2 may be imposed when licensing persons to drive. A driver’s license will not be issued and a driving test will not be conducted until the applicant complies with the provisions of this section.

2. Restriction and Description (and text placed on an affected license)	Criteria for Restriction
Restriction B - Corrective lenses. (Restriction B - Corrective Lenses)	This restriction is placed on the driver’s license of a person who meets the minimum levels of acceptable vision set forth in NAC 483.340 only with the aid of corrective lenses.
Restriction C - Mechanical or adaptive device. (Restriction C - Mechanical/Adaptive Device)	This restriction is placed on the driver’s license of a person who is physically unable to operate a motor vehicle without the aid of a mechanical or other adaptive device.

Restriction D - Prosthetic aid.

(Restriction D - Prosthetic Aid)

This restriction is placed on the driver's license of a person who is required to wear a prosthetic device while operating a motor vehicle.

Restriction F - Outside mirrors.

(Restriction F - Outside Mirrors)

This restriction is placed on the driver's license of a person who is legally blind (20/200) in the right eye, whose hearing is impaired, who is required to wear a telescopic device while operating a motor vehicle or whose mobility of his or her head or neck is limited.

Restriction G - Daylight driving only.

(Restriction G - Daylight Driving Only)

This restriction is placed on the driver's license of a person, upon a recommendation from a physician, optometrist or ophthalmologist, with visual acuity of 20/50 or worse in both eyes, who is required to wear a telescopic device while operating a motor vehicle or who holds a motorcycle driver's instruction permit.

Restriction JB - Driving test every 6 months.

This restriction is placed on the driver's

(Restriction JB - Drive Test Every 6 Months)	license of a person whose physician requests more frequent driving tests.
Restriction JC - Vision examination every 6 months.	This restriction is placed on the driver's license of a person who is required to have a vision examination every 6 months.
(Restriction JC - Eye Test Every 6 Months)	
Restriction JF - Must have wink mirrors.	This restriction may be placed on the driver's license of a person who is legally blind (20/200) in the right eye, whose hearing is impaired, who is required to wear a telescopic device while operating a motor vehicle or whose mobility of his or her head or neck is limited.
(Restriction JF - Must Have Wink Mirrors)	
Restriction JK - Left foot accelerator.	This restriction is placed on the driver's license of a person who is physically unable to operate the right foot accelerator.
(Restriction JK - Left Foot Accelerator)	
Restriction JT - Speed not to exceed 45 miles per hour.	This restriction is placed on the driver's license of a person who is required to wear a telescopic device while operating a motor vehicle or upon the recommendation of a
(Restriction JT - Speed 45 MPH Or Less)	

physician or the Department after the administration of a driving test to the applicant.

Restriction JV - Nevada medical waiver.
(Restriction JV - NV Med Waiver)

This restriction is placed on the commercial driver's license of a person who obtains a waiver pursuant to the provisions of NAC 483.803.

Restriction TAV - Testing autonomous vehicle.

This restriction is placed on the driver's license of a person who is physically unable to operate a conventional motor vehicle but who can operate an autonomous vehicle through the use of active control as that term is defined in section 3 of this regulation while the autonomous vehicle is being tested pursuant to NAC 482A.130.

Restriction V - Federal medical waiver.
(Restriction V - Med Variance Docs Req'd)

This restriction is placed on the commercial driver's license of a person who has been issued a federal medical waiver.

<p>Restriction 1 - Telescopic device.</p> <p>(Restriction 1 - Telescopic Device)</p>	<p>This restriction is placed on the driver's license of a person who meets the minimum levels of acceptable vision set forth in NAC 483.340 only with the aid of a telescopic device.</p>
<p>Restriction 2 - Hearing aid.</p> <p>(Restriction 2 - Hearing Aid)</p>	<p>This restriction may be placed on the driver's license of a person who wears a hearing aid.</p>
<p>Restriction 4 - Grip on steering wheel or power steering.</p> <p>(Restriction 4 - Grip/Power Steering Wheel)</p>	<p>This restriction is placed on the driver's license of a person who has difficulty gripping or turning the steering wheel of the motor vehicle.</p>
<p>Restriction 5 - Directional signals.</p> <p>(Restriction 5 - Directional Signals)</p>	<p>This restriction is placed on the driver's license of a person who is physically unable to perform signals with his or her arms or whose driver's license is restricted to hand controls.</p>
<p>Restriction 6 - Yearly vision examination.</p> <p>(Restriction 6 - Yearly Vision Exam)</p>	<p>This restriction is placed on the driver's license of a person who is required to wear a</p>

telescopic device while operating a motor vehicle or a person whose vision is 20/50 or worse in both eyes and who is determined by an eye specialist to have a progressive abnormality or disease of the eye or a person whose vision is 20/100 or worse in one eye and whose vision is worse than 20/40 in the other eye.

Restriction 7 - Yearly medical letter.
(Restriction 7 - Yearly Medical Letter)

This restriction is placed on the driver's license of a person who has had seizures or episodes of altered consciousness within the last 3 years or another physical or mental condition that his or her physician determines necessitates a yearly medical examination.

Restriction 8 - Yearly driving test.
(Restriction 8 - Yearly Drive Test)

This restriction is placed on the driver's license of a person based on the person's performance on his or her driving test or on the driver's license of a person who is required to wear a telescopic device while operating a motor vehicle.

Restriction 9 - Seat cushion or automatic seat.

(Restriction 9 - Seat Cushion/Auto Seat)

This restriction is placed on the driver's license of a person who the examiner determines is unable to see adequately out of the windows or reach the control pedals because of his or her size. This restriction is not limited to a seat cushion or automatic seat if another device is available.

3. The Department will place any other restriction that is not otherwise described in this section upon the driver's license of a person if the physician of that person so recommends.