SUBCOMMITTEE ON LAW ENFORCEMENT AND CRASH REPORTING

Consensus Items from First Subcommittee Meeting

Reporting Requirements
- The subcommittee agreed to refer post-testing reporting requirements to the Subcommittee on Licensing and Registration

Safety Requirements
- The subcommittee agreed that this area should be handled by the National Highway Traffic Safety Association (NHTSA) and did not need to be addressed in this subcommittee

Traffic Law and Driver Responsibilities
- The subcommittee agreed that current seatbelt and impaired driving laws do not need to be changed when considering AV testing and deployment
- The subcommittee decided that minimum age laws for riding in a vehicle should be addressed in the Subcommittee on Licensing and Registration

Considerations for Law Enforcement and Crash Reporting

Goals and Values
- Ensure the safety of all road users, including pedestrians, bicyclists, and motorcyclists
- Ensure safety for law enforcement officers and first responders
- Promote law enforcement and first responder understanding of legal, technical, and administrative requirements/limitations of automated technology
- Promote social equity

Topics

Traffic Laws and Driver Responsibilities
- Ensuring that automated vehicles can adhere to laws across various jurisdictions
- Establishing safe following distances
- Enforcing automated ride-hailing fleets use of pick-up and drop-off zones
- Roles and responsibilities of various users of automated vehicles
- Minimum age requirements for various users of automated vehicles
- Other driver responsibilities (e.g., ensuring passengers wear seatbelts)
- Impaired driving
• Distracted driving

**Law Enforcement and First Responder Engagement**
• Vehicle response to an automated incident or direction from law enforcement (e.g., alerting emergency responders, displaying insurance and registration information, etc.), both with and without a human in the vehicle
• Clear direction to law enforcement on how to interact with automated vehicles
• Autonomous mode identification and understanding of how to engage and disengage autonomous mode during or after an incident
• Ability of law enforcement to override vehicles
• First responder safety
• ‘At fault’ assignment

**Crash and Incident Reporting**
• Event data recorders to record information shortly before and after an incident
• Vehicle data recording duration (i.e., how much should be recorded)
• What data or events should be recorded
• What data or events inside the vehicle should be recorded? (e.g. in a ride-hailing fleet vehicle)
• Consistency in format of vehicle data
• Retention and access to incident or vehicle data
• Retention and access to app data for automated ride-hailing services
• Distinction between public and private data, e.g. intellectual property

**Questions for Law Enforcement and Crash Reporting**

**Testing Requirements**
• For testing, should test users (employees, contractors, etc.) be required to pass a background check? (AAVMA Recommended Jurisdictional Guideline 6.2.1)
  o If so who should conduct the background check?
  o What are disqualifying criteria? (e.g., a criminal record or a driving history that includes DUI, reckless driving, etc.) (6.2.2)

**Law Enforcement and First Responder Engagement**
• Should manufacturers be required to provide clear direction to law enforcement and first responders before testing?
  o Some states have established or are considering establishing mandatory law enforcement interaction plans (see Memo on Comparison of Jurisdictions)
• Should manufacturers be required to provide training programs to law enforcement and first responders on how to interact with automated vehicles? (6.7.1)
  o What information is necessary to ensure first responder safety? (e.g., firefighters needed additional training to be able to safely respond to electric vehicle fires.)
• How will first responders know a vehicle is in autonomous mode, both during and after an incident, and how will they be able to disengage it?
• Should law enforcement be able to override an automated vehicle that poses a danger, and if so how?
• Should automated vehicles be clearly identifiable, and if so, how? (See Memo on Vehicle Identification and Distracted Driving)
  o AAMVA recommends requiring permanent labeling on the rear and sides of highly automated vehicles (6.10)
  o How will first responders discern a vehicle’s level of automation in order to determine who to hold responsible for violations?

Driver Responsibilities
• Roles and Responsibilities
  o What are the roles and responsibilities of various users (drivers, passengers, fallback-ready drivers, remote dispatchers) and how will law enforcement distinguish between the various user categories?
• Response to a Crash or Law Enforcement
  o How should automated vehicles respond to an incident or to law enforcement, both with and without human passengers in the vehicle? (See Memo on Jurisdictional Comparisons)
    ▪ Who should be responsible for alerting emergency responders of a crash or incident?
    ▪ How will law enforcement access information about the insurance and registration for an automated vehicle after a crash or incident?
• Distracted Driving
  o At what level of automation will distracted driving laws apply? (6.3.1) (See Memo on Vehicle Identification and Distracted Driving)
  o How will law enforcement determine if a person is driving distracted or if the vehicle is operating autonomously? (AAMVA Recommendation 13 for Manufacturers and Other Entities [MOE])

Adherence to Traffic Laws
• Should manufacturers be required to ensure automated vehicles are aware of and able to comply with all Oregon traffic laws?
• Should test users be held responsible for violating existing traffic laws? (6.4.3)
• Should automated vehicles be subject to additional requirements regarding operation in safety or construction zones?
• Should jurisdictions wait to modify current traffic laws specifically to accommodate SAE Level 5 vehicles until they are further along in development? (6.11.2)
• Should safe following distance laws be different for automated vehicles?

Crash and Incident Reporting
• Should manufacturers and other testing entities be required to report crashes and other incidents?
  o AAMVA recommends requiring a summary of the manufacturer’s analysis of the incident (6.1.1)
  o How could Oregon leverage existing crash reporting systems and structures for this purpose?
• What information should be required in a crash report?
  o AAMVA recommends adopting US DOT’s Model Minimum Uniform Crash Criteria, 5th edition, which include guidance for collecting information on automated vehicle crashes. (6.1.2)
  o California has a standard crash report form that manufacturers are required to complete in the event of a crash.
• Should automated vehicles be required to use event data recorders (i.e. “black boxes”) to record data shortly before and after a crash?
  o If so, how much time before and after a crash should the vehicle record?
  o How should manufacturers make this data available to law enforcement? For example, AAMVA recommends that manufacturers should make this data retrievable in a standard, nonproprietary format for read access. (MOE 7)
  o Should manufacturers include time stamp and GPS location in this data? (MOE 8)
• What data would law enforcement need to access after a crash or incident?
  o What data should automated vehicles be required to retain and for how long?
  o Who can access that data and how? How can we ensure consistency and readability of the data?
  o For ride-hailing fleet vehicles, will law enforcement need access to data from the ride-hailing apps?
  o Does making certain data accessible to law enforcement raise consumer privacy or intellectual property concerns?
MEMORANDUM

To: Subcommittee on Law Enforcement and Crash Reporting, Oregon Task Force on Autonomous Vehicles
From: ODOT Staff
Date: June 14, 2018
Re: Response to Subcommittee Research Request

Introduction

At the first meeting of the Subcommittee on Law Enforcement and Crash Reporting on June 6, 2018, the Subcommittee requested that ODOT staff conduct research on autonomous vehicle identification and distracted driving policies in other states and in automated vehicle policy guidance from the American Association of Motor Vehicle Administrators. This memo communicates the results of that research.

Vehicle Identification

The American Association of Motor Vehicle Administrator’s (AAMVA) Jurisdictional Guidelines for Safe Testing and Deployment of HAVs (2018) Provides recommendations for various aspects of autonomous vehicle identification. AAMVA recommends against requiring special license plates:

Special license plates for HAVs do not need to be required. However, if they are required, the plates should adopt the administrative, design, and manufacturing specifications contained in the AAMVA License Plate Standard. ... From a law enforcement perspective, license plates alone may not be the optimal means to identify the vehicle as an HAV because license plates are susceptible to theft. License plates only allow identification from the rear in one plate jurisdictions, and because most crashes involve front or rear damage, will frequently be obscured.

The report does call for AVs to be clearly labeled:

For the safety of first responders, manufacturers should permanently label HAVs, at a minimum, on the rear and sides of the vehicle.

The report suggests that work done by SAE, the International Organization for Standardization (ISO), and the National Highway Traffic Safety Administration (NHSTA) regarding identification of alternative fuel vehicles could be mirrored with autonomous vehicles:

SAE and ISO provide guidance for OEMs [Original Equipment Manufacturers] relative to first and second responder safety for vehicle crashes involving electric and hydrogen-fueled vehicles (xEVs) and includes reference to labeling to assist emergency responders to identify the drive
system of the vehicle at a safe distance. This is important because many of these vehicles have virtually silent motors or drive systems that can result in unexpected vehicle movements.

AAMVA also recommends that VIN information can play a part in identifying AVs:

VIN information should include information relative to HAV systems on board the vehicle.

The report does briefly mention the possibility of AVs being targeted by other motorists:

OEMs may also resist uniform labeling fearing other motorists may challenge the capabilities of vehicles that are badged as automated.


**Nevada** requires autonomous test vehicles to have special license plates. Once a manufacturer’s testing permit application has been approved, the state issues license plates specific to autonomous test vehicles:

[Image of Nevada autonomous vehicle license plate]

**Massachusetts does not** require identification of autonomous test vehicles, but it does require that manufacturers sign a Memorandum of Understanding with the Massachusetts Department of Transportation as part of the testing permit process. The template memorandum includes a requirement that autonomous test vehicle be identified:

5. All vehicles used for such tests shall display a current Massachusetts Inspection sticker, current registration plates, and signage sufficiently visible to other motorists and pedestrians to identify the vehicle as a “Test Car for Self-Driving Operation” or similar signage ...
Distracted Driving Laws

Oregon’s distracted driving laws do not address autonomous vehicles. Oregon law prohibits holding or using a phone or other electronic device while operating a motor vehicle, per House Bill 2576 (2017):

(2) A person commits the offense of driving a motor vehicle while using a mobile electronic device if the person, while driving a motor vehicle on a highway or premises open to the public:

(a) Holds a mobile electronic device in the person’s hand; or

(b) Uses a mobile electronic device for any purpose.

There are some specific exceptions and a number of affirmative defenses.

The full text of Oregon House Bill 2576 can be found here: https://olis.leg.state.or.us/liz/2017R1/Downloads/MeasureDocument/HB2597/Enrolled

NHTSA’s A Vision for Safety 2.0 (2017) does not address distracted driving laws in significant detail. It does urge states to review legislation to avoid creating unnecessary barriers to AV testing and deployment, possibly including distracted driving laws:

States should review their vehicle codes, applicable traffic laws, and similar items to determine if there are unnecessary regulatory barriers that would prevent the testing and deployment of ADSs on public roads. For example, some States require a human operator to have one hand on the steering wheel at all times – a law that would pose a barrier to Level 3 through Level 5 ADSs.

The full report can be found here: https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/13069a-ads2.0_090617_v9a_tag.pdf

AAMVA’s Jurisdictional Guidelines for Safe Testing and Deployment of HAVs (2018) recommends that SAE automation level be considered when determining how to alter distracted driving legislation. AAMVA suggests that all distracted driving laws still apply during testing:

When testing any HAV, the user is an active participant in the testing process; therefore, all distracting activities should be prohibited.

For deployment, the report suggests that laws will have to differ by level of automation. The driver of a level 3 vehicle may still need to be aware of their situation. In principle, level 5 vehicles have no drivers at all. AAMVA recommends that an AV be fitted with some system to indicate whether the vehicle is in autonomous mode:

Jurisdictions should consider at what level of autonomy their distracted driving laws continue to apply. When a vehicle is in automated mode, the user may still need to maintain a level of awareness in case they need to re-engage with the driving function if prompted by the vehicle. Because the operation of some HAVs may require no participation by the driver, distracting
activities may not be relevant, or distracted driving laws may not apply. Manufacturers should design HAVs with a means of identifying when a vehicle is in automated mode to facilitate effective enforcement of distracted driving laws (i.e., so an officer knows if using a hand-held device is legal at the time of observation).

Nevada has updated its legislation on phone usage while driving to exempt operators of vehicles driving autonomously, per section 12 of Nevada Assembly Bill 69 (2017):

7. For the purposes of this section, a person shall be deemed not to be operating a motor vehicle if the motor vehicle is driven autonomously and the autonomous operation of the motor vehicle is authorized by law.

The full text of Nevada’s Assembly Bill 69 (2017) can be found here: https://www.leg.state.nv.us/App/NELIS/REL/79th2017/Bill/4750/Text

Michigan has made similar updates to allow phone use if that phone use is specifically for the operation of an AV. The updates also exempts passengers of on-demand AVs from restrictions on phone use, per Section 602b of Michigan Senate Bill 995 (2016):

… (4) Subsections (1), (2), and (3) do not apply to an individual who is using a device described in subsection (1) or (3) to do any of the following: …

(e) Operate or program the operation of an automated motor vehicle while testing or operating the automated motor vehicle without a human operator.

(5) Subsection (1) does not apply to a person using an on-demand automated motor vehicle network.

The full text of Michigan Senate Bill 955 can be found here: https://www.legislature.mi.gov/documents/2015-2016/publicact/htm/2016-PA-0332.htm

Florida provides some exemptions to laws prohibiting videos or electronic displays for operators of autonomous vehicles, per section 5 of Florida House Bill 7027 (2016):

Section 5. (1) No motor vehicle may be operated on the highways of this state if the vehicle is actively displaying moving television broadcast or pre-recorded video entertainment content that is visible from the driver’s seat while the vehicle is in motion, unless the vehicle is equipped with autonomous technology, as defined in s. 316.003(90), and is being operated in autonomous mode, as provided in s. 316.85(2).

(3) This section does not prohibit the use of an electronic display used in conjunction with a vehicle navigation system; an electronic display used by an operator of a vehicle equipped with autonomous technology, as defined in s. 316.003; or an electronic display used by an operator of a vehicle equipped and operating with driver-assistive truck platooning technology, as defined in s. 316.003.
Florida House Bill 7027 can be found here:

Tennessee allows an operator to use an integrated electronic display in an autonomous vehicles as long as the autonomous mode is engaged, per section 16 of Tennessee Senate Bill 151 (2017):

55-54-104: Integrated Electronic Display

Permits operator to use an integrated electronic display in an AV when the AV tech is engaged if moving image display automatically turns off when AV tech is disengaged.

The full text of Tennessee Senate Bill 151 can be found here:

Virginia has a very similar law, per Virginia House Bill 454 (2016):

A. No motor vehicle registered in the Commonwealth shall be equipped with, nor shall there be used therein, a television receiver when the moving images are visible to the driver while the vehicle is in motion. The operator of a motor vehicle that is not required to be registered in the Commonwealth shall not operate a television receiver that violates the provisions of this section while driving in the Commonwealth.

The prohibitions contained in this subsection shall not, however, include: ...

8. A television receiver, video monitor, television or video screen, or any other similar means of visually displaying a moving image, if that equipment is factory-installed and has an interlock device that, when the motor vehicle operator is performing one or more of the driving tasks, disables the equipment so that such moving images are not visible to the motor vehicle operator except as a visual display described in subdivisions 1 through 7. For the purposes of this subdivision, "driving task" means all of the real-time functions required to operate a vehicle in on-road traffic, excluding the selection of destinations and waypoints, and including steering, turning, lane keeping and lane changing, accelerating, and decelerating.

While this law does not specifically mention autonomous vehicles, it would allow the operator of an autonomous vehicle, who is not performing any part of the driving task, to use a phone or other device.

The full text of Virginia House Bill 454 can be found here:
http://lis.virginia.gov/cgi-bin/legp604.exe?161+ful+HB454ER
MEMORANDUM

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From: ODOT Staff
Date: June 14, 2018
Re: Response to Subcommittee Research Request

Introduction
At the first meeting of the Subcommittee on Law Enforcement and Crash Reporting on June 6, 2018, the Subcommittee requested that ODOT staff conduct research on law enforcement and crash reporting requirements for autonomous vehicle policies in other states and in automated vehicle policy guidance from the American Association of Motor Vehicle Administrators. This memo communicates the results of that research.

Results
The requirements for interaction with law enforcement and for crash reporting have been divided into four categories: 1) law enforcement training and engagement, 2) elements of law enforcement interaction plan, 3) response to a crash or law enforcement without a human driver in the vehicle, 4) crash and incident reporting, and 5) data required in crash reports.

The tables below indicate what elements are required in each of the AV regulations recommended by AAMVA and from various states.

### Law Enforcement Training & Engagement

<table>
<thead>
<tr>
<th>Requirement</th>
<th>AAMVA²</th>
<th>California</th>
<th>New York</th>
<th>Arizona</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must have a law enforcement interaction plan to test automated vehicles</td>
<td>✔</td>
<td>✔ 2</td>
<td>✔ 3</td>
<td></td>
</tr>
<tr>
<td>Must provide training to law enforcement and first responders before testing automated vehicles</td>
<td>✔</td>
<td></td>
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<tr>
<td>Must conduct all tests under the supervision of state police</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

1. Most of AAMVA’s guidelines for law enforcement and first responder safety and/or interaction with AVs take the form of recommendations to manufacturers and other entities, rather than recommendations to jurisdictions.
2. California only requires that manufacturers submit a law enforcement interaction plan if they plan to “conduct testing of autonomous vehicles capable of operating without the presence of a driver inside the vehicle on public roads.”
3. In March 2018, Governor Ducey of Arizona issued an executive order requiring every company or organization testing AVs in Arizona to work with the Department of Public Safety and with law enforcement to develop law enforcement interaction protocols. The protocols apply to testing and operation of “fully autonomous vehicles.”
## Elements of Law Enforcement Interaction Plan

<table>
<thead>
<tr>
<th>Element</th>
<th>AAMVA</th>
<th>California</th>
<th>New York</th>
<th>Arizona¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>How to communicate with remote operator</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where in the vehicle to obtain owner information, vehicle registration, and proof of insurance</td>
<td></td>
<td>✓</td>
<td></td>
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<tr>
<td>How to safely remove vehicle from the roadway</td>
<td></td>
<td>✓</td>
<td></td>
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<tr>
<td>How to recognize whether vehicle is in autonomous mode</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>If possible, how to safely disengage autonomous mode</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>How to detect and ensure that autonomous mode has been deactivated</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
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<tr>
<td>When applicable, how to safely interact with electric and hybrid vehicles</td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>A description of the operational design domain of the vehicle</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
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<tr>
<td>Must be reviewed and updated on an annual basis, if not more often</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Law enforcement interaction plan must be shared with state police and with local law enforcement and first responders</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Law enforcement interaction must be made available to other local law enforcement agencies and first responders</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

1. Arizona’s law enforcement interaction protocol is still in development. According to Governor Ducey’s executive order, “the protocol shall include, but is not limited to, information educating relevant law enforcement agencies and other first responders on how to interact with fully autonomous vehicles in emergency and traffic enforcement situations, contact information for insurance and citation purposes, and any other information needed to ensure the safe operation of fully autonomous vehicles in Arizona.”
Response to a Crash or Law Enforcement without a Human Driver in the Vehicle

<table>
<thead>
<tr>
<th>In the event of a crash, the vehicle or the operator/owner must contact law enforcement</th>
<th>Testing</th>
<th>Deployment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>✔️</td>
<td>✔️</td>
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<tr>
<td>If appropriate, vehicle or owner/operator must promptly call for medical assistance</td>
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<tr>
<td>In the event of a reportable crash, the vehicle must remain at the scene until law enforcement arrives and vehicle registration and insurance information is provided</td>
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<td></td>
</tr>
<tr>
<td>In the event of a non-reportable crash, the vehicle must remain at the scene until registration and insurance information have been provided to affected parties</td>
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<td></td>
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<tr>
<td>Must have a process to display or communicate vehicle owner or operator information</td>
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</tr>
</tbody>
</table>

1. Michigan requires that any vehicle participating in a SAVE project, a pilot project for automated vehicle fleets, be equipped with automatic crash notification technology.