Automated and Connected Vehicles
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California Department of Motor Vehicles
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Automated and Connected Vehicles
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California Department of Motor Vehicles
Senate Bill 1298 (2012 Legislative Session)
California Vehicle Code sec. 38750

DMV to develop regulations governing:

• Testing of autonomous vehicles on public roads.
• Deployment of autonomous vehicles on public roads.
Effective September 2014 – establish a permit process for the testing of vehicles on public streets:

• Must be a “manufacturer”;
• Establish $5 million in financial responsibility;
• Identify test vehicles and restriction on post-testing transfers of ownership;
• Must have an employee driver in the driver seat;
• Driver must be a “good driver” and enrolled in pull notice program;
• Report accidents and annual report of disengagements;
• Excluded vehicles – over 10,001 lbs., motorcycles and trailers.
• 27 Companies have testing permits
• 180 vehicles
• 658 drivers with permits to drive test vehicles
• Waymo (Google):
  ✓ Most drivers = 251
  ✓ Most cars = 76
  ✓ Most miles tested in 2016 = 635,868

Fun fact: Many companies are using the Lincoln MKZ as their test vehicle.
Proposed Regulations

• Regulations for driverless testing an public deployment – published on March 10, 2017.

• 45 – day public comment period 3/10 to 4/25.

• Public Hearing in Sacramento on April 25th.
Purpose section:

- NHTSA vested with authority to develop FMVSSs.
- Both federal and California law specify that no vehicle can be sold for use on public roads unless the manufacturer certifies that it meets FMVSS.
- Recognition of the federal responsibility for setting vehicle performance and safety standards.
• Keys the definition of “autonomous vehicle” to SAE levels 3, 4, and 5.

• Defines a “passenger” to be someone that has no role in operating the vehicle – and cannot be charged a fee.

• Defines a “remote operator” as a licensed person, not in the vehicle, monitoring vehicle operation, and can communicate with people in the vehicle.
• Manufacturer must have a permit and evidence of financial responsibility.
• Notification and coordination with local authorities.
• Assume liability for at-fault collisions.
• Communication link with remote operator.
• Process to exchange information in accident or traffic stop.
• Vehicles either meet FMVSS, have an exemption from NHTSA or are experimental vehicles under the FAST Act.
• Identify the operational design domain and provide updates if there is a change in the ODD.

• Law Enforcement Interaction Plan:
  - How to communicate with remote operator.
  - Where to find owner, registration, and proof of insurance information in vehicle.
  - How to turn of autonomous mode.
  - How to interact with electric and hybrids.
  - Description of the ODD.
  - How to verify the training and license of the remote operator.
Driverless Testing

• Must have a training program for the remote operators.
• Submit a copy of the Safety Assessment Letter prepared for NHTSA.
• Disclose to passengers what personal information is being collected.
• Submit accident and disengagement reports.
• Operation outside of testing;
• By people other than employees of the manufacturer;
• Including the sale or lease of a vehicle;
• For transportation services a fee can be charged for a ride;
• SAE level 3 or above vehicles;
• Manufacture must have $5 million on FR.
Permit Requirements

• Identify ODD and certify vehicle incapable of operation outside ODD.
• Identify commonly occurring restrictions and vehicle incapable of operating under those conditions.
• Vehicle must have an EDR that records AV sensor data for 30 seconds before and 5 seconds or until car comes to a stop after a crash.
• Certify:
  - Vehicle meets FMVSS
  - AV technology does not make inoperative any FMVSS
  - AV technology meets FMVSS (if any) for model year of the vehicle.
Certifications

• Vehicle designed to respond to road conditions in compliance with the law.

• Manufacturer will at least annually make available updates related to changes in the law.

• Manufacturer will make available updates related to the mapping required for vehicle operation.

• Registered owner bears responsibility for ensuring that the vehicle is operated using the most recent updates.

• Self diagnostic capabilities that are industry best practices for cyber attacks.

• Manufacture has conducted testing and based on the testing certifies that the vehicles are safe for deployment.
• Communication like so passengers can communicate with a remote operator.

• Must be able to provide owner, and insurance information as required by law in the event of a crash or if needed by law enforcement.

• Vehicles that do not have manual controls – must have an exemption from NHTSA
Must submit with the application for a permit:

• Consumer Education Plan:
  - Identify restrictions on the technology;
  - Provide copies of the instruction manual that show – how to engage and disengage; the visual indicator that the technology is engaged; explain the operator’s responsibilities with respect to the operation of the vehicle;
  - How this information will be provide to used vehicle purchasers;
  - Internet address where this info. Can be accessed.
• Law Enforcement Interaction Plan.

• NHTSA Safety Assessment Letter (copy)

• Test Data – related to the ODD
  - Number of miles tested – including number tested outside of CA.
  - Description of methods used to validate the performance of the vehicles.
  - Description of the safety critical incidents encountered during testing and remedial measures to address them.
  - Collisions that occurred describing the causes and actions taken to remediate the causes.
• Submit a copy of any report submitted to NHTSA related to safety defects.
• Permits are valid until revoked or suspended.
• Privacy: disclosure of information collected not related to the operation of the vehicle; anonymize data not related to operation.
• Level 3 vehicles – driver responsible for safe operation when the vehicle cedes control to the driver.
• In Level 3, 4, or 5 vehicles the manufacture is responsible for safe operation when the vehicle is in the autonomous mode.
Cannot advertise a vehicle as autonomous unless:

- The vehicle actually meets the definition of an autonomous vehicle as provided in the regulations.
- The vehicle was manufactured by a licensed vehicle manufacturer that has a valid permit issued by the DMV.
- Use of terms that are known or should be known will lead a reasonable person to believe a vehicle is autonomous when the vehicle does not meet the definition of autonomous constitute an advertisement that can lead to discipline of the manufacturer’s license.
For More Information
Contact:
brian.soublet@dmv.ca.gov
Autonomous, Automated and Connected Vehicles

March 15, 2017

Cathie Curtis, Director Vehicle Programs, AAMVA
Among AAMVA’s top priorities is helping our members prepare for new technologies such as automated vehicles.
1. Why should we, the AAMVA community, be engaged and how will motor vehicle agencies be impacted?

2. What is AAMVA doing to help prepare members for the testing and deployment of these vehicles?
1. Why should we, the AAMVA community, be engaged and how will motor vehicle and law enforcement agencies be impacted?
Anticipated Benefits:

• Without driver error, there is likely to be fewer crashes.

• The mobility of the young, the elderly, and the disabled will be increased.

• Traffic flow could be more efficient and congestion decreased.

• Vehicle occupants could spend travel time engaged in other activities, so the costs of travel time and congestion could be reduced.

• Fuel efficiency may be increased and alternative energy sources facilitated.
DMV and LE impacts:

- Driver education, training, testing, licensing
- Insurance, liability
- Vehicle safety standards
- Registration, titling, branding
- Crash investigation and reporting
- Vehicle fraud investigations
- Vehicle identification
- Rules of the road
- Violations

Many laws, policies and procedures will need to be reconsidered, amended and implemented.
2. What is AAMVA doing to help prepare members for these vehicles?
1. AAMVA Autonomous Vehicle Information Sharing Group and Library; and

2. AAMVA Autonomous Vehicle Working Group - To help our members prepare for the impact of vehicle automation.
AV Information Sharing Group

• Group includes jurisdictions and industry; holds periodic conference calls to review state laws, studies and to hear from experts.

• AV Information Library on AAMVA’s website to store information on AVs.
The Working Group consists of:

• 16 jurisdictional members, 2 Canadian reps, NHTSA, AAMVA staff.

• Provided input for NHTSA's Model State Policy – NHTSA Published September 20, 2016.

• Concurrent with the Model State Policy development, the Working Group will complete Guidelines for the Regulation of Highly Automated Vehicles, a final piece of its work in support of the Model State Policy.
Federal Automated Vehicles Policy

Published September 2016 and can be found at www.transportation.gov/AV

Section 1 – Vehicle Performance Guidance for Automated Vehicles (outlines best practices for safe pre-deployment development and testing prior to commercial sale; sets USDOT expectations of industry).

The Guidance includes a 15-Point Safety Assessment to set clear expectations for manufacturers developing and deploying automated vehicle technologies.
Section 2 – Model State Policy
(recognizes states’ sovereignty while encouraging a consistent national framework rather than a patchwork of inconsistent laws. References partnership with AAMVA).

- Federal Responsibilities
- State Responsibilities
- The Model State Policy
Federal responsibilities include:

• Setting safety standards for new motor vehicles and motor vehicle equipment;

• Enforcing compliance with the safety standards; Investigating and managing the recall and remedy of non-compliances and safety-related motor vehicle defects on a nationwide basis;

• Communicating with and educating the public about motor vehicle safety issues; and

• When necessary, issuing guidance to achieve national safety goals.
State responsibilities include:

- Licensing (human) drivers and registering motor vehicles in their jurisdictions;

- Enacting and enforcing traffic laws and regulations;

- Conducting safety inspections, when States choose to do so; and

- Regulating motor vehicle insurance and liability.
Model framework covers 8 areas:

1. Administrative structure and processes that States can set up to administer requirements regarding the use of public roads for HAV testing and deployment in their States;

2. Application by manufacturers or other entities to test HAVs on public roads;

3. Jurisdictional permission to test;

4. Testing by the manufacturer or other entities;
Model framework areas covered (continued)

5. Drivers of deployed vehicles;

6. Registration and titling of deployed vehicles;

7. Law enforcement considerations; and

8. Liability and insurance.
Section 3 – NHTSA’s Current Regulatory Tools (being expanded to include streamlined review and exemption request processes).

Section 4 – New Tools and Authorities (Identifies potential new tools, authorities and regulatory structure to enable safe and expeditious deployment of new technologies).
NHTSA’s Next Steps:

- Public Comment
- Public Workshop
- Stakeholder Engagement
- Living Document
- Updated as needed
Overcoming Challenges Through Collaboration

AAMVA MEMBERSHIP

GOVERNMENT AGENCIES

NON-GOVERNMENT AGENCIES

INDUSTRY / AUTOMAKERS

Safe Drivers · Safe Vehicles · Secure Identities · Saving Lives
National Highway Traffic Safety Administration

Uniform Law Commission

Safe Drivers · Safe Vehicles · Secure Identities · Saving Lives
For More Information
Contact:

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207-395-4100
NCHRP 20-102(07) Implications of Automation for Motor Vehicle Codes

Project Overview
Agenda

• Review project objectives and research questions

• Discuss coordination of stakeholder outreach efforts
  ✓ AAMVA and jurisdiction involvement

• Review project tasks

• Review current status
Project Objectives

• Provide **guidance and resources** to state DOTs and DMVs to assist with the legal changes that will result from the rollout of HAVs
  ✓ Allow states to validate their decisions and identify mitigation strategies that can help minimize negative impacts before implementing changes to motor vehicle codes
  ✓ Help states provide guidance to law enforcement organizations responsible for enforcing new codes
  ✓ Provide states with usable materials related to HAV deployment
Key Research Questions

1. What applicable existing laws and regulations may need reconsideration as HAVs become more widely used?

2. How and when will these codes need to be revised?

3. How may changes to motor vehicle laws, regulations, and statues related to HAVs affect current driving practices and impact the continuous responsibility of managing traffic safety hazards?

4. What are the barriers to implementing the resultant new rules for the road and what are the strategies for overcoming these barriers?

5. What are the processes and stages for modifying relevant laws and regulations related to the motor vehicle code?
Seven Key Project Tasks

Task 1. Literature Review: Conduct a review of the legal and regulatory landscape

Task 2. Legal and Regulatory Needs Assessment: Identify likely changes needed to motor vehicle and driver license laws and regulations to reflect CV/AV technology

Task 3. Potential Modification Identification: Identify laws and regulations that may need to be modified or areas of laws requiring modification
Seven Key Project Tasks

Task 4. Prioritization Assessment: Identify and provide an overview of key issues and recommended approaches to address them

Task 5. Harmonization Analysis: Identify areas in today’s vehicle codes and regulations where it might be possible to harmonize in the short-, mid-, or long-term deployment of HAVs

Task 6: Guidance Document Development: A Roadmap for Changes to Autonomous Vehicle Laws and Regulations

Task 7. Preparation and Delivery of the Final Deliverables
Task 1: Literature Review

• **Task Overview:** Conduct a review of the legal and regulatory landscape
  – Build on previous efforts and identify relevant legal changes occurring internationally, nationally, and in states with HAV integration on public highways
  – Consider impediments to effective legal oversight of this new technology

• **Milestone:** Task memo summarizing the legal landscape in regard to HAVs
Six Areas Covered in the Task Memo

1. Federal law review
2. State law and legislation review
3. Overview of association activities
4. Law article review
5. International activity review regarding legislation and regulations
6. Wrap-up and initial conclusions
Law Article Review

- No single article found that created distinct and tangible recommendations, in the form of language drafted, for short- and mid-term efforts
- Most articles still highly theoretical, outlining recommendations at the policy rather than legislative/regulation level
- Many articles recommend against overregulating, arguing that existing common and statutory law maxims are sufficient, and precedent in existing law can be applied to this new technology
- Most articles note current preemption by NHTSA in area of design and safety would remain the same
Task 1 Initial Conclusions

• While many jurisdictions around the world have begun to draft legislation and regulations, these are mostly focused on pilot testing and not on full deployment.

• Academic legal articles have primarily focused on privacy, liability, cybersecurity, and constitutional protections.

• There is little uniformity, and states and state legislatures are working in some isolation.
  – DMVs are named leads
  – Federal policy guiding efforts

• Many states are just now forming task forces or working groups.
Task 2: Legal & Regulatory Needs Assessment

• **Task Overview:** Identify likely changes needed to motor vehicle and driver’s license laws and regulations to reflect:
  
  – NCHRP Legal Digest 69 Project and Task 1 findings
  – Use of the Research Team’s knowledge in the area of motor vehicle law
  – The incorporation and understanding of current and future federal role in HAV law
  – State/jurisdictional efforts
  – Specific discussions with AAMVA
  – Engagement of stakeholder groups including outreach to tech companies

• **Milestone:** A task memo summarizing stakeholder outreach efforts and the identification and modification of likely changes needed to motor vehicle and driver’s license laws and regulations
Stakeholder Input Important

• Provides perspective on...

✓ Areas of focus that need to be addressed in today’s vehicle codes
✓ Anticipated needs and prioritization for the harmonization of vehicle codes and regulations across states
✓ Implications if harmonization of vehicle codes and regulations is not achieved
✓ Any perceived barriers or enablers related to vehicle codes and regulations
✓ Implications of federal HAV guidance
✓ Other areas

15 March 2017
TRB Stakeholders
- NCHRP 20-102(07) Project Panel
- TRB Staff

Primary Stakeholders
- AAMVA
- AASHTO
- Commercial Vehicle Safety Alliance (CVSA)

Resource Stakeholders
- NHTSA, FMCSA
- OEMs, Suppliers, and Technology Companies
- Others – Driver Advocacy Groups, Insurance Companies
- GHSA
- National Conference of State Legislatures (NCSL)
- NGA

State-Level Stakeholders
- State DMV and DOT Administrators
- Law Enforcement Officials
Planned Jurisdictional Outreach

- California
- Florida
- Michigan
- Nevada
- New York
- Pennsylvania
- Ohio
- Texas
- Utah
- Virginia
- Province of Ontario
- CCMTA
- Transport Canada
Outreach Process

**Initial Contact**
- Project overview
- Identification of appropriate contact
- Determination of interest in participating in guided discussion/online survey
- Webinar with all participants

**Interview Questionnaire Development**
- Segmented questions by key topics and disciplines surrounding laws and regulations
- Final will be provided to stakeholders in advance of initial guided discussion for their review

**Initial Guided Discussion or Online Survey**
- Alternate approaches to best fit respondent’s preferences
- Will cover the developed segment- and discipline-specific questions
- Will focus on efforts underway and key issues and concerns

**Follow-up Opportunities**
- Contact to obtain more in-depth feedback and allow for additional involvement
- Feedback on guidance documents

15 March 2017
Key Survey Topic Areas

- Key areas of laws and regulations impacted by HAVs
- Near-, mid-, and long-term priorities
- Legal and regulatory responsibility (federal versus state authority)
- Uniformity, reciprocity, harmonization
- Interoperability
- Vehicle ownership laws and regulations, titling, registration
- Vehicle modifications including software updates
- Driver licensing and education (noncommercial)
- Motor vehicle insurance
Key Survey Topic Areas

• Safety and emissions inspections
• Manufacturer and dealer regulatory role
• Traffic law and regulation enforcement
• A-MaaS-specific legal or regulatory impediments
• Commercial vehicle/platooning legal or regulatory impediments
• Privacy and protection of data and information, including data ownership issues
• Crash investigation and reporting
• Lessons learned from other disruptive technologies
• Infrastructure planning
Current Status

• Just completed the kickoff/status meeting with Panel

• Finalizing research stakeholder questionnaires and method
  ✓ Scheduling webinars and interviews in March
  ✓ Conduct interviews and get survey responses in March/April

• Beginning Task 3 and the identification of laws or areas of law that may require modification

• Anticipate project completion in Spring/Summer 2018
Thank you!

Questions?

bettyserianassociates@comcast.net
2:30 pm – 3:00 pm
Networking Break
*Hyatt Exhibit Hall*

3:00 pm – 3:50 pm
**CONCURRENT SESSIONS**

Tools for DMV Investigators
*Nicollet C*

Driver Privilege Cards
*Nicollet D1/D2*

Social Media as a Tool for Law Enforcement
*Nicollet D3*