



# Autonomous Vehicles in California



**Bernard C. Soriano, Ph.D.**  
**California DMV**  
**September 10, 2015**

# California Legislation

## Senate Bill 1298

- DMV must adopt regulations setting forth requirements for:
- Manufacturers' testing of autonomous vehicles on public roadways
- Operation of autonomous vehicles on public roadways

# National Highway Traffic Safety Administration (NHTSA)

- Regulations for automobile safety features
  - Airbags
  - Seatbelts
  - Electronic stability control
- Federal Motor Vehicle Safety Standards (FMVSS)
- Post production testing
- Recall authority
- Currently no federal regulations for self-driving vehicles or autonomous technologies



# NHTSA Policy Statement to States

- Definition of autonomous vehicles
- Research activities
- Recommend that states allow only testing of autonomous vehicles
- Recommend that states do not allow public operation or deployment of autonomous vehicles at this time
- If a state permits operation for purposes other than testing, a properly licensed driver should be in the vehicle and ready to gain control

# California's Definition of Autonomous Vehicle

- A vehicle equipped with autonomous technology that has the capability to drive a vehicle without the active physical control or monitoring by a human operator



# NHTSA Definitions of Autonomous Vehicles

- Level 0 – No automation
- Level 1 – Function specific automation
- Level 2 – Combined function automation
- **Level 3 – Limited self-driving automation**
- **Level 4 – Full self-driving automation**

# Statewide Steering Committee



# Stakeholders & Interested Parties



# Testing Regulations Summary

- \$5 million in insurance, bond, or self-insurance
- Test driver requirements:
  - No DUI, not an at-fault driver, and no more than 1 point
  - Successful completion of test driver training program
  - Employee, contractor, or designee of manufacturer
- Test driver must be seated in driver seat during testing
- Report any accident within 10 days
- Report unanticipated disengagements of autonomous technology annually
- Testing permit valid for one year
- Vehicles excluded from testing:
  - Commercial vehicles
  - > 10,000 lbs GVW
  - Motorcycles

# Approved Testing Permits



Mercedes-Benz



TESLA MOTORS



**BOSCH**  
Invented for life



**HONDA**



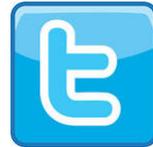
# Reported Accidents



## Nine accidents since testing permits issued

- 5 accidents occurred while AV stopped at red light
  - AV operated in autonomous mode
  - Hit from behind at very low speed (1-5 mph)
  - Vehicle behind attempted right turn and clipped side mirrors
  - Left turn light turned green
- AV waiting to turn left across traffic, opposing vehicle ran over median and struck AV
- Cross traffic vehicle ran stop sign and struck AV
- AV slowed to stop at intersection and hit from behind with enough force to deploy airbags

# Outreach Efforts



Dear Bernad Soriano,  
Thank you so much for  
coming to Bohannon  
Middle school's collage  
career Day and  
talking to us about  
your career! Something  
I learned from you  
is what you have to  
do to become an  
engineer. One thing  
that impressed me  
about your career  
is how you work

ON SELF driving  
cars. Because of  
your presentation,  
I have decided to  
become a Lawyer.  
I really appreciated  
you coming.

Sincerely,  
Alejandro

# For More Information Contact:

[Bernard.Soriano@dmv.ca.gov](mailto:Bernard.Soriano@dmv.ca.gov)

(916) 657-7626

Linked ™



@Bernard45