



Autonomous Vehicles in California

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California DMV

California at a glance

- Approximately 38 million people
- Over 25 million driver licenses and identification cards
- Over 32 million actively registered vehicles
- Over 73% commute to work alone
- Over 172 thousand public road miles
- Over 323 billion vehicle miles travelled per year
- Variety of terrain and weather conditions

California Legislation – Senate Bill 1298

As soon as practicable, but no later than Jan. 1, 2015, DMV must adopt regulations setting forth requirements for:

- Manufacturers' **testing** of autonomous vehicles on public roadways
- **Operation** of autonomous vehicles on public roadways

- Public workshops and meetings
 - Nissan
 - Chrysler
 - Honda
 - Volvo
 - GM
 - Google
 - VW Group
 - Toyota
 - Bosch
- Autonomous vehicle technology advancing quickly
- Adoption by the public will not be dependent on technology
 - Human factors (HMI)
- Potential traffic safety improvements are immense
 - Over 30,000 traffic fatalities per year
 - Almost all (95%) of traffic fatalities were the result of human error
 - In over 35% of traffic fatalities, the brakes were not applied
- Government and industry need to work collaboratively

NHTSA defines 4 levels 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









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 - 2014 Mercedes S class
 - 2014 BMW i3, 5-Series
 - 2014 Cadillac XTS
- NHTSA Level 3 autonomous vehicles being tested now
 - Private test tracks
 - Human reaction testing
- Variety of technology being developed
 - V to V
 - V to X, sometimes called V to I
 - Road train concept
 - Self contained processing
 - Cloud computing
 - Mapping dependency





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- Volvo
 - No fatalities in a Volvo vehicle by the year 2020
 - Collision avoidance systems
 - Road train or platooning
 - Commercial trucking industry
- Gothenburg, Sweden
- Nissan
- Audi A-7 demo at the 2013 CES



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Challenges

- Definition
- Safety
- Liability
- Privacy
- Security
- Licensing
- Reliability
- Infrastructure
- Usage
- Vehicle Code
- Visibility
- Standardization
- Insurance
- Technical constraints
- Messaging
- Public perception



Senate Bill 1298 Statewide Steering Committee

- California State Transportation Agency
- California Department of Insurance
- California Highway Patrol
- California Office of Traffic Safety
- California Department of Transportation
- California Department of Motor Vehicles
- National Highway Traffic Safety Administration

Regulatory Package 1

- Submission of evidence of insurance
- Data collection requirements
- Operator training and qualifications
- Target date of December 2013

Regulatory Package 2

- Testing requirements
- Safety standards
- Operator license requirements
- Vehicle registration requirements
- Other feasible regulations
- Target date of December 2014



Questions