



Autonomous Vehicles: A Perspective From California

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Bernard C. Soriano, Ph.D.
Deputy Director

California Vehicle Code

VC Section 38750:

- Develop regulations for the testing and operation of autonomous vehicles on public roadways
- Requirements the department concludes are necessary to ensure the safe operation
- Capable of driving without the active control or monitoring of a human operator

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 crash 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



HONDA



UDACITY



BOSCH
Invented for life



Faraday Future



SUBARU



NVIDIA



RENOVO.AUTO



UBER



上汽集团



CYNGN



aurora
INNOVATION



AIMOTIVE



Apex.AI



PHANTOM AI



The Future in Motion



TOYOTA
RESEARCH INSTITUTE



CHANGAN

Reported Crashes

Fifty-six crashes since testing permits issued

  • 25 reports
WAYMO

 • 1 report

 • 26 reports
CRUISE

 • 1 report
NISSAN

 • 1 report
UBER

 • 2 report



Deployment Regulations Challenges

- Definition
- Safety
- Liability
- Privacy
- Cybersecurity
- Operational Design Domain
- Reliability
- Infrastructure
- Software updates
- Law enforcement
- Usage
- Vehicle Code
- Visibility
- Standardization
- Insurance
- Technical constraints
- Licensing
- Public perception
- Vehicle platform
- Secondary market

Revised Regulations

- Revised regulations released on October 11, 2017
 - Driverless testing
 - Public use of autonomous vehicles
 - Updated from previously noticed regulations
 - 15-day public comment
- Focus on safety
 - Recognize motor vehicle safety responsibility rests with NHTSA
 - Manufacturers certify meet FMVSS
 - Certify vehicles are designed to comply with state traffic laws
- Goal is effective April 1, 2018

New York City 1900



New York City 1913



Source: George Grantham Bain Collection.

First Controlled and Sustained Powered Flight 1903



By 1915 the first airliner commercially
transported passengers



Autonomous Connected

Electric
Shared



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

(916) 657-7626

Linked in™



@Bernard45