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SCHOOL OF LAW

UNIVERSITY *of* WASHINGTON

**Autonomous Commercial Vehicles (ACV)
Testing and Deployment 2018**

(Target Date for Submission and Passage of Legislation)

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- Share some definitions.

- Talk about the development of standards and guidelines.

- Discuss who should be allowed to apply to test and operate ACV's on Washington State's roads and highways.

- Share some safety statistics; and

- Provide an example of how our legislative proposal would work.

Autonomous Commercial Vehicle
Testing and Deployment in Washington State (Definitions, Eligibility)

What is an autonomous vehicles?

A driverless vehicle that is capable of sensing its environment and navigating without human input.

The levels of Autonomous Vehicles
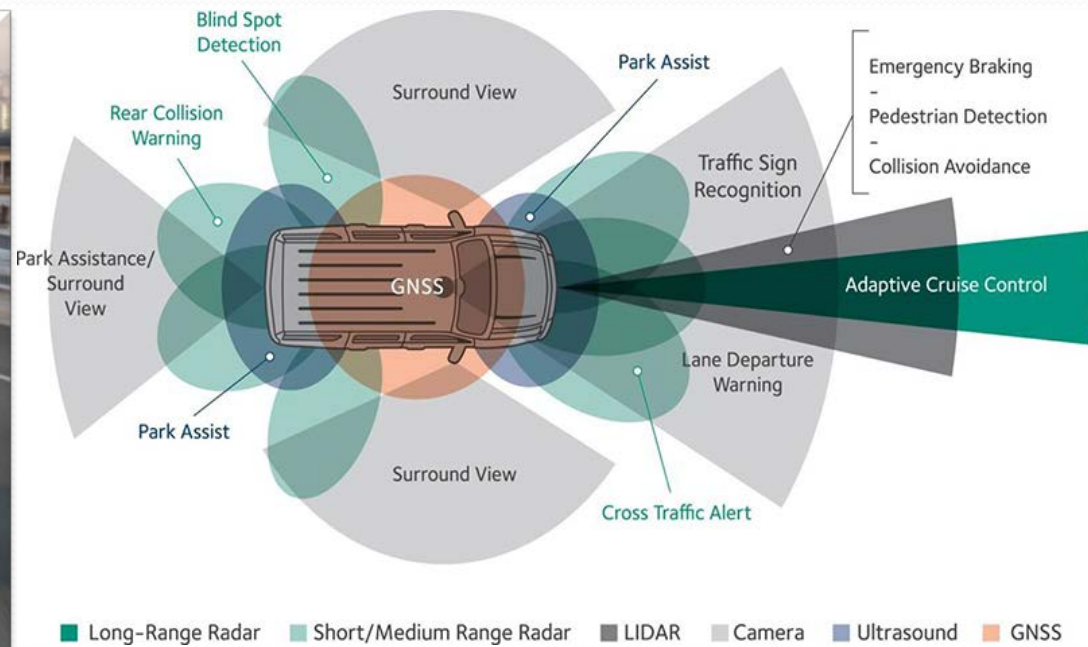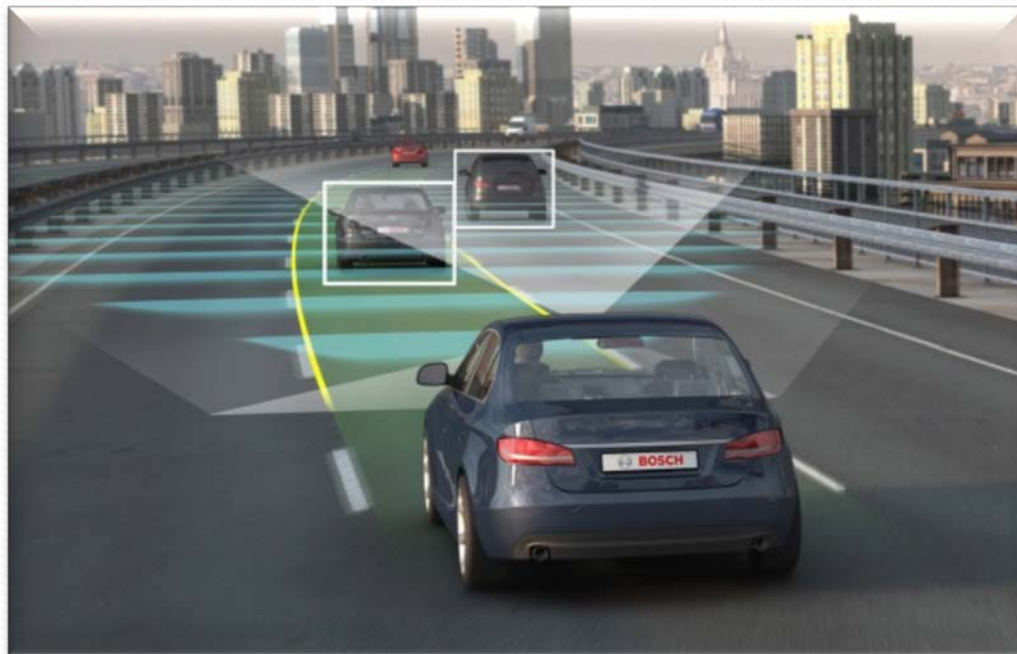
Level 0: The full-time performance by the human driver of all aspects of the dynamic driving task, even when enhanced by warning or intervention systems.

Level 1: The driving mode-specific execution by a driver assistance system of either steering or acceleration/deceleration using information about the driving environment and with the expectation that the human driver perform all remaining aspects of the dynamic driving task.

Level 2: The driving mode-specific execution by one or more driver assistance systems of both steering and acceleration/deceleration using information about the driving environment and with the expectation that the human driver perform all remaining aspects of the dynamic driving task.

Level 3: The driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task with the expectation that the human driver will respond appropriately to a request to intervene.

Level 4: The driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task, even if a human driver does not respond appropriately to a request to intervene.

Level 5: The full-time performance by an automated driving system of all aspects of the dynamic driving task under all roadway and environmental conditions that can be managed by a human driver.

What are the ACV Automation Levels as Applied to Testing and Deployment in Washington?

Level 3: The driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task with the expectation that the human driver will respond appropriately to a request to intervene.

Level 4: The driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task, even if a human driver does not respond appropriately to a request to intervene.
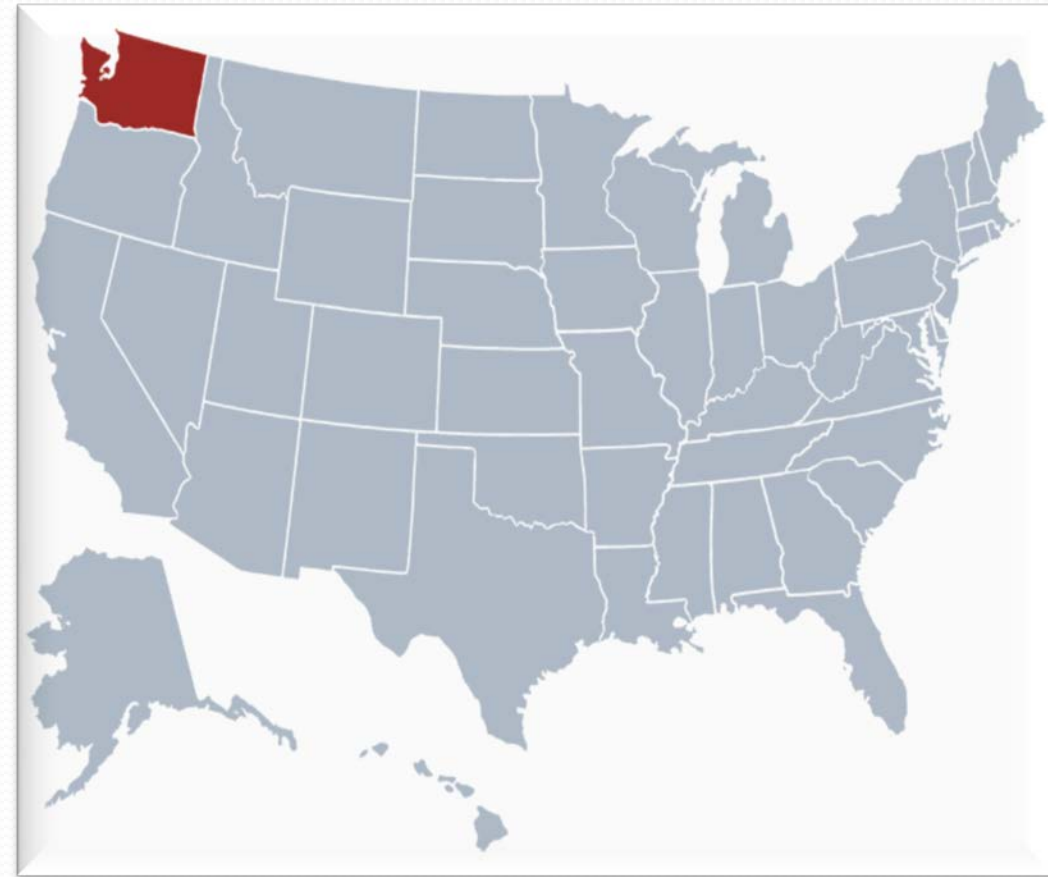
Level 5: The full-time performance by an automated driving system of all aspects of the dynamic driving task under all roadway and environmental conditions that can be managed by a human driver.

When will ACV's be available?

Uber-owned Otto to offer freight hauling services using autonomous trucks in September 2016. According to comments from Otto co-founder Lior Ron, who told Reuters that Otto will enter the long-haul freight business in 2017.

Silicon Valley startup Peloton Technology will deliver its V2V system package late this year to a small number of truck fleets. "We will purposely slow down our initial rollout to make sure it's going well." Peloton CEO Joshua Switkes told *Automotive News*. January 4, 2017

Elon Musk revealed a teaser image during a TED Talk on May 2, 2017, and followed up by announcing a September reveal for an autonomous truck in September 2017.

Platooning

Platoon (or road train) is a collection of vehicles where a manually driven heavy lead vehicle is followed by several automatically controlled trucks and/or passenger cars. The V2V communication system enables forwarding of messages between vehicles to share data such as vehicle speed. Traveling in close formation reduces drag and saves on fuel, while increasing safety.

Autonomous Commercial Vehicle Testing and Deployment Legislation

Arizona: In late August 2015, an executive order directing various agencies to "undertake any necessary steps to support the testing and operation of self-driving vehicles on public roads within Arizona."

Colorado: "Uber's Otto hauls Budweiser across Colorado in self-driving truck." The Executive Director of Colorado's Department of Transportation commented that there was one instance where a car had slowed down to about 35 mph and the truck slowed down to the appropriate distance, "so to me that was striking how well the truck performed." *November 2016*

Florida: "Truck Platooning Coming This Summer One Year After Autonomous Vehicle Legislation,…and this summer, you may see automated trucks hitting Florida roads as a result of a bill passed by the Florida legislature." The University of Florida and its Transportation Institute, the Florida Department of Transportation, and the City of Gainesville are gearing up to create a "smart testbed" on the UF campus and surrounding highway network. *April 2017*

How Do We Make It Happen?
Who are the key actors in developing ACV Testing and Deployment Policy?

The key to our proposal is making use of the Utilities and Transportation Commission's (UTC) regulatory experience. UTC to be tasked with forming an ACV Testing and Deployment Policy Committee (ACV-TDPC) whose members shall include but not be limited to:

- The Washington State Patrol

- The Washington State Department of Licensing

- The Washington Trucking Association

- Transportation Industry Professionals; and

- Other persons and organizations the UTC feels are necessary.

The ACV-TDPC will be urged to consult with federal agencies such as the Department of Transportation, the National Highway Traffic Safety Administration, and the Federal Motor Carrier Safety Administration.

How do we make it happen?
Who Can Apply for Testing and Deployment Authority for ACV's?

- Manufacturers

- Authorized Motor Carriers for Hire and Private

- Vendors who hold themselves out to the general public as industry experts with respect to performing maintenance, installation, and compliance services on ACV equipment and software.

How Do We Make It Happen?
Creating ACV Testing and Deployment Policies

The ACV-TDPC will be guided by the following principles in creating standards and guidelines for ACV testing and deployment policies including, but not limited to the following:

- Taking all practical steps to ensure the safety of those who operate ACVs and those who are in the area where they are operated;

- Incorporating, where relevant, existing motor carrier laws and regulations;

- Selecting a state agency, agencies or private party to test ACV equipment and software prior to the granting permission to test and/or deploy;

- Requiring applicants provide proof of primary commercial auto liability insurance, all risk apparel, $5 million minimum or of self-insurance, $5 million minimum; and

- Requiring applicants submit evidence of the ability to report accidents, comply with applicable laws and insure public safety through a safety action plan.

How Do We Make It Happen?
Deadlines, Review and Transition from Testing to Deployment

The ACV-TDPC in establishing standards and guidelines for ACV testing and deployment will:

- Make best efforts to complete the establishment of standards and guidelines within six months of the legislation's passage;

- Develop a plan to ensure that established standards and guidelines are regularly reviewed and remain current with ACV technology; and

- When relevant, make use of the information gathered during testing when establishing standards and guidelines for deployment.

2015 Annual Collision Summary Data – Washington State

COLLISION FACTORS
Involved Vehicle Types

INVOLVED VEHICLE TYPE	Total Vehicles in Collisions	Fatal Collisions	Serious Injury Collisions	Minor Injury Collisions	Property Damage Only Collisions	Unknown Injury Collision
Passenger Vehicles	195,195	641	2,094	61,601	128,225	2,634
Commercial Vehicles / Heavy Trucks	6,091	38	85	1,352	4,565	51
Motorcycles	2,440	76	406	1,562	365	31
Buses	625	2	8	177	437	1
Others	685	12	40	237	385	11
Unknown	5,408	8	26	706	4,219	449

Source: CLAS (WSDOT) and FARS (WTSC). See Appendix A for more information.

The Importance of Safety

Driverless Cars Could Reduce Traffic Fatalities by to 90%, says Report.

A new report has analyzed the impact of driverless cars on the incidence of fatal traffic accidents, and say that simply by taking human emotions and errors out of the equation, we could reduce deaths on the road by 90 percent. October 1, 2015, *Science Alert*

How It Would Work?

Example: Otto applies for ACV motor carrier operation authority in Washington State.

Step One: Applicant to complete and submit application for common carrier of property status.

Step Two: Submitted information to include: UBI number; legal name; USDOT number; safety and compliance fitness survey; proof of primary commercial auto liability insurance, all risk apparel, and $5 million (mandated amount).

Step Three: Go through required testing; meet or surpass ACV testing standards.

Step Four: Issuance of permission to test or deploy.