

Autonomous Vehicles Meet Human Drivers: Traffic Safety Issues for States

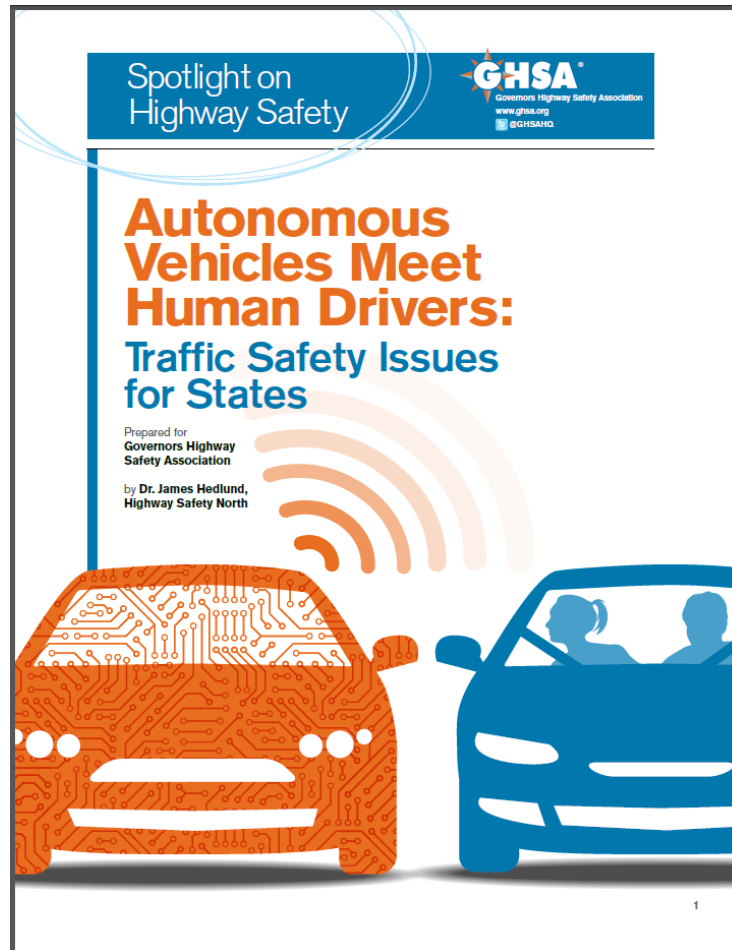
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Lifesavers

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Today

- **Background**
 - What's an autonomous vehicle (AV)?
 - What's on the road now?
 - What's coming and when?
 - What does the public think about AVs?
 - What are current state laws on AVs?
- **Priorities for states**
 - AV testing
 - AV operations
- **What can states do now (and what shouldn't they do)?**
- **What can national organizations do to help states?**
- **Questions**

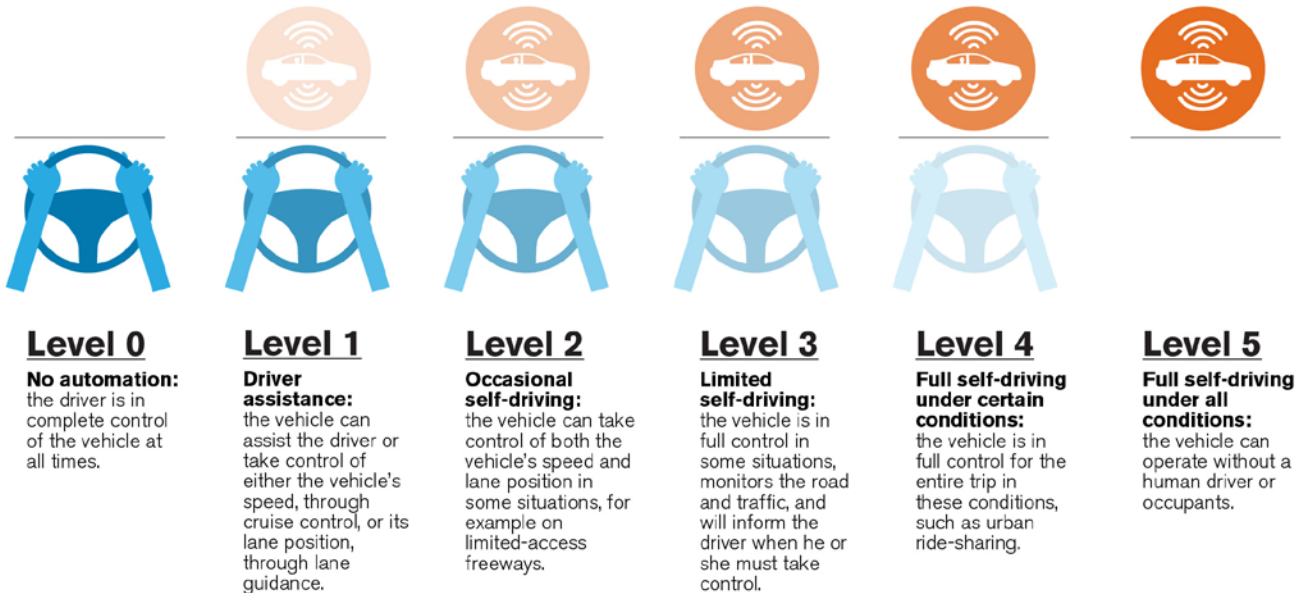
What's an AV?

- **Level 0: no automation, driver in complete control**
- **Level 1: driver assistance**
 - Cruise control or lane position, driver monitors at all times
- **Level 2: occasional self-driving**
 - Control both speed and lane position in limited situations, like Interstates; driver monitors at all times

- **Level 3: limited self-driving in some situations, like Interstates**
 - Vehicle in full control, informs when driver must take control
- **Level 4: full self-driving under certain conditions**
 - Vehicle in full control for entire trip, such as urban ride-sharing
- **Level 5: full self-driving at all times**
 - Cruise control or lane position

What's an AV?

Five Levels of Vehicle Autonomy



Source: SAE & NHTSA

What's on the road now?

- **Level 1 available for many years**
 - Cruise control, electronic stability control, lane-keeping assistance
- **Level 2 available now**
 - Tesla Autopilot
- **Level 3-5 being tested extensively**
 - Google test fleet: 2 million miles
 - Uber in Pittsburgh
 - 33 companies worldwide working on some aspect of AVs

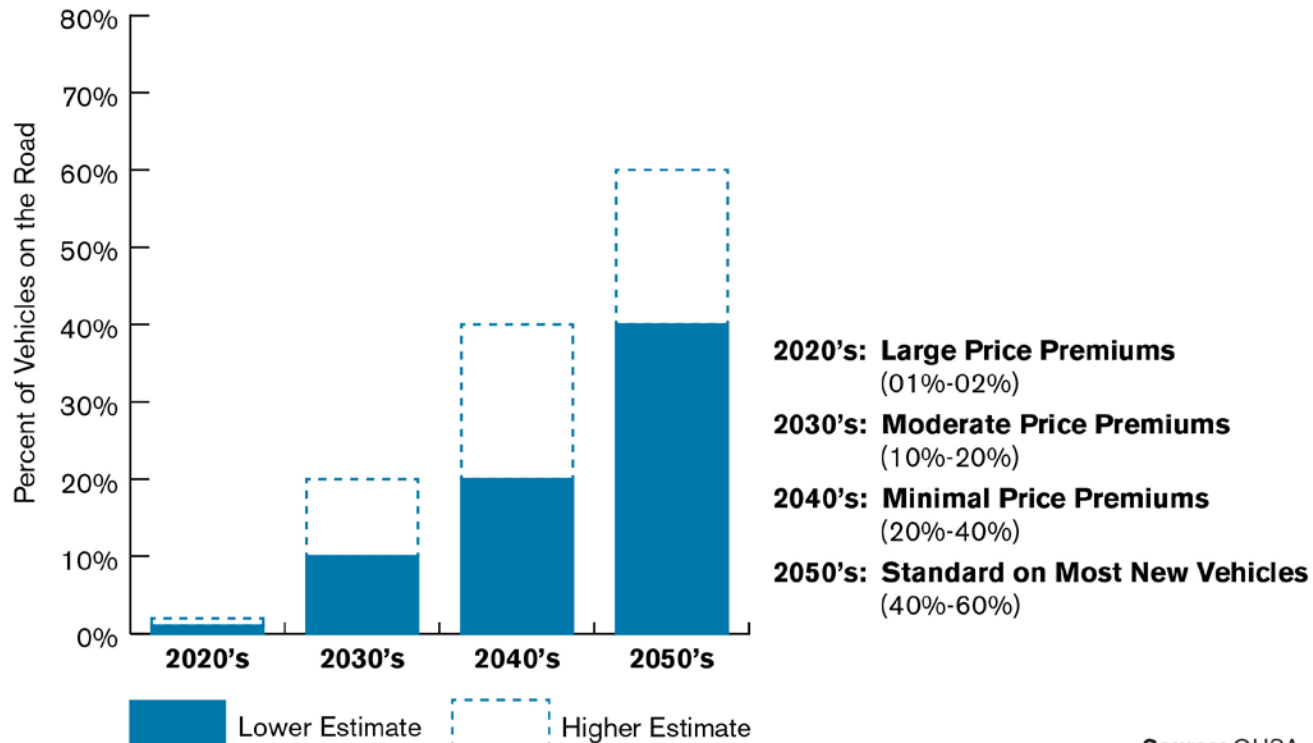
What's coming and when?

- **Level 3-5 vehicles available commercially in 3-5 years**
 - Tesla – current Autopilot has Level 5 software
 - Volkswagen – predicts 2019
 - GM, Toyota – predict 2020
 - Ford – predicts 2021

What's coming and when?

Autonomous Vehicle Fleet Projections

(as a percentage of all vehicles on the road)



Source: GHSA

What does the public think about AVs?

- **Skeptical**

- Prospect of wide use? 34% excited, 57% worried
- Will AVs reduce crashes? 35% yes, 46% no
- Would you ride in an AV today? 17% yes, 75% no
- Would you buy an AV when available? ≈ 20% yes, ≈ 50% no

- **Prefer AVs that allow drivers to take control**

- Over 80% in two surveys

5 surveys (4 in 2016 and 1 in 2015), 4 in US and 1 in Canada

What are current state laws?

- **AVs probably can operate in most states without law changes**
- **AV laws in place in 9 states and DC**
 - CA, DC, FL, NV: testing and operations
 - MI, UT: testing
 - LA: defines AV, ND authorizes a study, TN establishes certification, VA allows viewing a visual display in autonomous mode
- **AV executive orders in 2 states**
 - AZ executive order: testing and operations
 - MA executive order: testing

State AV priorities - testing

Encourage AV testing while protecting public safety

- **Some considerations**

- How and where testing will be conducted
- Test driver selection and training
- Test vehicle identification
- Reporting: overall, incidents, crashes

State AV priorities - operations

Encourage AV operations while protecting public safety

- AV certification
- AV registration and titling
- AV drivers
- Laws on AV operations
- Law enforcement
- Crashes: emergency response, crash investigation
- Data systems: how to identify AVs
- Liability and insurance
- Vehicle inspection
- Coordination across states

What can states do?

- **Be informed; stay informed**
- **Be a player**
 - Join or start a state AV task force
 - Work with other states to develop consistent laws, policies, procedures
- **Understand state roles**
 - Federal role: regulate vehicles
 - State roles: license vehicles and drivers, establish and enforce traffic laws, vehicle insurance and liability
- **Don't rush to establish AV laws or regulations**
 - Aim for consistency across states
- **Be flexible**
 - AVs are disruptive technology, developing very quickly

What can national organizations do?

- **Develop model AV laws and regulations**
- **Document the traffic safety issues of AVs**
- **Develop model public education materials**
- **Establish an AV information clearinghouse**
- **Issue vehicle regulations and guidance promptly**
- **Establish regulations or guidelines to identify AVs easily**
- **Involve law enforcement, SHSOs, and DMVs in AV discussions**

Questions

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Download the report: www.GHSA.org