

PREPARING FOR AUTOMATED VEHICLES IN VERMONT

House Energy and Technology Committee

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PRESENTATION

- **2017 Legislative Directive**
- **Automated Vehicles Background and Issues**
- **State and Federal Activities**
- **Legislative Recommendations for 2019**



2017 VT LEGISLATIVE DIRECTIVE

Secretary of Transportation to convene a meeting of public and private stakeholders with expertise related to autonomous vehicles (AVs).

- *Legal and regulatory issues*
- *Operator education and training and AV emergency response practices*
- *Infrastructure needs and the social, economic, and environmental consequences.*

Report back to the House and Senate Committees on Transportation on its activities and any recommendations related to AVs, including any proposed legislation



**VERMONT
HIGHWAY
SAFETY
ALLIANCE**

5th Annual Conference
The Road to Safety is
Paved with Technology
November 8, 2017
Hilton Burlington
8:00 am -5:00 pm
Free
AV sessions start at 1:45 pm

DEFINITIONS

- **Connected vehicles (CV)**
 - V2V: vehicle-to-vehicle
 - V2I: vehicle-to-infrastructure
 - V2X: vehicle to everything

- **Automated Vehicles (AV)**
 - Self-driving without connected input from the surroundings.
 - Some aspect of a safety-critical control function (e.g., steering, throttle, or braking) occurs without direct driver input.

- **Connected Automated Vehicle (CAV)**

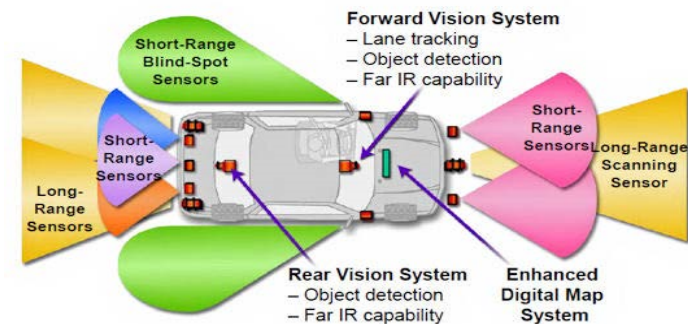
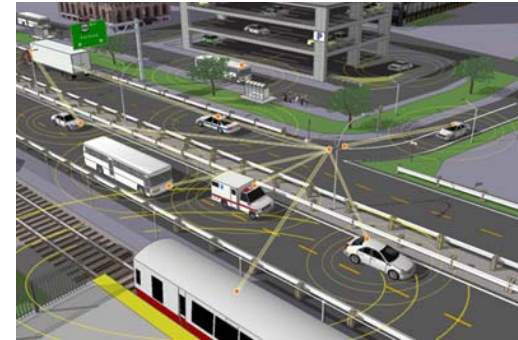
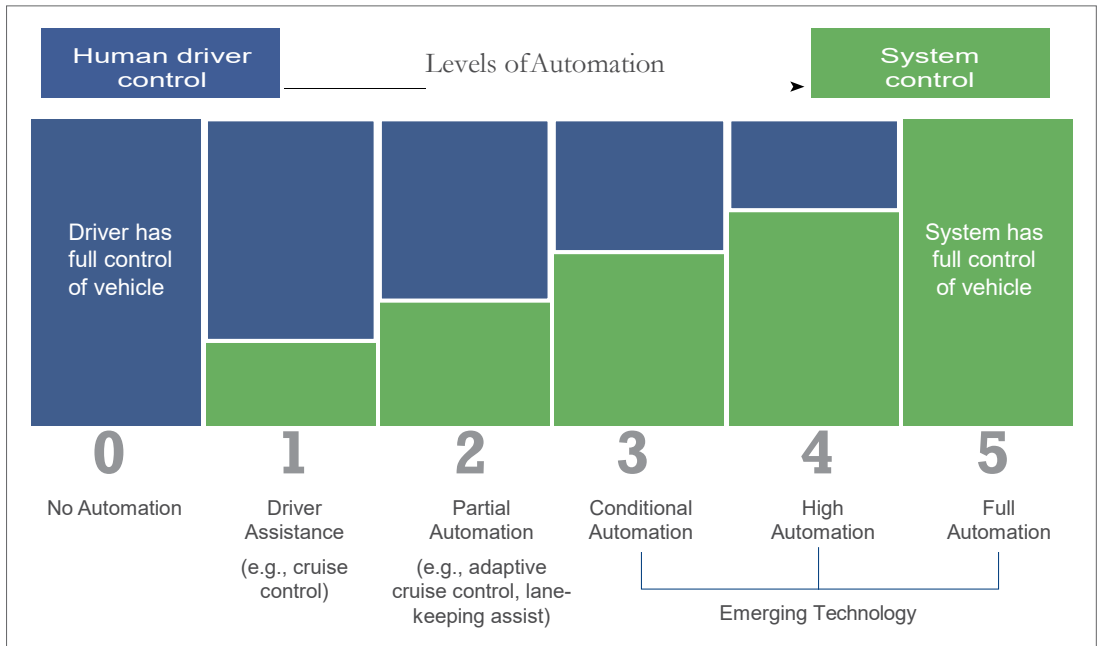


Image Source: INQUISITR <http://www.inquisitr.com/1236826/autonomous-vehicles-are-the-wave-of-the-future-says-stephen-diacol/>



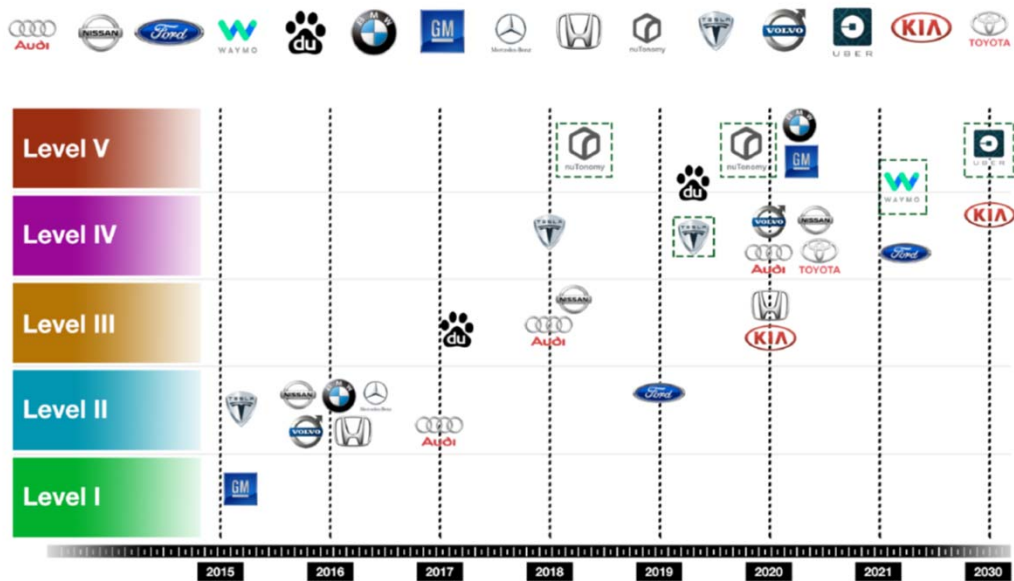
VEHICLE AUTOMATION LEVELS



SOURCE: Liberty Mutual "Automated Vehicles: Changing Role of the Driver"



AUTOMATED VEHICLE AVAILABILITY



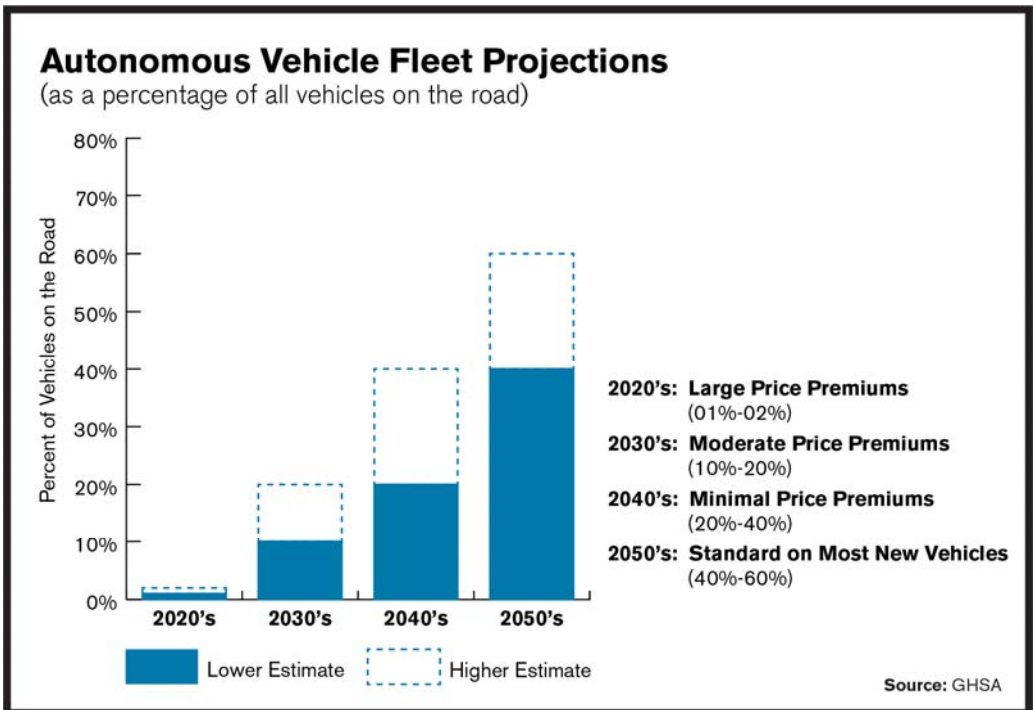
Proposed for shared riding use

Fig 2. Overview of AV market, 2015–2030 estimated timeline. Not meant to be exhaustive. The data points were estimated based on media articles from wired.com, motortrend.com, forbes.com, bbc.com, and from manufacturers' websites and public statements.

<https://doi.org/10.1371/journal.pone.0184952.g002>

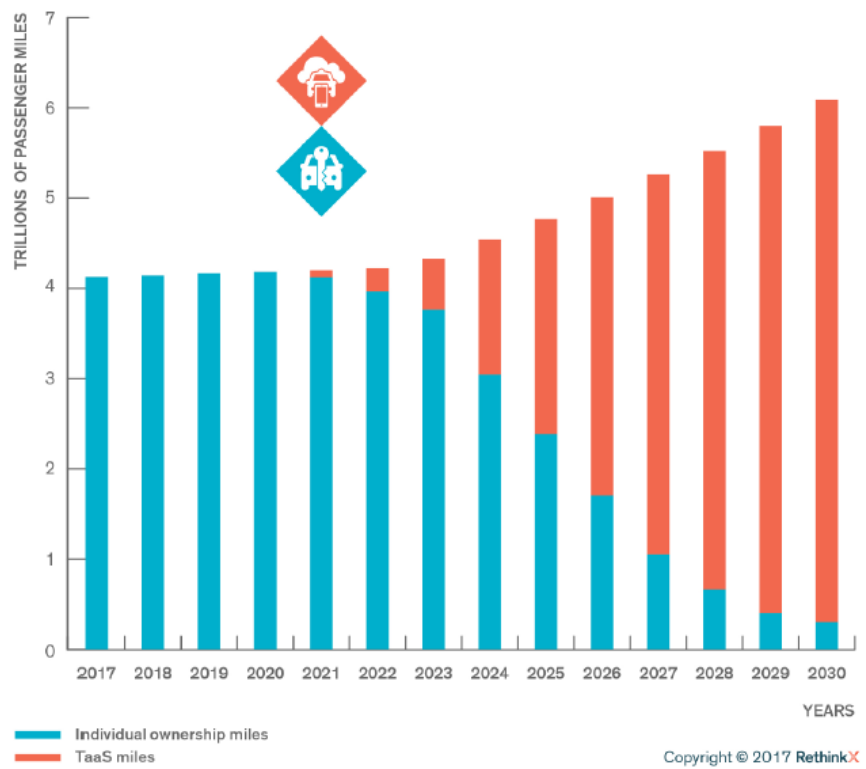


AUTOMATED VEHICLES ON THE ROAD (CONSERVATIVE FORECAST)



AUTOMATED VEHICLES ON THE ROAD (ALTERNATIVE AGGRESSIVE FORECAST)

» *Speed of TaaS adoption*



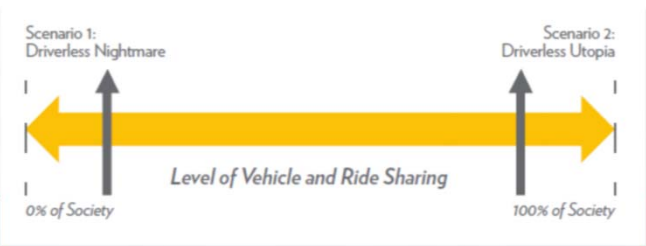
- Assumes a Shared, Electric Vehicle Scenario
- By 2030 95% of Passenger Miles will be in Shared AVs
- Average American Family will save \$5,600 per year

Source: Rethinking Transportation 2020-2030 The Disruption of Transportation and the Collapse of the Internal-Combustion Vehicle and Oil Industry, RethinkX, May 2017



IMPACTS OF AVs DEPEND ON OWNERSHIP MODEL

	Individual Ownership	Vehicle and Ride Sharing
Vehicle Miles Travelled	Significant Increase	Smaller Increase
Safety	Positive	More Positive
GHG Emissions	Decrease	More Decrease
Sprawl	Increase	Decrease
Parking	No Change	Less
Roadway Infrastructure	More Expansion	Less Expansion
Mobility for Vulnerable Populations	Mixed	Positive



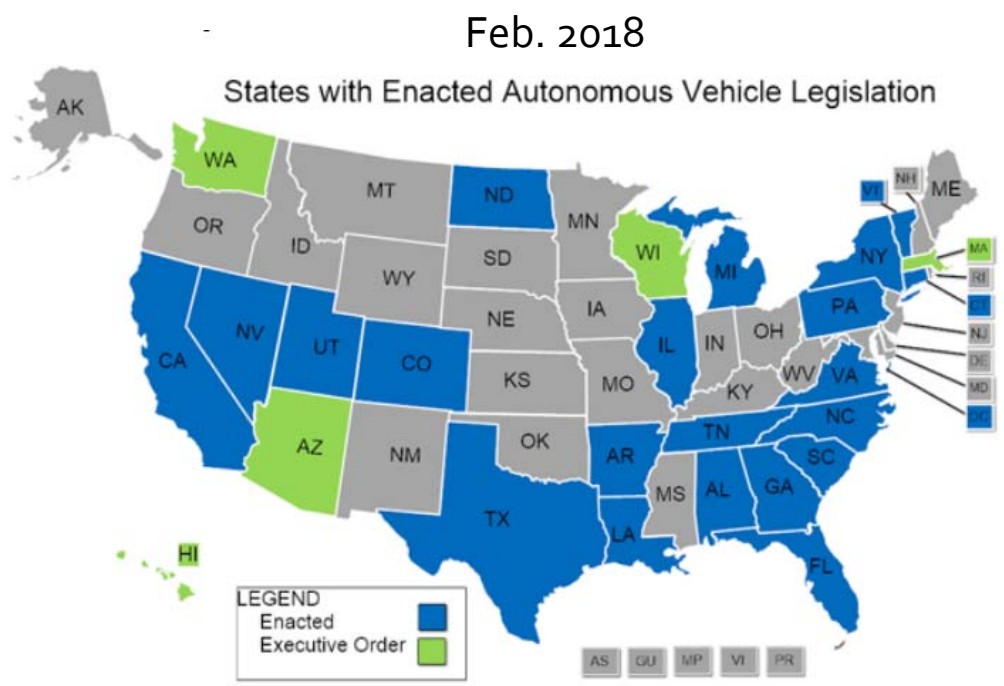
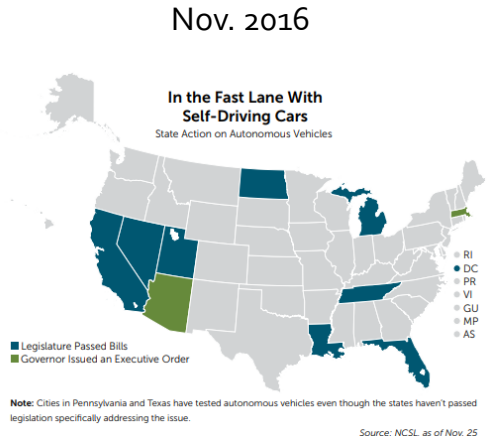
FEDERAL AND STATE ROLES

Federal (NHTSA) Role	State Role
<ul style="list-style-type: none"> • Set Federal Motor Vehicle Safety Standards (FMVSS) • Ensuring compliance with FMVSS • Investigating & managing recalls • Communicating & educating the public on motor vehicle safety issues • Issuing guidance for vehicle and equipment manufacturers to follow 	<ul style="list-style-type: none"> • Operator licensing • Operator education & training • Vehicle registration • Regulate motor vehicle insurance and liability • Vehicle safety inspection • Establish & enforce traffic laws* • Build and operate infrastructure*

* Municipalities also establish and enforce traffic laws, build and operate infrastructure



STATE LEGISLATION



SOURCE: National Conference of State Legislatures



ALLOW AND REGULATE TESTING OF AVs IN VT

- Why?
 - Facilitate deployment in VT
 - Build public confidence
 - Protect the traveling public
- What?
 - Allow for waivers to existing statutory barriers
 - Define role of municipalities
 - Insurance requirements
 - Law enforcement role
 - Public notification





EXPLICITLY ALLOW AND REGULATE DEPLOYMENT OF AVs IN VT

- **Why?**
 - Ensure compliance with VT rules of the road
 - Ensure compliance with licensing and registration
 - Assign legal obligation
- **What?**
 - Satisfaction of FMVSS
 - Remove statutory obstacles and ambiguities
 - Definition of operator
 - Definition of standard equipment
 - Minimum liability insurance amounts
 - Allow zero occupancy vehicles
 - Clarify prohibition of handheld devices and texting
 - Open container law
 - And more...



PREPARING FOR AUTOMATED VEHICLES IN VT

- Recommends Developing Legislation in 2019 to:
 - Allow and regulate testing of AVs in VT
 - Explicitly Allow and Regulate Deployment of AVs in VT
- Continue to monitor evolution of technology and longer term implications

