

# A US Legal Perspective on Automated Driving

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[newlypossible.org](http://newlypossible.org)

*Have the relevant technologies reached a demonstrated level of socially acceptable risk?*

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# Legal Dimensions

- Legality
- Regulation
- Promotion
- Civil liability
  - Insurance
  - Product liability
- Data protection
- ....
- International law
- Federal law
- State law
- Local law

# Laws As Rules And As Tools



Details  
matter.

But so does the  
broader social  
context!

# International Law

- US is a party to the 1949 Geneva Convention\* but not to the 1968 Vienna Convention

*\*And so is France!*

- Geneva Convention is arguably consistent with automated driving
- This treaty is not politically relevant in the US

# Federal Law

- US Department of Transportation (USDOT) is taking an eyes-on, hands-off approach
- USDOT's 2013 policy statement does not necessarily reflect current agency views
- Congressional dysfunction limits USDOT's ability to effectively fund long-term projects

# AV Policy Research Roadmap

		Near Term			Long Term			
Regulatory Environment	Implications of AV on Federal Standards and Regulations	+	+	+				
	Evaluating Safety Standards and Certification Processes for AV	+	+	+				
	ITS and AV State Legislative Scan and Analysis	+	+	+				
	Analyzing Impacts of AV on FMCSA Regulations and Enforcement	+	+	+				
Data Privacy and Management	Impacts of AV on Transportation Data Collection and Management	+	+	+				
	Evaluating AV Data Privacy Policies and Management	+	+	+				
Liability	Assessing Liability and Insurance Models for AV	+	+	+				
Consumer/Societal Issues	Understanding AV Consumer Acceptance and Education Challenges		+	+	+			
	Identifying Societal/Market Impacts and Policies for AV			+	+	+		
Infrastructure and Planning	Implications of AV on Infrastructure Planning and Investment			+	+	+		
	Impacts of AV on the Long Range Transportation Planning Process					+	+	+
	Impacts of AV on Land Use and its Policies						+	+

← Stakeholder Outreach →

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U.S. Department of Transportation  
ITS Joint Program Office

# Policy and Planning Example: Review of Federal Motor Vehicle Safety Standards

Building Block Diagram			
Regulatory Framework	Commission	Technology Support	
Quality Assurance			
Customer Contact	Customer Service and Support	Customer Care	Product Quality
Transportation System Performance			
Fuel, Speed, Emissions, and Safety	Vehicle Control	Vehicle Use and Control	
Safety and Security			
Responsibility	Testing Systems	Quality Assurance	
Methods	Product Policy Review	Stakeholder Engagement	Transmission Planning

***How could highly automated vehicles impact or change the nature of existing Federal Motor Vehicle Safety Standards (FMVSS)?***

- Identifying where current FMVSS pose challenges to introduction of AVs – particularly as they move into concepts of *‘human out of the loop’* or *‘driverless’*
- Ensuring that existing Federal regulations do not stifle innovation and that AVs are performing their functions safely
- NHTSA and ITS JPO coordinated research



Image Source: <http://www.automotiveaddicts.com/wp-content/uploads/2012/08/IIHS-Crash-Test.jpg>



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**U.S. Department of Transportation  
ITS Joint Program Office**

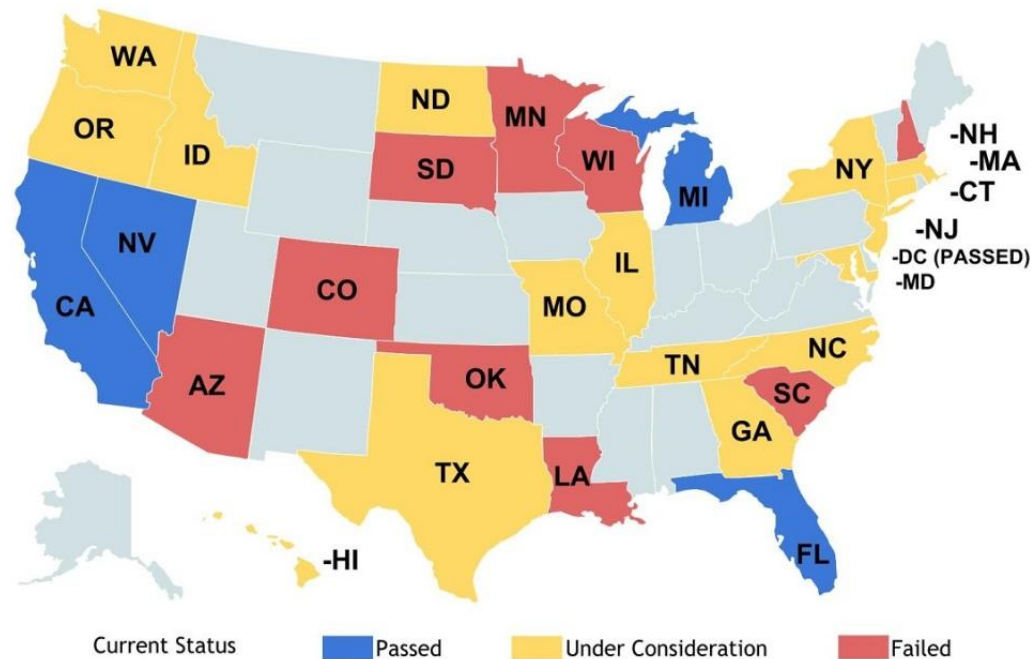


# State Law: Legality

- What is not prohibited is permitted
- In general, few if any legal provisions clearly bar automated driving
  - But: New York State requires a hand on the wheel
- In practice, legal situation depends on enforcement discretion
- But: California and Michigan have affirmatively limited automated driving

# State Law: Regulation

- First: Broad and superficial legislation
- Then: Resistance from system developers
- Next: Targeted executive and legislative action (e.g., platooning)



# State Law: California's Experience

- 2012 state law directed Department of Motor Vehicles to regulate testing and deployment
- R&D testing rules finalized in 2014
  - Require in-vehicle driver
  - Prohibit heavy-vehicle testing
- Deployment rules are long overdue
  - January 2015 deadline for final rules
  - Proposed rules *still* have not been issued

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# State Law: Promotion

- Inventory existing law
- Maintain infrastructure
- Identify a chain of public and private support
- Provide flexibility to developers and insurers
- Internalize the costs of driving
- Expect more from human drivers

# How Governments Can Promote Automated Driving

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Public officials frequently ask what their governments can do to promote and attract automated vehicles. This poster previews potential state and local strategies, some of which may also have national relevance. As the color coding below indicates, the different technologies and applications that constitute automated driving may demand different strategies:

Paths to fully automated driving		Color key for each individual strategy	
"Something Everywhere"	1) Increasing capability of advanced emergency intervention systems (AEIS)	Primarily promotes AEIS/ADAS	Primarily promotes all three pathways
	2) Increasing capability of advanced driver assistance systems (ADAS)		
"Everything Somewhere"	3) Increasing capability of driverless systems	Primarily promotes driverless systems	

For further discussion of each of the strategies below, please see Bryant Walker Smith, *How Governments Can Promote Automated Driving*, forthcoming at [newlypossible.org](http://newlypossible.org).

<b>Prepare government</b>	At the state level, this person should have the authority and credibility to coordinate among the state's various administrative agencies, between the governor and the legislature, between federal and state authorities, and between state and local authorities. Moreover, this person should act as a liaison between the public and private sectors. Companies and universities in the state may already be engaged in potentially relevant work, and if a large or small developer of automated systems is considering a jurisdiction for development, demonstration, or deployment, it should know precisely whom in government to call.	A legal audit should identify and analyze every statute and regulation that could apply either adversely or ambiguously to automated driving. <i>Automated Vehicles Are Probably Legal in the United States</i> identifies many such provisions, from general requirements of prudent conduct to the specific New York rule that a driver must keep at least one hand on the wheel. Because vehicle codes, insurance rules, and other relevant laws vary by jurisdiction, merely enacting a uniform "automated driving law" without reference to these nuances could confuse as much as clarify.	<b>Prepare legal infrastructure</b>
Identify a single point of contact			Do not just pass a new law
Learn from credible sources			Audit existing law
Account for automation in planning processes			Inventory existing legal tools
Allocate resources commensurate with expectations	Strengthen and standardize data management	If advancements in vehicle technologies ultimately compel novel registration or licensing determinations, treating the decisions of one jurisdiction as conclusive in another could reduce the administrative difficulties that developers might otherwise face. Reciprocity—or even unilateral recognition—could also benefit smaller jurisdictions that lack the consumer demand to motivate companies to enter the market or the public resources to establish a holistic regulatory regime.	Ask developers what they need
<b>Prepare physical and digital infrastructures</b>	Roads—even major ones—in much of the United States are in poor condition. Highway lane markings used by some lanekeeping systems are frequently faded or, worse, simply wrong. Potholes and other pavement deficiencies that are unlikely to be detected or avoided by current lane centering systems can be found even on major freeways. Debris and other foreign objects that could conceivably confuse an automated emergency intervention system litter roads and shoulders. Addressing these conditions could help to improve the effectiveness of near-term automated systems.	Advanced driver assistance and emergency intervention systems might encounter situations, like a bicyclist who swerves to avoid an opened car door, that require rapid deceleration or other abrupt maneuvers that may imperil vehicle occupants who are not belted. Enforcing seatbelt laws could maximize the safety of the people both inside and outside these vehicles. Governments could also update seatbelt laws that were originally enacted when seatbelt usage was much less common. In many states, for example, statutory or common law rules restrict whether or for what purpose a defendant automaker can introduce evidence that an injured plaintiff was not wearing her seatbelt. Allowing developers of automated systems to assume that people who care about their safety will buckle up may help to ease some of the design challenges that these developers face.	Seek uniformity of underlying law
Maintain roadways			Embrace regulatory reciprocity
Review design, operation, and maintenance policies			Incorporate technical work into law
Ensure these policies are followed			Employ generic legal language selectively
Strengthen and standardize data management	Update vehicle registration databases	Many agencies already have relevant authority. For example, DMVs are generally authorized to deny or revoke the registration of unsafe vehicles. But these agencies do need resources and flexibility. Critically, agencies should have the authority to achieve equivalent ends through different means and to grant exceptions to statutory regimes. At the same time, governments should ensure that local enforcement discretion is exercised consistent with these policy decisions.	Clarify the legal status of novel vehicles and services
Update vehicle registration databases	Coordinate with USDOT on DSRC	Data concerning roadways, traffic, incidents, and construction should be current, correct, and accessible. Both the public and the private sector play important roles in the collection, validation, and distribution of these data, which may be used by some advanced driver assistance systems to proactively identify locations needing updated maps and situations needing driver intervention.	Tailor bans on the use of electronic devices
Coordinate with USDOT on DSRC	Prepare society	Policies that make vehicle owners and operators bear the true cost of driving will indirectly benefit technologies that produce gains in fuel efficiency or safety. Similarly, eliminating free and underpriced parking could encourage automation-enabled ridesharing by discouraging individual vehicle ownership.	Enforce laws on speeding, texting, and drunk driving
<b>Prepare society</b>	Who will respond publicly to a crash, and how? What relationships will be essential to effective coordination? What evidence and information will need to be preserved, and how? Especially if officials have publicly embraced the potential of these technologies, how will they address any fear or outrage that results from a high-profile crash, regardless of where it occurs? A government that addresses these issues proactively and ultimately positively signals its credibility as a potential technological partner.	States, counties, and municipalities in the United States own nearly 1.5 million cars, 500,000 buses, and another 1.5 million trucks. If the turnover rate for these fleets is ten percent, then these governments purchase some 350,000 vehicles annually—five times more each year than Tesla has sold in its entire existence. Because of contracts and concessions, the number of vehicles closely associated with government services is likely even greater.	Strengthen laws on seatbelt use
Educate the public on the dangers of driving today			Embrace regulatory flexibility
Develop a break-the-glass plan for automation incidents			Clarify enforcement discretion
Recognize broader technological and social changes			Internalize the costs of driving
Develop strategies for structural un- and underemployment	Say what you are doing!	Giving insurers the data, the flexibility, and potentially even the mandate to accurately and precisely price driving risks could help smooth the introduction of automated vehicles.	Raise fuel taxes
Say what you are doing!	Identify local needs and opportunities	Developing a project proposal grounded in the particular conditions of the particular community can help to attract and focus local attention. At some point, the proposal could become the basis for an FTA grant application or a pitch to a private developer of automated systems.	Raise mandatory insurance minimums
<b>Identify local needs and opportunities</b>	Deploy public resources strategically	Identify allies and constituencies	Raise or impose parking prices
Inventory local activity centers (e.g., campuses, CBDs, ports)			Rationalize insurance
Promote unique community attributes			Facilitate access to data
Develop project proposals (public/private; local/other)			Provide flexibility to insurers and customers
<b>Deploy public resources strategically</b>	Preference safety systems in fleet procurement, service contracts, and concessions	Map an entire chain of support from governor to police chief	Embrace pay-as-you-drive models
Reduce subsidies for private vehicle ownership			Reach out to local advocacy groups
Seek the creative use of HOV/HOT lanes, sidewalks, living streets, traffic signals, etc.			Reach out to large companies based locally (e.g., insurers, hospitals)
<b>Identify allies and constituencies</b>			Map an entire chain of support from governor to police chief
Inventory local activity centers (e.g., campuses, CBDs, ports)	Reach out to large companies based locally (e.g., insurers, hospitals)		
Promote unique community attributes	Reach out to large companies based locally (e.g., insurers, hospitals)		
Develop project proposals (public/private; local/other)	Reach out to large companies based locally (e.g., insurers, hospitals)		

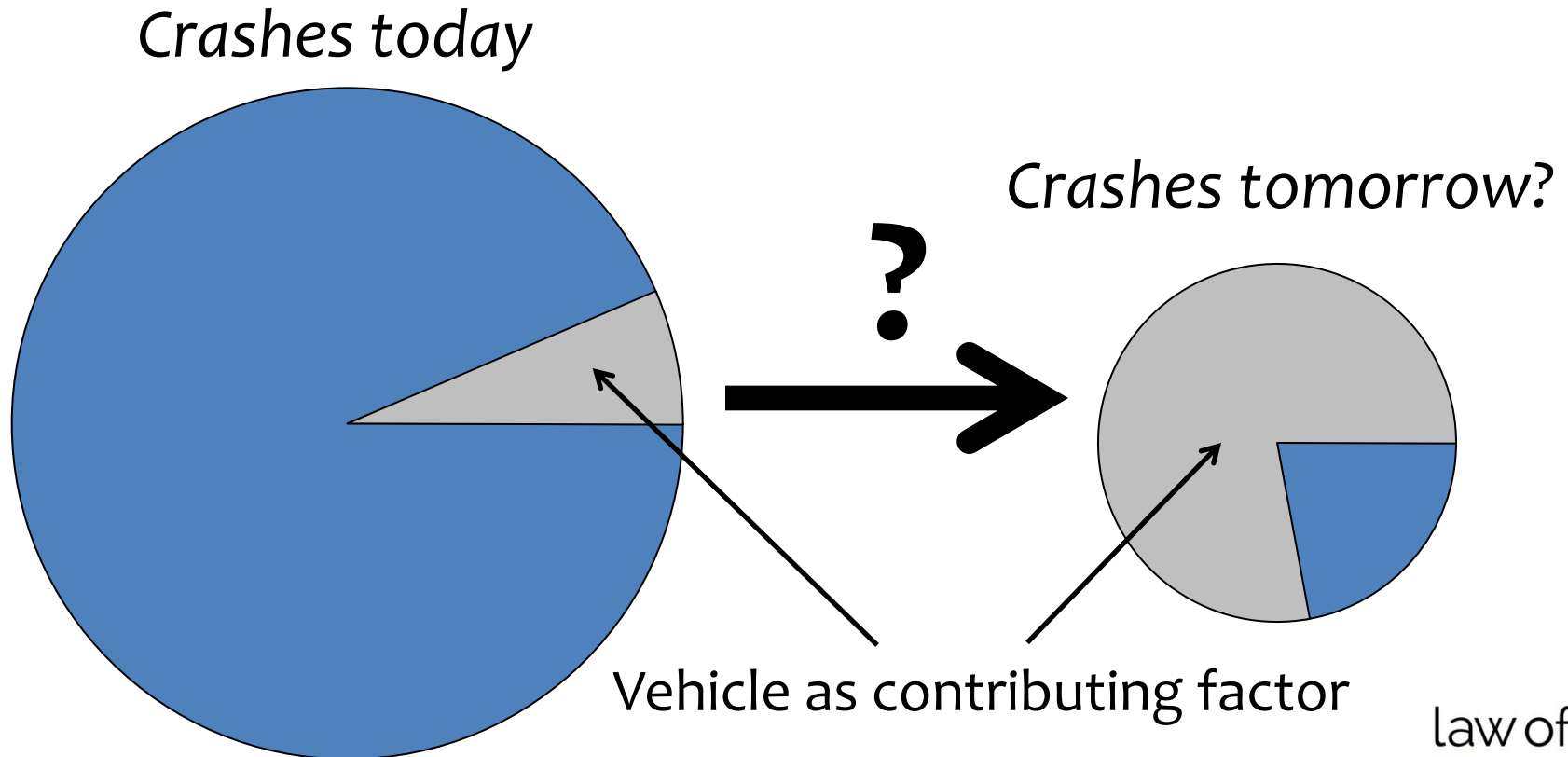


For more information, please see the materials at [newlypossible.org](http://newlypossible.org):

*How Governments Can Promote Automated Driving* (forthcoming article); *Regulation and the Risk of Inaction*; *Automated and Autonomous Driving: Regulation under Uncertainty* (2015 OECD report with Joakim Svensson); *Automated Vehicles Are Probably Legal in the United States* (2012 article); *A Legal Perspective on Three Misconceptions in Vehicle Automation* (2015 book chapter); *Lawyers and Engineers Should Speak the Same Language* (2015 book chapter); *Proximity-Driven Liability* (2014 article)

# State Law: Product Liability

Manufacturers will bear a greater *share* of total crash costs



# State Law: Product Liability

## Implications of automation

- Decisions shift from driver to designer
- Consumer expectations increase
- Economics of litigation change
- Companies get closer to their systems
- Data management becomes more complex
  
- Upshot: *Uncertainty!*



# State Law: Product Liability

(Why) should policymakers care?

- Concerns:
  - Uncertainty might slow introduction (time)
  - Uncertainty might slow adoption (money)
- However:
  - Significant R&D is already occurring
  - Active safety technologies have been introduced
  - More advanced technologies are not yet “ready”

*Have the relevant technologies reached a demonstrated level of socially acceptable risk?*

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# Managing Uncertainty

- Begin with the engineering
- Develop a public safety case
- Manage public expectations
- Invest in legal R&D
- Embrace service models



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