



WASHINGTON STATE
AUTONOMOUS VEHICLE
WORK GROUP

Washington State Transportation
Commission

AV Work Group
Executive Committee
Meeting



August 22, 2023

Agenda

TIME	DESCRIPTION	PRESENTER
9:00	Welcome, Introductions, & Executive Committee Roll Call	Jim Restucci, Chair, <i>AV Work Group Executive Committee</i>
9:05	Industry Safety Update	Sam Wempe, Director of Government Relations and Public Policy, <i>Motional</i> Aidan Ali-Sullivan, Head of State Political Strategy; Senior Manager, State Policy & Government Affairs, <i>Waymo</i>
9:45	AV Regulatory Needs	Phil Koopman, Associate Professor, <i>Carnegie Mellon University</i> Bill Widen, Professor of Law, <i>University of Miami</i>
10:25	AV Roadmap to the Future – Draft Document Walk-Through	Scott Shogan, Vice President, <i>WSP USA</i>
11:45	Executive Committee Member Items	<i>Open forum for members</i>
12:00	ADJOURN	



Motional and Washington State

Who We Are

Motional is making driverless vehicles a **safe**, **reliable**, and **accessible** reality.

We're new in name only. We've been revolutionizing the field for decades, from the founding of our technology at MIT and Carnegie Mellon, to the creation of Motional - born out of an investment from **Hyundai Motor Group**, the world-leading vehicle manufacturer, and **Aptiv**, one of the industry's most innovative technology providers.

We're creating, shaping, and advancing technology capable of saving lives, time, and money.

At Motional we're **changing how the world moves**.



The Road To Motional

2013

nuTonomy founded out of MIT as the world's first AV start-up



2015

Aptiv team completes first autonomous cross-country drive (3,400 miles)

2016

nuTonomy launches world's first robotaxi pilot in Singapore

2017

Aptiv acquires nuTonomy

• APTIV •

2018

Aptiv launches what has since become the world's most-established commercial robotaxi service with Lyft in Las Vegas



2020

Aptiv and Hyundai form Motional as a \$4B autonomous driving joint venture

Motional completes over 100,000 rides in its public robotaxi fleet in Las Vegas



2021

Motional operates some of the world's first driverless vehicles on public roads

Motional reveals its next-generation robotaxi: The all-electric Hyundai IONIQ 5

Motional announces plans to begin fully driverless public robotaxi service in Las Vegas in 2023

2022

Motional becomes first AV company to operate on the Uber Eats network (Santa Monica)

Uber Eats

Motional announces 10-year, multi-market partnership with Uber

Uber

Motional moves first public passengers in IONIQ 5 robotaxi, in Las Vegas on the Lyft and Uber networks

2023

Motional expanded its public service in Las Vegas to include night operation

Motional expanded its delivery service with Uber Eats in Santa Monica to service 20+ merchants



Motional Footprint



Motional's team has grown to over **1,200 team members** worldwide.

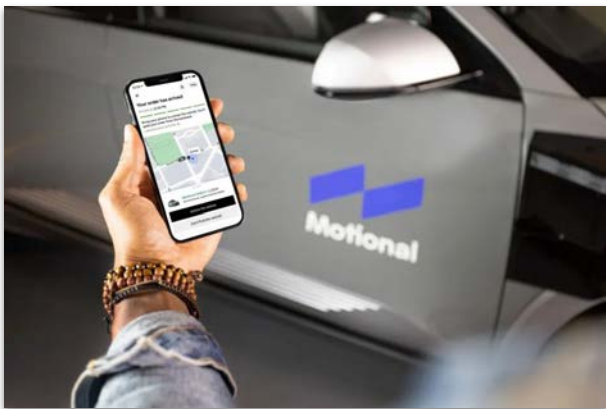
We conduct testing in multiple cities and continents. This **enables smart, scalable driverless technology** that can safely handle a wide range of environments and diverse scenarios.



Focused on ride-hail and food delivery

Motional has industry leading partnerships with two of the world's biggest ride-hail networks: **Lyft** and **Uber**.

Motional is available to Uber and Lyft riders in **Las Vegas** and Uber Eats delivery customers in **Los Angeles**. Motional plans to expand its services across the U.S. and globally.



5+ Years

Motional's robotaxis have been available for public rides in Las Vegas for over five years

130k Rides

Motional has introduced hundreds of thousands of consumers to driverless technology

95% 5-star Ratings

The vast majority of rides have rated their trip five out of five stars



Safety is the Driver: Vehicle Safety

Through a deep collaboration with Hyundai and the National Highway Traffic Safety Administration, Motional's AVs are EV and FMVSS certified.

- We published our approach to validation as part of a consortium in **Safety First for Automated Driving**, adopted as an ISO technical report.
- Our holistic approach to safety is shared in detail in Motional's **Voluntary Safety Self Assessment**. We voluntarily made the VSSA public so that any member of the public can learn more about Motional's rigorous safety standards and processes.
- We are unique in our industry in our decision to engage with **TÜV SÜD** for an independent 18 month-long safety audit.
- Our safety engineering culminated in our announcement that we became one of the first companies in the world to put **driverless cars on public roads**.



Thank you!

Sam Wempe

samuel.wempe@motional.com



Industry Safety Update

Aidan Ali-Sullivan

Head of State Political
Strategy; Senior Manager,
State Policy & Government
Affairs,
Waymo



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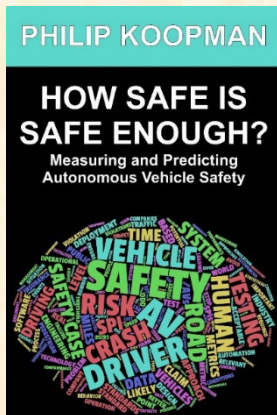


Prof. Philip Koopman

Automated Vehicle State Policy Issues

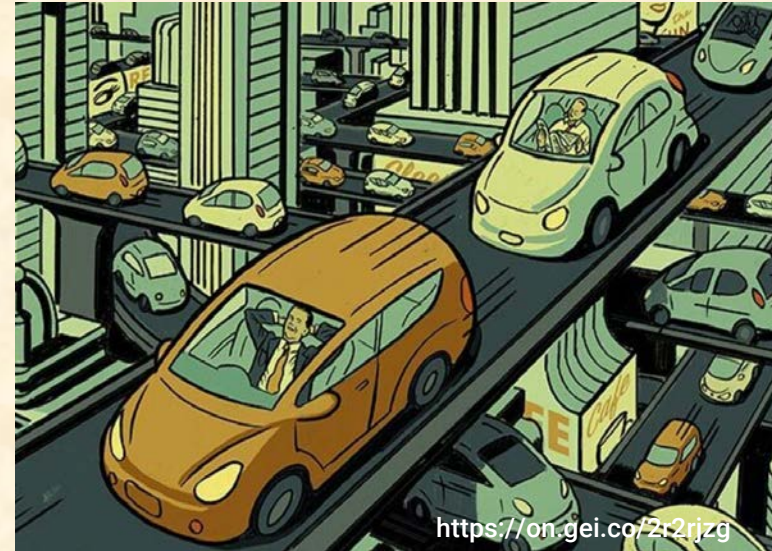
Washington AV Work Group

August 22, 2023



Quick Overview

- Getting past Automated Vehicle (AV) safety rhetoric
- AV safety in a nutshell
- Policy points:
 - Societal benefits
 - Public road testing
 - Municipal preemption
 - SAE Level 2/2+/3 issues
 - Federal vs. state regulation
- Revisiting common myths



“Robotaxis Are Not Prone To Human Error” (??)

■ Instead, you get Robot Error



<https://bit.ly/CruisePowerLines>

Two Cruise cars in San Francisco became wrapped in downed Muni wires and caution tape at Leavenworth Street and Clay Street on March 21, 2022. Courtesy of John-Phillip Bettencourt



<https://bit.ly/45fLgm6>



<https://bit.ly/3R1bGnx>

Getting Past the AV Safety Rhetoric

- Nobody knows when/if Autonomous Vehicles (AVs) will be safer than human drivers
 - Reduced fatality rates are aspirational
- Some humans drive drunk
 - On average they are still good and adaptable
- But computers lack common sense
 - ML is brittle when encountering novelty
- Computer drivers can be imperfect
 - Might hit a bus – even if lidar sees the bus
 - **Safety must be engineered, not assumed**



Elements of AV Safety

- 1. Safe as a human driver on average**
 - ~75M to 125M miles/fatality for SF, including impaired
- 2. Avoiding risk transfer onto vulnerable populations**
 - Pedestrian harm should not increase even if net harm is reduced
- 3. Avoid negligent computer driving**
 - Running red lights and stop signs is not OK
- 4. Conform to industry safety standards**
 - Including SAE J3018 for public road testing
- 5. Address other ethical & equity concerns**
 - Avoid local preemption; manufacturer accountability for harm

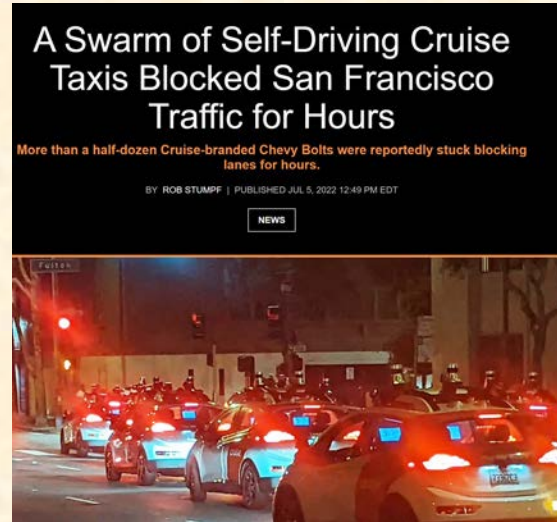
Policy Point: Societal Benefit

■ Benefits accrue only after AVs are safe and reliable

- Need 1 billion miles of operation to establish safety
- Near term, “safe” might mean lower reliability

➤ Ask the hard questions

- What benefits will there be right now?
 - “Benefits disabled” but no wheelchair access
 - “Already saving lives” with about 1 million miles
 - “Promise unprofitable thing X” with no regulation
- What public costs will there be right now?
 - Congestion and blocked emergency responders
 - Risk of harm from still-under-development software on public roads



<https://bit.ly/45xmpdo>

Policy Point: Public Road Testing

■ There is no such thing as driverless testing

➤ Safety driver should stay in until safety is proven

- Require SAE J3018 testing safety standard
- Test with driver not touching controls
- “Beta” is road testing, not SAE Level 2



NTSB investigators on-scene in Tempe, Arizona, examining the Uber automated test vehicle involved in the collision.
(NTSB photo)

➤ Driver-out should be testing the business model, not safety

- Software updates need driver-in qualification testing

Policy Point: Municipal Preemption

- Companies push for municipal preemption
 - Argue that cities will ban AV testing
 - How is this working out in San Francisco?
- Middle ground: responsive to local conditions
 - Munis can forbid testing for specific situations
 - School zones during student transit times
 - Parades, construction areas, fires, 1st amendment events, ...
 - Munis can selectively suspend service responsive to incidents
 - Keep away from emergency scenes after firefighter incidents
 - Avoid high-activity neighborhoods after fire truck crash
 - Munis must be able to enforce traffic laws

Two Waymo Cars Block San Francisco Traffic Again As Robotaxi Stalling Incidents Rise 300 Percent

The self-driving cars were left motionless by heavy San Francisco traffic due to the Pride Parade and Giants game on Sunday.

By Adam Ismail

Published June 27, 2023 | Comments (17)



<https://bit.ly/3DZTpza>



Photo: Justin Sullivan (Getty Images)

Policy Point: SAE Level 2/2+/3 Vehicles

■ Already deployed on roads

- Fatalities, injuries due to driver complacency
- No substantive regulations beyond sparse recalls
- Level 3 “gives driver time back” (e.g., play Tetris)
 - Is driver liable for a fatality?
 - Mercedes Benz Level 3 responded on product liability, not tort/criminal



➤ Create a clear duty of responsibility for the computer driver

- When computer is driving, manufacturer is responsible party
- Defined, non-zero transition time back to human driver
- Liability attaches to manufacturer for inadequate driver monitoring

➔ Detailed proposal for state regulation on this topic

- Problem: computer driver is “equipment”
- NHTSA/FMCSA should control equipment
 - Ability of computer driver to adhere to state laws
 - [NHTSA ANPRM NHTSA-2020-0106](#) AV framework
- States should control computer driver behavior
 - Hold computer drivers to same duty of care as a human driver
 - Determine and enforce driving behavioral rules
 - Ability to revoke driver licenses based on negligent driving
 - Munis need ability to enforce & report negligence to state DMV

Quick List of Myths

- “Computers don’t drive drunk”
 - Computers lack common sense; make mistakes
- “Humans are terrible drivers” / “Computers are safer”
 - We don’t yet know how that will turn out
- “Level 2/2+ makes cars safer”
 - AEB helps safety; Level 2/2+ can decrease safety
- “We, the manufacturer, take responsibility” (for product liability)
 - The urgent issue is tort/criminal, not product liability
- “Current laws and regulations are enough” → FALSE
 - Liability issues; Software safety regulation; L2+ loophole

- Liability-based proposal for state AV regulation & podcast
 - <https://safeautonomy.blogspot.com/2023/05/a-liability-approach-for-automated.html>
- Video lecture series on autonomous vehicle safety:
 - Keynote AV Safety overview video : https://youtu.be/oE_2rBxNrFc
 - Mini-course: <https://users.ece.cmu.edu/~koopman/lectures/index.html#av>
- “Safe Enough” book & talk video:
 - <https://safeautonomy.blogspot.com/2022/09/book-how-safe-is-safe-enough-measuring.html>
- UL 4600 AV safety standard book & talk video:
 - <https://safeautonomy.blogspot.com/2022/11/blog-post.html>
- US House E&C testimony:
 - <https://safeautonomy.blogspot.com/2023/07/av-safety-claims-and-more-on-my.html>



Automated Vehicles

Current laws and regulations are not sufficient to address
issues raised by this new technology

William H. Widen

August 22, 2023

Academic commentators and industry players generally assume that the shift from human drivers to computer drivers will lead to the replacement of negligence suits for auto accidents by strict product liability suits for auto accidents.

- Such a shift in type of case would fundamentally transform the nature of tort litigation.

Prof. Mark Geistfeld | “In addition to its other impacts, the emerging technology of autonomous vehicles will disrupt the practice of tort law. The majority of tort cases in the state courts now involve automobile accidents allegedly caused by a driver’s negligence. By eliminating the human driver, autonomous vehicles will eliminate these tort claims.”

(2017: 105 Ca. L. Rev. 1611, 1691)

Industry | “. . . Mercedes-Benz take[s] responsibility for the design and manufacturing of our products. In the context of [our Level 3 vehicles], this means that if a customer uses the system as intended and instructed and the system fails to perform as designed, we stand behind our product.”

- This is strict products liability not negligence

A negligence suit differs from a product liability suit in many ways.

- The number of ordinary negligence auto accident cases dwarfs the number of product liability auto accident cases
- A product liability case requires expensive experts
- A judge and lay jury can resolve most negligence cases w/out expert input or expense

Current resources available to courts and litigants could not handle such a massive shift if it took place overnight.

- US Dist. Cts. 2022 Motor Veh | # Prod Liab: 278; Neg: 5,517.
- US Dept Just | Motor Veh. 9,431; Prod. Liab. [other] 268 (2005)

Bureau of Justice Statistics, US Dept. Justice |
 updated 2009, avail. at:

<https://bjs.ojp.gov/content/pub/pdf/cbjtsc05.pdf>

[small sample of state cases]

Table 1. Civil trials in state courts, by case type, 2005

Case type	Total trials*		
	Number	Percent of total trials	Percent disposed through jury trial
All cases	26,948	100.0%	68.3%
Tort cases	16,397	60.8%	90.0%
Motor vehicle	9,431	35.0	92.1
Medical malpractice	2,449	9.1	98.7
Premises liability	1,863	6.9	93.8
Intentional tort	725	2.7	78.3
Other or unknown tort	664	2.5	71.6
Conversion	378	1.4	46.3
Product liability	354	1.3	93.5
Asbestos	87	0.3	95.5
Other	268	1.0	92.7
Slander/libel	187	0.7	64.2
Professional malpractice	150	0.6	59.9
Animal attack	138	0.5	80.6
False arrest, imprisonment	58	0.2	63.9

Even if the transition takes place slowly, the resource constraints will be significant.

- A change in law to allow a negligence suit for an AV accident based on breach of a duty of care addresses these resource concerns for the typical case | Example of Nilsson v. GM.

Once you recognize that an AV owes other road users a duty of care, the only remaining step is to hold the manufacturer responsible—the only logical party to motivate safety improvements

1 15. The allegations set forth in paragraph 15 of the Complaint are legal
2 conclusions and do not require a response. To the extent a response is required, GM
3 admits that the Bolt was required to use reasonable care in driving, just as Mr.
4 Nilsson was required to use reasonable care in driving his motorcycle.

The courts will eventually recognize such a duty of care just as courts allowed strict product liability cases w/out proof of negligence.

Will this legal evolution take decades, or will it be accomplished by statute contemporaneously with AV deployments? What protects citizens best?

- Most AV companies wrongly claim existing law is sufficient | uncertainty and delay benefits industry

For example, Mercedes-Benz argues against law reform as follows:

DRIVE PILOT has received certification in Germany and in the U.S. (in the states of Nevada and California), where there are well-established legal systems for determining responsibility and liability on roads and highways. While they might differ between jurisdictions, they still provide the legal foundation that is the basis of the respective tasks and duties. These legal frameworks will continue to apply and can be relied on to assign liability when DRIVE PILOT is engaged.

Though strict products liability developed to benefit plaintiffs by eliminating the need to prove negligence, the complexity of proof has become a liability shield in the cases involving complex technology

- Proof of negligence when the standard is comparison to the expected performance of a human driver is not a liability shield because judge and lay jury have domain expertise

The complexity of proof has become a liability shield in the cases involving complex driving technology because ADS with machine learning are not like familiar computer algorithms.

See Zoe Porter, et al., Unravelling Responsibility for AI, arXiv:2308.02608v1 [cs.AI] (Cornell Univ. Aug. 3 2023) (noting that the intended functionality of machine learning systems cannot be explicitly specified, with inherent complexity, uncertainty and opacity)

The complexity of proof is not necessary for an automated vehicle because the ADS must comply with traffic laws.

- To comply with traffic laws, the ADS designer must program duty of care behavior into automated vehicles

A. D'Amato et al., Exceptional Driving Principles for Autonomous Vehicles, 2022 J. L. & Mob. 2.

2.1 PRINCIPLE 0: DUTY OF CARE

0. The ADS shall be programmed to maintain a strict duty of care to each road user. The ADS may not violate this duty of care owed to one road user to resolve a conflict with another.

This initial principle establishes basic expectations for an ADS operated on public roads. While the traffic code in many cases fully defines the duty of care obligations,⁴⁴ this principle clearly establishes that developers should not attempt to balance the outcomes of a conflict across actors not involved with the initial conflict.

Just as the railroad industry and its new technology raised a host of novel problems and placed unprecedented demands on the legal system, so to does the arrival of automated vehicles

- We should expect both common law and statutes to evolve to address the novel problems of today because litigation will accumulate in proportion to the increase in automated vehicle deployments

AV Roadmap to the Future – Draft Document Walk-Through

Scott Shogan, *WSP USA*

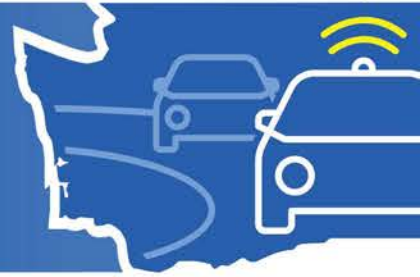


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Roadmap to the Future



The “**Roadmap to the Future**” will serve as the Work Group’s Legacy Deliverable and be a resource for law makers to consider future actions

- » Deliver at the end of 2023 (*when the Work Group sunsets*)
- » A plan for the future, how Washington can continue to prepare for AVs

Key Components of the “Roadmap”

Agency
Readiness

Testing &
Pilots

Public
Outreach

Safety

Path to
Deployment

Agency Readiness – Topics



- Permitting
- Training
- Infrastructure
- Equity
- Partnerships

Agency Readiness

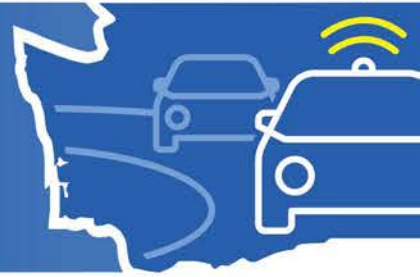
Testing & Pilots

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Path to Deployment

Agency Readiness – Introduction



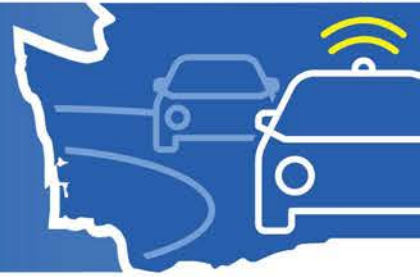
- The current process for AV permitting in WA is one of self-certification:
 - » Companies must have an umbrella liability policy of not less than \$5,000,000 per occurrence and submit the Certificate of Insurance
 - » Requirements vary for testing with or without human operators present
 - » Self-certified companies must submit an Autonomous Vehicles Collision Report by February 1st every year
- The process going forward will be need to consider resource and other structural needs – this is what has made the difference in other states

Agency Readiness – Permitting



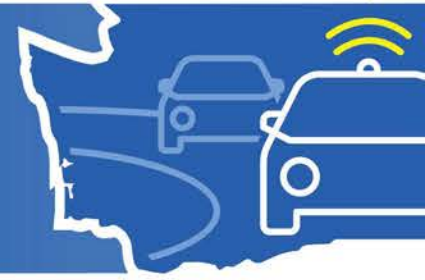
Objective	Actions	Examples
Reform the existing notification process for AV use on roadways	Fund some level of dedicated staff to manage permit program within the Department of Licensing	<ul style="list-style-type: none">• In California, the DMV has a robust permitting process for AV testing and deployment, with three levels: Driver Required, Driverless Testing, and Deployment (with passengers)• Arizona law allows AVs to operate on public roads without a driver after submitting a set of written statements

Agency Readiness – Training



Objective	Actions	Examples
Develop skillsets within state agencies to understand AV industry movement, regulatory requirements, and partnerships	Conduct a training program across state agencies which provides continuity of the training and informational elements of the Work Group to remain current on the AV industry	<ul style="list-style-type: none">• Maryland’s ongoing CAV Working Group enables coordination between state agencies to develop plans, experience AV testing, hold educational and engagement workshops, and more• The CAT Coalition also provides educational resources to states

Agency Readiness – Infrastructure



Objective	Actions	Examples
<ul style="list-style-type: none">• Identify and prioritize infrastructure investments to support safe AV operation in the near- and long-terms• Identify organizational actions necessary to update infrastructure standards to reflect AV needs	<ul style="list-style-type: none">• Through WSDOT, prepare an AV strategic plan which addresses investments and organizational needs to consider AV in infrastructure planning, design, and maintenance• Appoint an AV lead with sufficient resource and authority to coordinate across all divisions	<ul style="list-style-type: none">• Multiple states, including CT, FL, MD, MI, MN, and PA have completed strategic plans that outline and prioritize agency actions• This strategic plan should address the level of need for roadside and communications infrastructure investments

Agency Readiness – Infrastructure



Objective	Actions	Examples
Coordinate with neighboring states to ensure common approaches for travel and interstate commerce	Create a standing forum for coordination with representatives from Oregon and Idaho and/or the WASHTO area	The Mid America Association of State Transportation Officials created a 2030 CAV Regional Strategy, committing the region to: <ul style="list-style-type: none">• Ongoing information sharing of best practices• Collaborating on regional projects• Developing a regional CAV strategy• Hosting an annual summit

Agency Readiness – Equity



Objective	Actions	Examples
Chart a path to promote additional consideration of geographic and social equity for future AV deployments	Develop policy that requires consideration of equity as part of any public spending supporting AV testing and deployment	When deciding where to deploy AVs as part of the Smart Columbus program, the City performed an analysis using ten ranking criteria. This resulted in the decision to expand to a series of two deployments – one in downtown, the other in a historically underserved neighborhood – to ensure more people could experience the technology

Agency Readiness

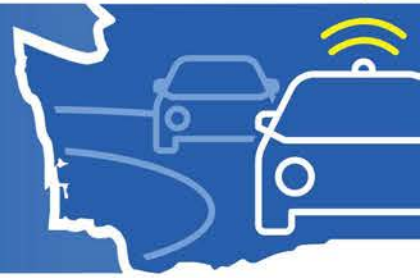
Testing & Pilots

Public Outreach

Safety

Path to Deployment

Agency Readiness – Partnerships



Objective	Actions	Examples
Develop and further partnerships with the private sector for strategic AV testing and investment in the state	Create an office or position focused on developing private sector partnerships and encouraging investment	In Michigan, an Office of Future Mobility and Electrification was created to support partnership development and direct investment across state government

Testing & Pilots – Topics



- State-Directed Pilot
- Supporting Other Pilots/Activities
- Engagement
- Lessons Learned

Agency Readiness

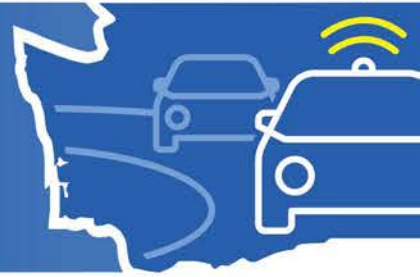
Testing & Pilots

Public Outreach

Safety

Path to Deployment

Testing & Pilots – Introduction



- State-directed, industry-led, and city/county-run AV pilots will be subject to the permitting requirements discussed in the Agency Readiness pillar
- This pillar focuses on how an AV pilot would be conducted once it is approved, in order to increase value to the State and its stakeholders
- All five pillars are interconnected and will reference each other throughout the Roadmap document

Agency Readiness

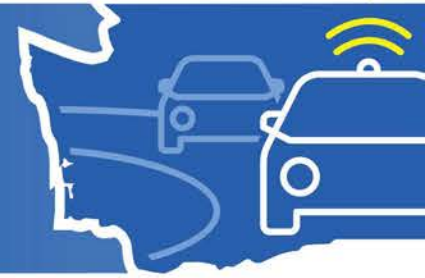
Testing & Pilots

Public Outreach

Safety

Path to Deployment

Testing & Pilots – State-Directed Pilot



Objective	Actions	Examples
<ul style="list-style-type: none">• Provide the public with the opportunity to have first-hand experience with AVs• Enable the exploration of possible operational considerations unique to Washington, in preparation for future AV deployment• Identify approaches to harnessing AV opportunities that increase equity and access	Conduct a state funded and managed AV pilot project	Utah DOT led an automated shuttle pilot project, in partnership with the Utah Transit Authority, that provided passenger service at 8 locations over 17 months. Results indicated that experiencing the technology first-hand increased rider understanding and trust of AVs.

Agency Readiness

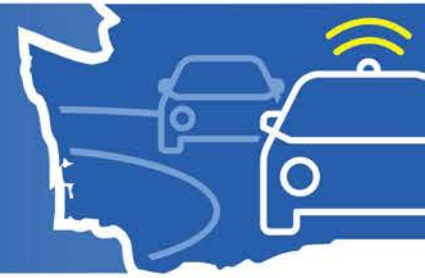
Testing & Pilots

Public Outreach

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Path to Deployment

Testing & Pilots – Supporting Other Pilots/Activities



Objective	Actions	Examples
<ul style="list-style-type: none">• Provide the public with the opportunity to have first-hand experience with AVs• Enable the exploration of possible operational considerations unique to Washington, in preparation for future AV deployment• Identify approaches to harnessing AV opportunities that increase equity and access	Create a state-led grant program to encourage local municipalities and/or companies to manage their own AV projects	Minnesota DOT created the CAV Challenge, an open and rolling procurement process through which public and private entities can propose CAV solutions to improve safety, efficiency, equity and mobility. State leaders funded 10+ projects totaling over \$5.5 million.

Agency Readiness

Testing & Pilots

Public Outreach

Safety

Path to Deployment

Testing & Pilots – Engagement



Objective	Actions	Examples
Identify approaches to harnessing AV opportunities that increase equity and access	Continue engaging with other states/jurisdictions and AV representatives on what's happening around the country and what WA can do to prepare	There are numerous lessons learned, project evaluation, and research reports sharing the findings of AV pilot projects from across the country

Agency Readiness

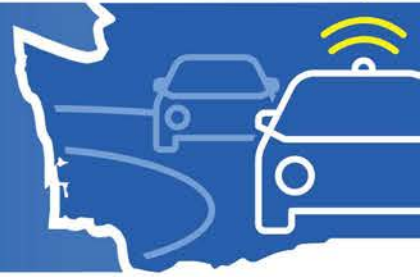
Testing & Pilots

Public Outreach

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Path to Deployment

Testing & Pilots – Lessons Learned



Objective	Actions	Examples
Document learnings from testing activities in the state to inform state agencies on resource and technical needs to support AV deployment	Commission development of a lessons learned document for any state-directed and collaborative AV testing in Washington	The Utah DOT-led pilot program included an extensive lessons learned document which outlined infrastructure needs, policy requirements, and user experience findings related to the pilot effort

Public Outreach – Topics



- Public Education
- Legislative Engagement
- Collaboration
- Equity Strategy
- Pilot Engagement

Agency Readiness

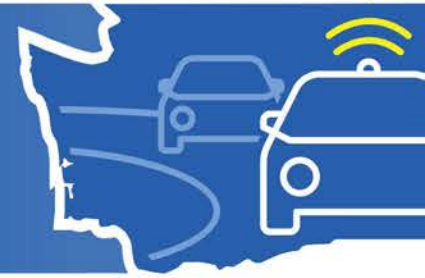
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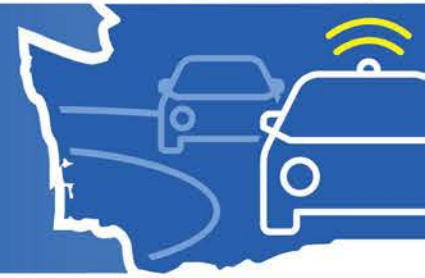
Path to Deployment

Public Outreach – Public Education



Objective	Actions	Examples
Educate and coordinate with the public to better understand the benefits and limitations of AV technologies, to encourage safe and effective deployment	Develop public outreach plans and fund outreach efforts that lay the groundwork for focus groups, public meetings, and other community events related to AV engagement and education focused around public safety	The mission of Partners for Automated Vehicle Education (PAVE), which has already been engaged by this AV Work Group, is to educate the public on AV technology

Public Outreach – Legislative Engagement



Objective	Actions	Examples
Educate and coordinate with policy makers to better understand the benefits and limitations of CAV technologies, to encourage safe, equitable, and effective deployment	Building on known legislative needs developed by this AV Work Group, develop outreach plans to educate and engage legislators	The WisDOT CAV Strategic Work Plan for 2021-2023 included a CAV Technology Communications and Outreach Strategy, with messages for local government officials and state and federal policy makers

Agency Readiness

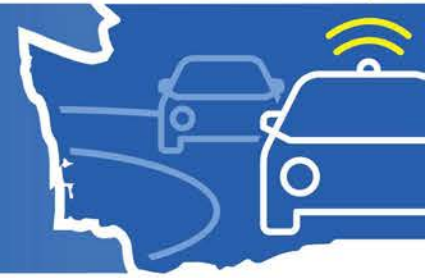
Testing & Pilots

Public Outreach

Safety

Path to Deployment

Public Outreach – Collaboration



Objective	Actions	Examples
Collaborate with peers and technology developers on ongoing developments, best practices, and consensus approaches to managing and operating AVs, and to secure grant opportunities to support testing and deployment	Actively engage in dialogues with industry organizations and representatives through working groups, conference attendance, conversations, and more	The State of Michigan had a long-running CAV Working Group to cooperatively pursue projects and other activities that are best accomplished through partnerships between multiple agencies, companies, universities, and other organizations

Agency Readiness

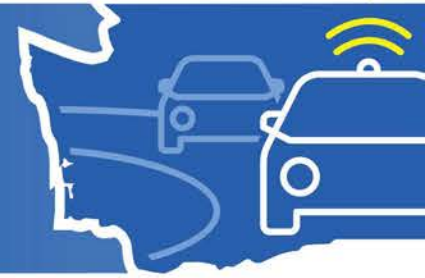
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Public Outreach

Safety

Path to Deployment

Public Outreach – Equity Strategy



Objective	Actions	Examples
<p>Pursue meaningful and comprehensive public engagement to ensure that no users of the transportation system are excluded from AV's potential benefits</p>	<p>Develop an equity strategy to engage with a diversity of community partners to understand their needs of and/or concerns with AVs</p>	<p>LYNX, the transit agency in Orlando, engaged focus groups to form an understanding of the needs of transit AVs for people with limited English proficiency, people with various disabilities, children, older adults, people with baggage or groceries, etc.</p>

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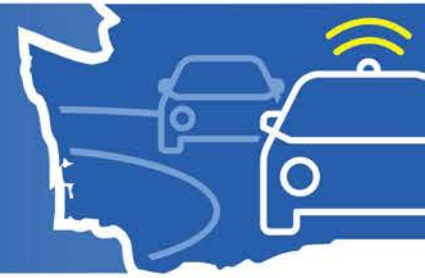
Testing & Pilots

Public Outreach

Safety

Path to Deployment

Public Outreach – Pilot Engagement



Objective	Actions	Examples
Provide the public with the opportunity to have first-hand experience with AVs	When a pilot is conducted in the state (whether state funded and managed or performed independently), integrate public engagement as a core component	Minnesota's first AV shuttle deployment was a three-day demonstration to coincide with hosting the Super Bowl. It was not technically challenging; the focus was on public engagement, which included signage, flyers, and having two staff members on board to answer questions

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Public Outreach

Safety

Path to Deployment

Safety – Topics



- Law Enforcement/First Responders
- Incident Reporting and Analysis
- Pedestrian, Bicyclist, and Other Vulnerable Road User Safety
- Infrastructure
- Data and Cybersecurity

Agency Readiness

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Public Outreach

Safety

Path to Deployment

Safety – Law Enforcement/First Responders (LE/FR)



Objective	Actions	Examples
<ul style="list-style-type: none">• Ensure that AV companies understand LE/FR needs before deploying• Ensure that LE/FRs understand how to interact with AVs	Require a LE/FR Interaction Guide that either engages each deployment jurisdiction's LE/FRs individually OR is centrally provided at the state-level, with state agency(ies) disseminating to localities	<ul style="list-style-type: none">• States with varying degrees of AV regulation require LE/FR Interaction Guides from AV companies• In addition, many AV pilots begin with a tabletop exercise that run through potential scenarios with key stakeholders, including LE/FR

Safety – Incident Reporting and Analysis



Objective	Actions	Examples
Collect data and monitor testing efforts for safety to ensure that only safe technologies continue to be tested and deployed	Develop a framework for incident reporting and a procedure for incident analysis at the state level. Start with what is collected by NHTSA and other existing sources, and determine whether state-level reporting should be required to supplement this information	Companies approved to test AVs in California need to report any collision that resulted in property damage, bodily injury, or death within 10 days of the incident

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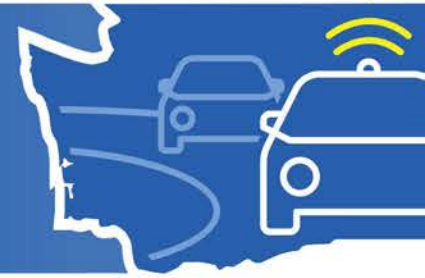
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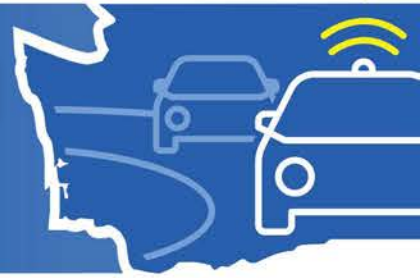
Path to Deployment

Safety – Incident Reporting and Analysis



Objective	Actions	Examples
Standardize the State's tolerance for risk for each AV deployment scenario, so only safe and tested AVs are deployed	Use incident reporting information to work towards a framework for liability by developing minimal risk profiles and liability requirements for various deployment scenarios	NHTSA has developed a framework for automated driving system testable cases and scenarios

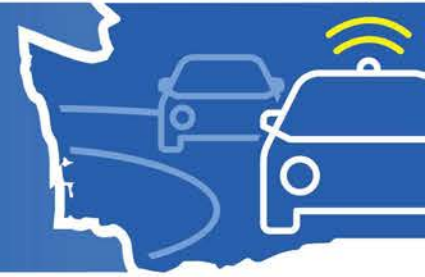
Safety – Pedestrian, Bicyclist, and Other Vulnerable Road User Safety



Objective	Actions	Examples
Set expectations of AV behavior and ensure clear understanding of AV operations by other road users	<ul style="list-style-type: none">• Conduct public outreach on any AV testing/deployment• Update road signs and guidance	The UDOT Automated Shuttle Project included many roadside signs, like the ones shown here.



Safety – Infrastructure



Objective	Actions	Examples
As infrastructure investments continue to be made, begin to consider the needs of AVs and other emerging technologies	Plan for increased investment on infrastructure components such as pavement markings, managed curb space, roadside and backhaul communications infrastructure, etc. to ensure AVs can be safely supported by infrastructure	Michigan DOT has focused on foundational CAV investments that are adaptable and can be upgraded as appropriate, such as underlying and backhaul communications, data management tools, and wider striping and other updates in conjunction with larger construction projects

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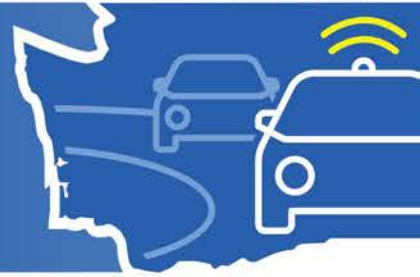
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Safety

Path to Deployment

Safety – Data and Cybersecurity



Objective	Actions	Examples
Safeguard the security and privacy of data and communications related to AVs, especially in safety-critical situations	Support initiatives that focus on data management, data security, data privacy, and cybersecurity, including network security for remote operations and policies related to personally identifiable information	WSDOT's work zone data initiative is helping the State build towards an effective data management framework, by facilitating planning and coordination of work zone impacts, and enabling lessons learned that can be leveraged for future AV data initiatives

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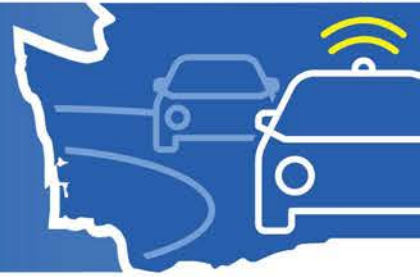
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Public Outreach

Safety

Path to Deployment

Path to Deployment – Topics



- Engagement with Industry
- Uniform National Framework
- State Regulatory Structure and Laws
- Workforce Impacts

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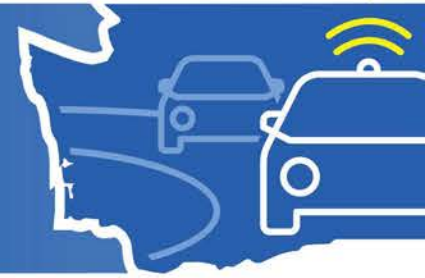
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Safety

Path to Deployment

Path to Deployment – Engagement with Industry



Objective	Actions	Examples
Provide clear expectations of regulatory agencies, supporting entities, and companies deploying AVs in Washington	Communicate on what WA can do to provide a “clear path to deployment” and take strategic steps towards this vision	The State of Texas has supported research on paths of AV deployment in the form of a strategic roadmap for state and local transportation agencies. This research proposed two paths jurisdictions could take – Revolutionary and Evolutionary – based on the perceived pace of innovation in the private sector and the resulting expectations the private sector would have of public agencies in the near-term

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Safety

Path to Deployment

Path to Deployment – Uniform National Framework



Objective	Actions	Examples
Focus on the State's role in regulating AV deployment in Washington, not preempting what should be and/or is being done at the federal level	<ul style="list-style-type: none">• Engaging with other states to work towards a uniform national framework to ensure AVs can operate across state lines• Remove State regulations conflicting with levels who have defined authority	Illinois DOT and Wisconsin DOT both received grants to develop or improve Work Zone Data Exchange feeds within their state. With USDOT's support, these have been publicized to enable other DOTs to harmonize on access to work zone data across state lines

Agency Readiness

Testing & Pilots

Public Outreach

Safety

Path to Deployment

Path to Deployment – State Regulatory Structure and Laws



Objective	Actions	Examples
Setting rules for human operator and requirements for any operation without a human operator	Pursue any necessary updates to driver's licensing, such as clarifying the need for and role of a human operator in an AV and educating drivers on interactions between AVs and conventional vehicles	Safety through Disruption (Safe-D), a project funded by USDOT and the State of Texas, published a report in 2019 on driver training research and guidelines for AVs and ADAS

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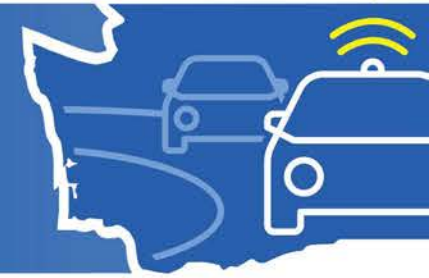
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Path to Deployment

Path to Deployment – State Regulatory Structure and Laws



Objective	Actions	Examples
Safeguard the security and privacy of data and communications related to AVs, especially in safety-critical situations	Develop data privacy and data sharing standards for any data collected by or shared with the State	A Virginia law that went into effect at the beginning of 2023 gives Virginians the right to access their data and request that their personal information be deleted by businesses, and would presumably apply to AV companies

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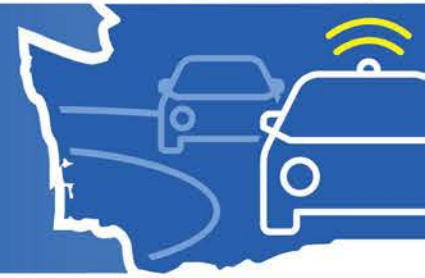
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Path to Deployment

Path to Deployment – State Regulatory Structure and Laws



Objective	Actions	Examples
Empower local agencies to deploy AVs, or allow AVs to be deployed, when they meet local needs	<ul style="list-style-type: none">• Engage with local jurisdiction authorities on their ability to deploy locally• Communicate to reduce the risk of unnecessary roadblocks that either the state or the local government could impose on the other	Smart Columbus AV shuttle project team members initially pursued City approval for microtransit operators. However, during this process, it was determined that registering with the Public Utilities Commission of Ohio instead would enable them not to have to pursue licensure at the City level, because the State’s permit supersedes that of the City. This State’s license was easier to receive, but the back-and-forth of the process led to delays

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Public Outreach

Safety

Path to Deployment

Path to Deployment – Workforce Impacts



Objective	Actions	Examples
<p>Consider the potential impacts AVs will have on the workforce and ensure the appropriate mitigations are in place to soften the transition period</p>	<p>Develop an industry-wide approach to worker advancement and stability that includes on-the-job training programs to transition workers into new roles and creates safety net programs to support worker transitions</p>	<p>The Eno Center for Transportation has published studies on the potential impacts of AVs on a variety of fields, including insurance, environment, land-use planning, and public transit</p>

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Path to Deployment

Executive Committee Member Items

Open Forum



WASHINGTON STATE
AUTONOMOUS VEHICLE
WORK GROUP



Washington State
Transportation Commission

Closing Remarks



- **Recap Today's Meeting:**

- » Action Items
- » Agreements/Decisions

- **Important Dates:**

- » October 4, 2023 – AV Work Group meeting (***voting action***)
- » December 31, 2023 – Final AV Work Group Report due to Governor & Legislature

Thank You!



WASHINGTON STATE
AUTONOMOUS VEHICLE
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Washington State
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