



Autonomous Vehicle Deployment in Arizona

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Why AVs

- 94% of road crashes include driver actions as contributing factors¹
- 37,000 fatalities occur each year on average²
- 2023 State Stats:
 - Arizona - 1,307 fatalities from 1,197 fatal crashes³
 - Massachusetts - 343 fatalities from 323 fatal crashes⁴

Potential to improve safety, mobility, efficiency,
environmental impacts, and accessibility

<https://www.azfamily.com/2025/09/14/1-person-killed-multi-car-crash-near-asu-tempe-campus/>

Why AZ

- Climate
- Infrastructure
- Regulatory Environment
- Proving Grounds



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History

- **2012** - Arizona Legislature introduces HB 2679, but bill fails to move forward.
- **2013** - Legislature introduces HB 2167. Again, bill fails to move forward
- **2015** - Governor Ducey signs Executive Order 2015-09 outlining Arizona's process for the safe testing and deployment of autonomous vehicles.
- **2017** - HB 2159: allows for the demonstration of truck platooning technology on Arizona highways.



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- **2018** - Governor issues two additional executive orders
 - Develop the nation's first **Law Enforcement Protocols** (EO 2018-04)
 - Created the **Institute for Automated Mobility** (EO 2018-09)
- **2018** - HB 2422 passes allowing for "personal delivery devices" to operate in Arizona.
- **2019** - HB2132 passes allowing for "personal mobile cargo carrying devices"
- **2021** - HB 2813 is signed into law, codifying current processes for AV testing and operations
- **2022** - SB 1333 passes for Neighborhood Occupantless Electric Vehicles



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Where we are now

- Arizona's AV authorization process⁸
 - Testing/Operating with a Driver⁹
 - Testing/Operating without a Driver¹⁰
- Testing everything from small delivery vehicles to commercial motor vehicles.
- Arizona municipalities are actively involved in the safe development of these innovations.



Images: Torc Robotics, Nuro

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- **Transportation Network Companies - Ride Hailing**

- Business registered with the Corporation Commission
- Vehicle identification
 - On file with ADOT
- App must have license plate #
- Fee disclosure in App
- Increased insurance requirements

- **Title and Registration**

- Must be titled and registered in Arizona
- Fleet Registration

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Companies

- Aurora
- Gatik
- Stack
- Waymo



Images: Gatik, Waymo, Stack

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Lessons Learned

- Communication and is key.
- Collaboration with the manufacturers, various levels of government and the community is critical.
- Metrics for data collection are vital.

Wide variety of stakeholders, including (especially) cities and first responders, should be included in the AV testing/deployment and data collection needs to be a collaboration!¹⁴



Where we're going

- Enhanced Data Collection
 - What AV data are valuable?
 - SAEJ3237 Recommended Practice on Driving Assessment metrics⁸
 - First Responder reporting
- Possible codification of reporting requirements in Arizona

Taxonomy	Metric
Black Box	Safety Envelope Metrics: 1. Safety Envelope Ratio Violation 2. Safety Envelope Infringement 3. Safety Envelope Violation 4. Safety Envelope Restoration Time Violation
	Crash Violation
	Lane Departure Violation
	Traffic Law Violation
	Aggressive Acceleration Violation
	Compliance Error Rate to Human Traffic Controller Directions
	Event Response Time Violation
Grey Box	[Inside the ODD] ADS DDT Non-Execution Violation
	[Outside the ODD] ADS DDT Execution Violation
	Intervention Request/Prompt to Take Over Violation
White Box	Instantiation of Behavioral Competency Violation
	Identification Error Rate to Human Traffic Control Directions
	ODD Recognition Violation
	Salient Object Distance Calculation Error Rate

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