

October 19, 2023

# Advanced Mobility: An Innovation Engine in Arizona

**ARIZONA**  
COMMERCE AUTHORITY





### Semiconductor Manufacturers & Suppliers



### Aerospace & Defense



### Cybersecurity



### Optics & Photonics



### Medical Technology



### Automated & Electric Vehicles



### Data Centers



### Battery & Energy Storage





APRIL 2015

Governor Doug Ducey signs a bill legalizing ridesharing services in Arizona.

MARCH 2016

Ford conducts trials with its automated Fusion hybrid at Arizona's Proving Grounds in Wittmann, Arizona.



AUGUST 2016

GM and Cruise Automation bring its all-electric Chevy Bolts to Scottsdale, Arizona, as part of automated vehicle trial.



2017

APRIL 2016

Governor Ducey and Google's automated vehicle program, Waymo, announce the launch of driverless car testing in Arizona, offering free rides in its Lexus RX 450h or Chrysler Pacifica Hybrid minivan to East Valley volunteers.



AUGUST 2017

After announcing the acquisition of Israeli auto-visual company Mobileye, Intel announces it will build a fleet of Level 4, highly automated vehicles for testing, and Arizona will be home to its first vehicle deployment.



2018

NOVEMBER 2017

Waymo's CEO announces Arizona as the global testing location for its automated vehicles with the use of a public trial called the Early Rider Program.

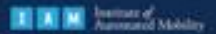
AUGUST 2017

ADS developer for commercial, heavy-duty vehicles TuSimple opens an office in Tucson, Arizona to test and demonstrate its vehicles along I-10.



OCTOBER 2018

Governor Ducey issues new Executive Order creating the Institute of Automated Mobility (IAM), housed under the Arizona Commerce Authority.



AUGUST 2018

Nuro launches an autonomous delivery service in partnership with Fry's Food in Scottsdale, Arizona.



2019

FEBRUARY 2019

Udellv begins pilot with Walmart to deliver groceries in its autonomous delivery van in Surprise, Arizona.



DECEMBER 2018

The University of Arizona partners with state and local government agencies to help Southern Arizona become an industry leader in smart vehicle and intelligent transportation technologies. The group, Smart Vehicles and Intelligent Transportation (SVIT), is a P3 partnership.



SEPTEMBER 2018

TuSimple announces the expansion of its testing and manufacturing facilities in Tucson, Arizona.

MARCH 2019

Nikola Motor Company buys land in Coolidge, Arizona for its hydrogen fuel cell and battery-electric heavy duty truck manufacturing facility.



AUGUST 2019

UPS Ventures makes a minority investment in TuSimple to test an automated-vehicle route in Arizona to improve efficiency for UPS deliveries.

DECEMBER 2019

Lucid Motors breaks ground on its manufacturing facility in Casa Grande, Arizona, that will produce the Lucid Air electric sedan.



MARCH 2020

Nikola Motor Company and VectorIQ merge to become Nikola Corporation, the first publicly-traded hydrogen fuel cell and battery-electric heavy-duty truck manufacturer.

MARCH 2020

TuSimple and UPS announce the expansion of their automated-vehicle delivery routes with new trips between Phoenix, Arizona, and El Paso, Texas, along with more routes between Phoenix and Tucson, Arizona.

AUGUST 2015

Governor Ducey signs an Executive Order supporting the testing and operation of automated vehicles, making Arizona the first state to support the testing and operation of automated vehicles.



OCTOBER 2019

State Farm becomes the first insurance company to partner with IAM.



JUNE 2019

Pima Community College and TuSimple announce the launch of the first-of-its-kind automated driving certificate program to equip truck drivers with the knowledge and skills to expand their roles in this new and rapidly expanding industry.



JUNE 2020

Rivian tests its R1T electric pickup in the Arizona desert to reveal its off-road potential.



MARCH 2020

IAM and the Greater Phoenix Smart Region sign an MOU to collaborate on planning the physical infrastructure necessary to facilitate the scaled, efficient deployment of connected and automated vehicles, with a focus on electric vehicles.





OCTOBER 2020

Waymo launches fully driverless service to the general public in Phoenix.

NOVEMBER 2020

Tucson-based self-driving tech company Lunewave receives \$7 million investment.



MARCH 2021

UACJ Automotive Whitehall Industries selects Flagstaff, Arizona for its new electric vehicle parts manufacturing plant.



APRIL 2021

Li-Cycle announces it will build its third and largest commercial lithium-ion battery recycling facility in Gilbert, Arizona.



JUNE 2021

Atlis Motor Vehicles announces production of its AMV battery cell at its headquarters in Mesa, Arizona.



JULY 2021

Exro Technologies announces Mesa, Arizona as the location of its U.S. headquarters for its power electronics manufacturing used in EV mobility from commercial trucks to scooters.



SEPTEMBER 2021

IAM team members awarded the 2020 Trevor O. Jones Outstanding Paper Award for pioneering work on automated vehicle safety metrics.



SEPTEMBER 2021

Lucid Motors kicks off production of its Lucid Air Dream Edition at its AMP-1 facility in Casa Grande, Arizona.

DECEMBER 2021

TuSimple logs first fully autonomous run on an 80-mile route from Tucson to Phoenix.

FEBRUARY 2022

ElectraMeccanica announces initial fleet purchase of 20 SOLO Cargo EVs with production expected to begin in summer 2022.

APRIL 2022

LG Energy Solution invests \$1.4 billion to build its first-ever cylindrical-type battery manufacturing facility in North America in Queen Creek, Arizona.



MAY 2022

Li-Cycle launches commercial operation at its lithium-ion battery recycling facility in Gilbert, Arizona.

MAY 2022

Waymo launches self-driving car pilot program in downtown Phoenix.

AUGUST 2022

Waymo debuts rider-only services in downtown Phoenix.

SEPTEMBER 2022

Atlis Motor Vehicles stocks soar on debut day on the Nasdaq Stock Market.

OCTOBER 2022

TuSimple celebrated the expansion and grand opening with of its new Tucson Facility.

OCTOBER 2022

Nikola Motors announces plan to build a hydrogen production hub in south Buckeye.



2021

2022

SEPTEMBER 2020

Lucid Motors, at unprecedented speed, completes construction of its manufacturing facility in just 9 months, revealing production version of the electric sedan, Lucid Air.



MAY 2021

ElectraMeccanica breaks ground on new assembly facility and engineering technical center in Mesa, Arizona.

MARCH 2021

ElectraMeccanica announces it will establish its U.S.-based assembly facility and engineering technical center in Mesa, Arizona.



JULY 2021

Lucid Motors becomes a publicly listed company on Nasdaq under LCID and LCIDW.

JULY 2021

KORE Power announces the first lithium-ion battery plant owned by a U.S. company will be located in Buckeye, Arizona.



DECEMBER 2021

Lucid Motors is added to the Nasdaq-100 Index five months after becoming a publicly-traded company in July 2021.

SEPTEMBER 2021

Exponent partners with IAM for engineering partnership that develops evaluation metrics and methods for automated vehicles.



SEPTEMBER 2021

Zero Electric Vehicles announces plans to build its headquarters and production center in Gilbert, Arizona.



APRIL 2022

Nikola launches commercial serial production of its Tre BEV at its advanced manufacturing facility in Coolidge, Arizona.

MAY 2022

Atlis Motors Vehicles announces plans to become a publicly traded company in summer 2022 under the ticker symbol AMV.

OCTOBER 2022

Atlis Motor Vehicles strikes deal to sell 19,000 trucks to Australia-New Zealand firm.

SEPTEMBER 2022

Pony.ai announces plans to begin testing autonomous vehicles in Tucson.



NOVEMBER 2022

Waymo's autonomous vehicles expand operations from downtown Phoenix to Sky Harbor Airport.



SEPTEMBER 2022

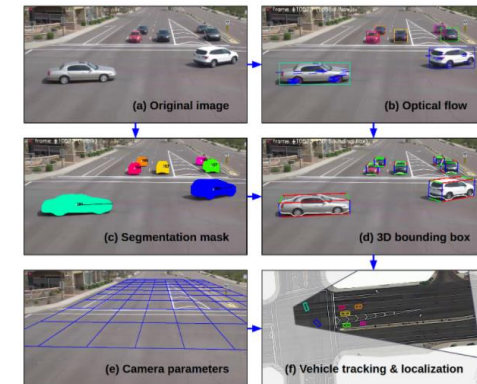
Arizona is part of the first group of states to receive federal funding for electric vehicle charging infrastructure.

## A public-private partnership

- position AZ as a leader in safe commercial deployment of advanced mobility technologies
- transform use inspired research into economic development by supporting new startups and mobility breakthroughs
- support information and best practice sharing events

## A “industry-driven, government supported, technology neutral” approach

- provide access to infrastructure for entrepreneurs to prove their concepts
- minimize risks with new technology adoption and first look for public sector
- explore new market opportunities
- foster professional skills development for students





ARIZONA  
FORWARD

## Umbrella Organization

There is a role to play for a neutral umbrella organization in the state which could provide on-going information to stakeholders regarding changes in technology, policies, best practices and other potential benefits. This organization may also:

- Facilitate an information **exchange between municipalities and technology companies**.
- Provide information and support for **grant funding**.
- Assemble tools and best **practices to assist communities** in evaluating the best way forward for their situation, needs and priorities.
- Focus on providing **public entities such as first responders** the information and resources needed to begin training and education to remove the current questions and ambiguity.
- Explore the opportunities and drawbacks surround cyber security and **data ownership**.
- Identify **additional professions** who could be consulted to identify strategies to reduce disruptions.

In conclusion, there is currently a wide gap between AV/CV concept and reality for most Arizonans. Consistent education, involvement and awareness will help shorten the gap as AV/CV continues to mature.

# SMART GRANT



Shaping the future of transportation safety, science, and policy

## Strengthening Mobility and Revolutionizing Transportation



**\$1.7 MILLION**  
TO DIGITIZE ARIZONA  
ROADWAYS FOR VEHICLE TO  
EVERYTHING TECHNOLOGY

# A Sample of Unmanned Aerial Systems (UAS) Activities

## Diverse Use Cases

- Transportation, Public Safety, State Land, Commerce

## Information Sharing Events

- 2019 How to grow a UAS program & What UAS can work for you Forum
- 2019 UAS Regulatory Panel
- 2020 Pinal County, High Traffic Intersection Assessment, Brown Bag Luncheon
- 2020 UAS for Traffic Incident Management Session
- 2021 Arizona UAS 2-Day Virtual Forum with USDOT, OH, UT, CA, TX, NC + 8 Tribal Nations
- 2023 Navajo Nation & FAA's Drone On 3 day (students & educators; public safety & public sector)
- 2023 Honeywell's AAM Summit & Upcoming "Discover the Future of Sustainable Travel with Honeywell" (Oct 18, Webinar)
- 2-23 National Academies & TRB Project (NCHRP 23-20) develop a Guidebook for Implementation of UAS Operation Capabilities (include UTM, AAM with focus on state DOTs)

## Education & Workforce Development

- ASU Drone Studio & ERAU Training Lab
- Yavapai, Cochise, Chandler and Arizona Western Community Colleges
- High School CTE programs
- Potential focus in future A&D accelerator



# Advanced Air Mobility

## 2018 NASA & FAA Grand Challenge

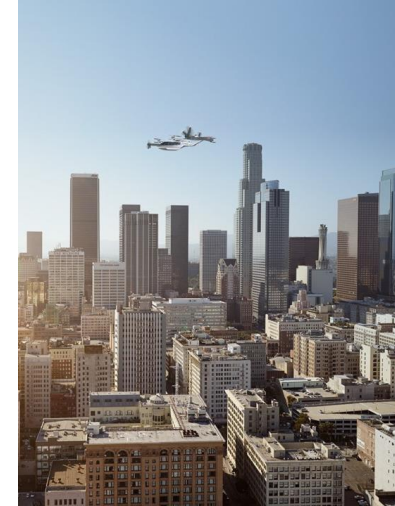
- Study of 10 Metros Phoenix-Mesa Metro stood out with favorable regulatory and weather conditions & anticipated to be an early adopter.

## 2022 Honeywell's UAS and AAM Lab

- Headquartered in north Phoenix, goal to have air taxi make 100-mile trip in 45 minutes and provide same day package delivery to 20% of US that does not have this service.

## Key Areas for AAM Implementation

- Prioritizing Community and Citizen Integration
- Managing AAM Traffic
- Building Scalable Infrastructure
- Designing Robust Security
- Developing AAM Vehicles
- Bolstering Workforce Development



# THANK YOU

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