



NOT IN THE DRIVER'S SEAT

How do we move forward in Arizona as autonomous vehicles change the landscape of transportation?

By ERIN THORBURN

Once autonomous vehicles could only be found in fiction — like an episode of “The Jetsons.”

With Gov. Doug Ducey’s Executive Order 2015-09 approving the testing and development of automated vehicles in Arizona, self-piloted cars are now transitioning from fiction to fact. And, while more recent cinematic depictions of autonomous vehicles — like “iRobot” — portray vehicles with minds of their own, or on “Silicon Valley,” where misfortune-shrouded “Jared” is trapped and shipped to an obscure island, seem to paint a bleak outlook of autonomous vehicles, the reality of autonomous cars in Arizona is actually quite the opposite. How will the exciting advent of autonomous cars impact our roadways and environment?

NOT QUITE AS COOL AS KITT, NOT NEARLY AS SCARY AS HAL

For all the anecdotal examples of driverless cars, not everyone interprets autonomy with optimism. For those who’ve watched “2001: A Space Odyssey” too many times, the thought of a machine that drives itself may elicit an adverse reaction. After all, hasn’t research demonstrated that artificial intelligence (AI) can develop an affinity for disobeying the wills of man? Before lamenting: “Open the pod bay doors, HAL!” consider a few common misnomers of autonomous vehicles.

“Some people are concerned about letting a machine make decisions for them and they express their continued desire to be a driver,” explains, national lead of transportation technology for

HDR. “I would say that if you bought a new vehicle in the last five years, you are already being assisted with driving tasks; especially in the case of having a Level-1 autonomous vehicle.”

Aside from self-piloted cars going rogue, other concerns center on potential safety and environmental concerns. Just how safe will autonomous vehicles be on our Arizona roadways?

“We all focus on the car,” says Lauren Evans, Pinyon Environmental’s president and CEO. “There has been less discussion concerning how roadways are constructed or in compliance with precise measurements and radars in conjunction with how autonomous vehicles will operate. Policy issues may need to be more vetted.”

As for the environment, there are many positives to consider, according to Pierce, Evans and Gregory Rodriguez, of counsel for Best Best & Krieger.

HARMONY ON ARIZONA'S HIGHWAYS

"Transportation harmony," describes Rodriguez, is what we can expect to see in the manifestation of minimized congestion on roads, reduction in greenhouse gas emissions and increased productivity as a result of autonomous vehicle integration.

"This productivity can come in many different ways," Rodriguez explains. "More time working while commuting. Less time sitting in traffic. Less time commuting so that more time can be spent with family."

Harmony on the roadways will also be demonstrative in ease of traffic.

"More autonomous vehicles will mean fewer people sitting in traffic, which will, in turn, eliminate emissions," Evans says.

"We know that we can expect to see an increase in capacity and safety as a result of autonomous vehicles," Pierce adds. "For example, we should see speed on freeways begin to harmonize and idling time at intersections to be greatly reduced."

EXPLORING AUTONOMOUS VEHICLES AND INFRASTRUCTURE

While much ground has been covered on the mechanics, safety and environmental impacts of autonomous vehicles during the current pilot and testing phase, going back to Evans' earlier assertion concerning deeper refinement of policies, there continues to be much left to explore in regard to infrastructure.

"It's still too early to tell what type of infrastructure will be needed to support the safe operation of automated vehicles," Rodriguez says. "What does make Arizona interesting is that it has wide roads with large lanes. This may provide an opportunity for managed lanes for automated vehicles that are separated from normal traffic at the outset."

Rodriguez says the result of this separation could very well provide an opportunity to avoid the difficulties that are expected in a "mixed-use" world, where you have traditional and automated vehicles operating at the same time on roadways.

There are other elements of surrounding infrastructure to consider, such as parking areas and structures.



Lauren Evans



Ben Pierce



Greg Rodriguez

"There is a belief that there will not be a need for parking garages," Evans says. "Thinking ahead, there is discussion on how current structures can be repurposed. For example, parking garages are usually sloped. If they are built flat, they can later be converted to condos."

Arizona will still have roads, bridges, highways and other infrastructure, as Pierce points out, but this infrastructure will no longer be static.

"It will change with demand and conditions to optimize travel, such as modular lanes that dynamically reconfigure from 12-foot- to 10-foot-wide lanes," he says, "and it will happen seamlessly and be communicated directly to your vehicle!"

Other key factors to contemplate with the implementation of autonomous vehicles in tandem with Arizona's existing infrastructure will be further refined with the involvement from ADOT and Valley Metro (among other similar agencies), a crucial piece to successful assimilation, according to Rodriguez.

"As seen in the Phoenix area and across the country, billions of dollars are being invested in our public transportation systems through modernization and extensions," Rodriguez says. "Hopefully, we can make sure automated vehicles work in conjunction with public transportation projects to help people get to transit through 'First/Last Mile' projects, rather than on-demand-mobility and automated vehicles competing with public transportation options."

LAW OF THE LAND OF AUTONOMOUS VEHICLES

As key topics of safety, environment and infrastructure circulate in respect to driverless cars, so do legal ramifications.

"Automated vehicles cross legal borders and will require a rethinking of existing laws," Rodriguez says. "For example, recently watching a YouTube video depicting someone intoxicated and riding on top of a fully automated car at a low speed calls into question whether that person can be charged with a DUI since they were technically not operating the vehicle at the time of being stopped and were not even in the driver's seat for that matter."

This also brings to mind the safety of pedestrians and cyclists. Take, for example, the "Complete Streets" initiative, designed to not only improve accessibility for pedestrians, cyclists and other alternative forms of transportation, but also increases livability, comfort and convenience of Arizona's roadways. It has the potential to increase city investment by providing a "low relative cost per improved mile."

"The street accommodates more than simply cars," Evans says. "One of the things we want to make sure of, is that Complete Streets will take into consideration the relationship our streets will have with autonomous vehicles."

"Our laws were drafted at a time when drivers were contemplated," Rodriguez adds. "We will need to rewrite our vehicle codes to accommodate automated vehicles and the new legal issues that technology brings with it, including privacy and cybersecurity concerns. We are working with clients to evaluate whether reviewing and revising existing codes is the right approach, or whether new 'innovation' codes should be prepared to avoid legal inconsistencies."

Experts agree that integrating autonomous vehicles will be a process of patience on part of everyone – from passenger to pedestrian to policymaker. **AB**