



# AUTONOMOUS VEHICLE IMPLEMENTATION



**Chandler + Arizona**  
*Where Values Make The Difference*

ECONOMIC DEVELOPMENT DIVISION



“The GM *Futurama* exhibit at the 1939 World’s Fair in New York piqued the collective American and world imagination. Among other wonders, it promised that the United States would have an automated highway system and foretold the coming of a fundamental revolution in the surface transportation of passengers and freight.”

Sources: Autonomous Vehicle Technology – A Guide for Policymakers (RAND Corporation, 2016)

# WHY SUPPORT AV ADOPTION?

Play a part in bringing about important societal changes

- Safety: reduced frequency of crashes (95% caused by driver error)
- Mobility: greater independence for the elderly, blind, disabled and youth
- Land Use: opportunity to eliminate parking, increase densities and improve development options



# WHY SUPPORT AV ADOPTION?

Expected to create significant economic impacts

- Many of the largest companies in the world are involved in AV tech
- The “Passenger Economy” enabled by the use of AVs is projected to be worth \$7 trillion by 2050, according to a study commissioned by Intel<sup>1</sup>
- Employs skilled workers – AV engineer salaries often above \$200,000



Source: Accelerating the Future: The Economic Impact of the Emerging Passenger Economy (Strategy Analytics, 2017)

# WHY IS CHANDLER AN AV HUB?

The right climate and driving conditions for data collection

- Waymo established its test sites in diverse climates: Arizona heat
- Urban and suburban landscapes
- Highways and city streets
- Varied driving conditions: dry, rain, dust storms



# WHY IS CHANDLER AN AV HUB?

Feelings about self-driving vehicles and political support

- City is committed to being a great place to do business
- Governor has taken a leadership position; City wanted to support the state's initiatives on AV
- Mayor and Council members are enthusiastic about advancing AV
- City has decided to take a partner approach and not be bureaucratic



# WHY IS CHANDLER AN AV HUB?

Already recognized as a tech community

- Known as the “Innovation and Technology Hub” of the Southwest
- City has always been open to cutting edge technologies
- Residents are enthusiastic, early adopters of technology – Google/Waymo’s open house in 2016 attracted 2,000 attendees



# AV INDUSTRY PLAYERS



COMMERCIAL REAL ESTATE CONFERENCE  
 SEPTEMBER 26-28, 2016 | Fairmont Scottsdale Princess | Scottsdale, Arizona



— Presence in Chandler

# CHANDLER AUTO TECH



**Waymo:** Selected Chandler as one of four test sites nationally for its self-driving car project. The company maintains and analyzes a fleet of self-driving prototype vehicles at a facility in Chandler. Waymo launched an early rider program, a public trial of its self-driving vehicles, and plans to implement commercial service in Chandler by the end of calendar year 2018.



**NXP:** NXP covers the complete self-driving portfolio with solutions that sense, think and act. Products include radar-based ADAS semiconductors, secure vehicle-to-everything (V2X) communication technologies, vision processors, sensor fusion solutions, and smart actuators for motor control, power/battery management and other applications.



**Maxim Integrated:** Helping to accelerate innovations in transportation by supplying a wide variety of automotive qualified integrated circuits for use in areas such as power and battery management, high-speed signaling, sensors and wireless communications.



**Rogers Corporation:** Headquartered in Chandler, the company is a supplier of specialty materials for automotive applications both internal and external. Products include ceramic substrates, high frequency PCB substrates, high performance gaskets, power connectivity and distribution, and vibration management foams.



**Arm:** Arm architecture is a key enabler of automotive technology. Arm's role in autonomous driving is to design power-efficient, high-performance compute platforms with safety in mind from the ground up, which is critical for the deployment of autonomous vehicles at scale.



**Intel/Mobileye:** Established its Automated Driving Group in Chandler. Intel is collaborating with the world's leaders in automotive design and technology to turn visionary concepts for automated driving into reality. Waymo vehicles feature Intel-based tech for sensor processing, general compute and connectivity, enabling real-time decisions for full autonomy.



**General Motors:** The company's Arizona IT Innovation Center is one of only four in the U.S. In Chandler, a development team is working on the future of personal mobility as part of GM's urban active solutions group. The group's efforts includes a partnership with Lyft to develop and test autonomous vehicles in mobility services.



**Microchip Technology:** Develops automotive connectivity and human machine interface (HMI) solutions. Microchip's touchscreen controllers for large screen HMI designs bring the experience of multi-touch HMI, like on a mobile phone, to car drivers and passengers.



**Garmin:** A pioneer in developing advanced navigations systems for automotive, marine and aviation applications. Garmin is a leader in stand alone GPS devices and integrated navigation systems for many of the largest automotive manufacturers.



**Local Motors:** The ground mobility company has retooled its Chandler area microfactory to focus on building its Olli self-driving shuttles. The facility now functions as Local Motors' main Olli build floor. The company has a goal of producing 50 Ollis by the end of 2018.

# HOW WE SUPPORT AV R&D

Being a leader and providing assistance to industry partners

- City has performed joint testing with Waymo to ensure their AVs respond properly to emergency vehicles
- City Council approved zoning code amendments to support AV and ride-sharing implementation



## Proposed Zoning Code Amendments

Amend Article XVIII Parking and Loading Regulations to:

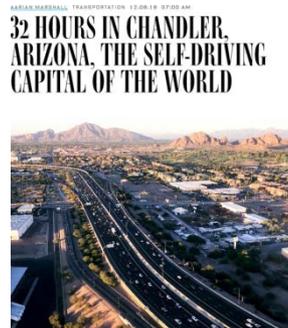
- Allow parking reductions based on parking demand studies
- Encourage passenger loading zones



# HOW WE PROMOTE CHANDLER

Broadcasting our message to the AV industry

- Promoting Chandler opportunities at AV conferences and events
- Networking with AV companies and trade groups at industry trade shows
- Interviews with regional, national and global media promoting the City as an AV hub
- Distribution of marketing pieces highlighting Chandler's AV advantages



# QUESTIONS?



**City of Chandler**

*Economic Development*

Mail Stop 416

PO Box 4008

Chandler, Arizona 85244-4008

480 782 3030 / 888 663 2489

[www.chandleraz.gov/ED](http://www.chandleraz.gov/ED)

**Chandler - Arizona**

*Where Values Make The Difference*

CHANDLER CITY HALL