

# Planning for Autonomous Vehicles

What, when and the implications for transportation planning



MAG Management Committee



8/10/2016



*Advertisement from 1957 for “America’s Independent Electric Light and Power Companies” (art by H. Miller).*





**DESERT DOPPLER**

**HAPPENING NOW**  
**GOOGLE BRINGS SELF-DRIVING CARS TO THE VALLEY**  
**COMPANY WILL SEE IF CARS CAN WITHSTAND ARIZONA SUMMERS**

**abc 15**  
**ARIZONA**  
6:10 87°



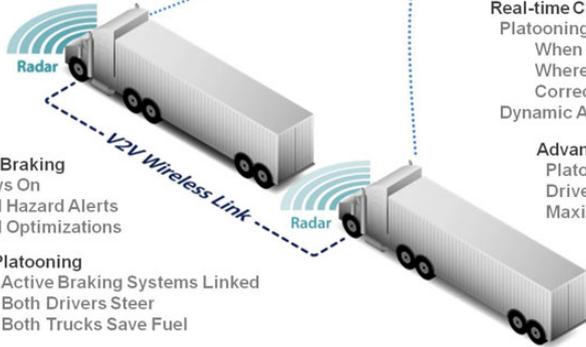
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# Connecting Trucks



**Real-time Cloud Supervision**  
Platooning Only:  
When Safe  
Where Safe  
Correctly Ordered  
Dynamic Adjustment to Conditions

**Advanced Data Products**  
Platooning Sensor Data  
Driver, Vehicle and Route  
Maximize Context



**Active Braking**  
Always On  
Cloud Hazard Alerts  
Cloud Optimizations

**Platooning**  
Active Braking Systems Linked  
Both Drivers Steer  
Both Trucks Save Fuel



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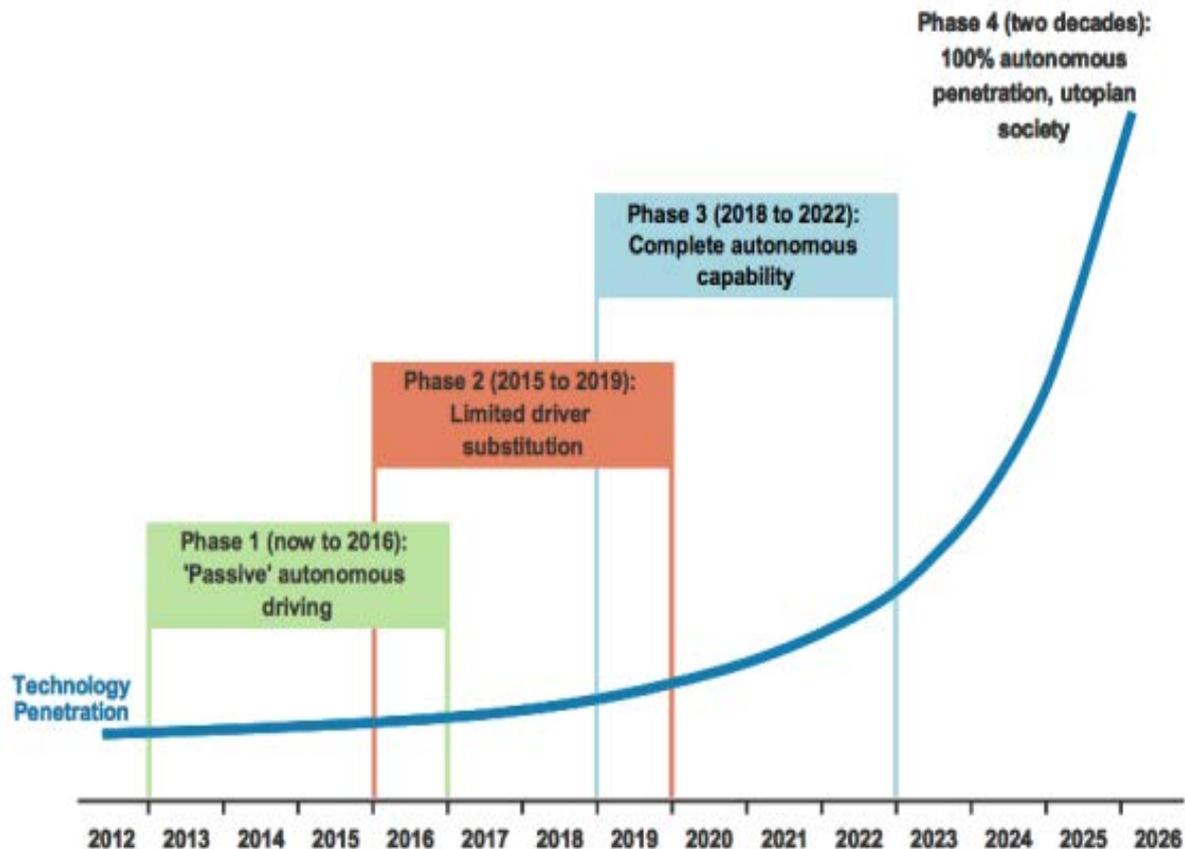
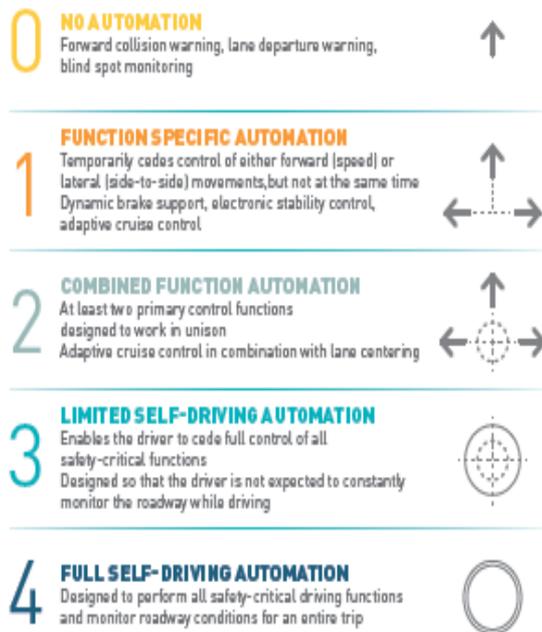


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## Timeline for Adoption

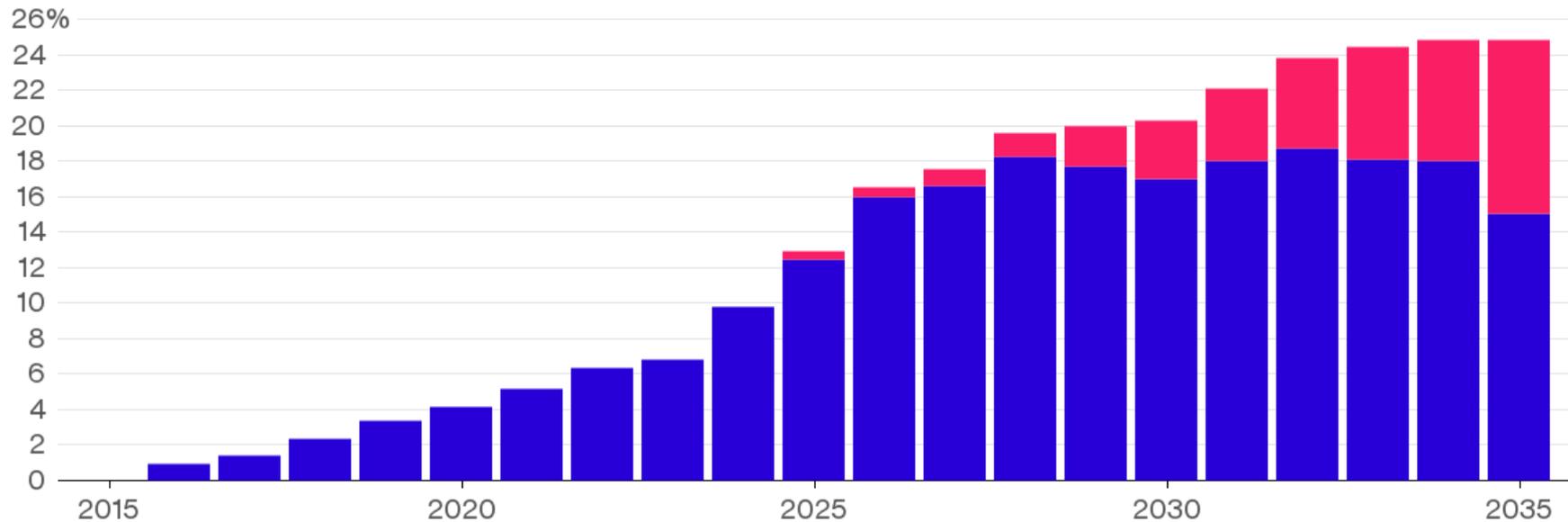
## LEVELS OF AUTOMATION



# Autonomous Car Sales Will Surge By 2035

The cars will represent 25 percent of the global market

■ Partially autonomous cars ■ Fully autonomous cars



Source: The Boston Consulting Group

Note: 2015 data

# What does this mean?

## PLANNING FOR CONNECTED AND AUTONOMOUS VEHICLES

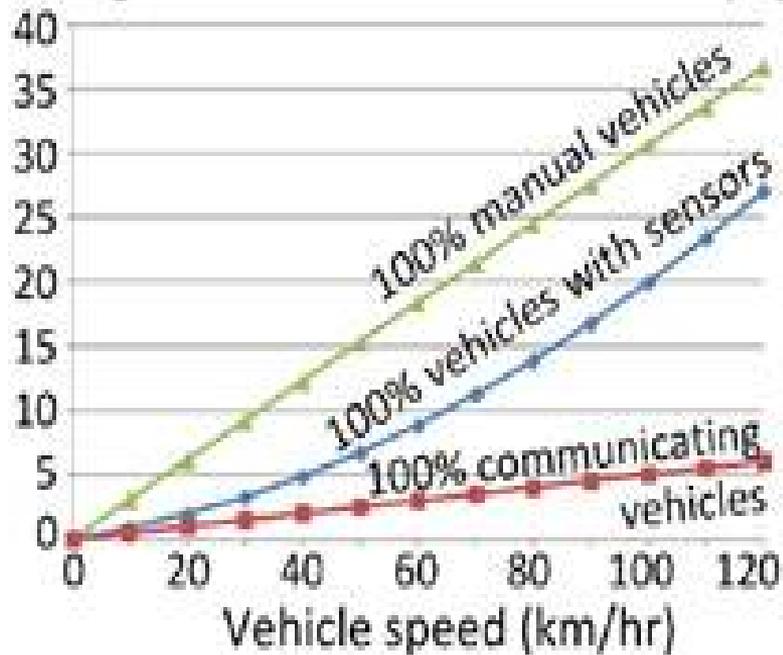
### Engineering

- ❖ Traffic Engineering.
- ❖ Roadway Design.
- ❖ Speed Limits.
- ❖ Parking.
- ❖ Freight Operations.
- ❖ Safety.

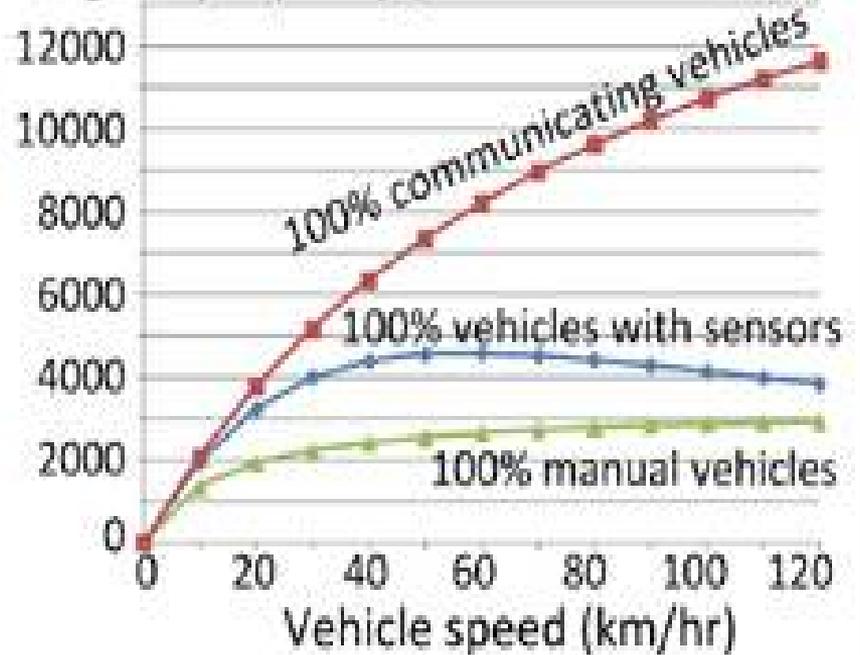
### Planning and Policy

- ❖ Long Range Transportation Plans.
- ❖ Land Use and Urban/Rural Form.
- ❖ Impact Assessment.
- ❖ Driver Education and Licensing.
- ❖ Vehicle Regulation.
- ❖ Insurance and Liability.
- ❖ Safety.

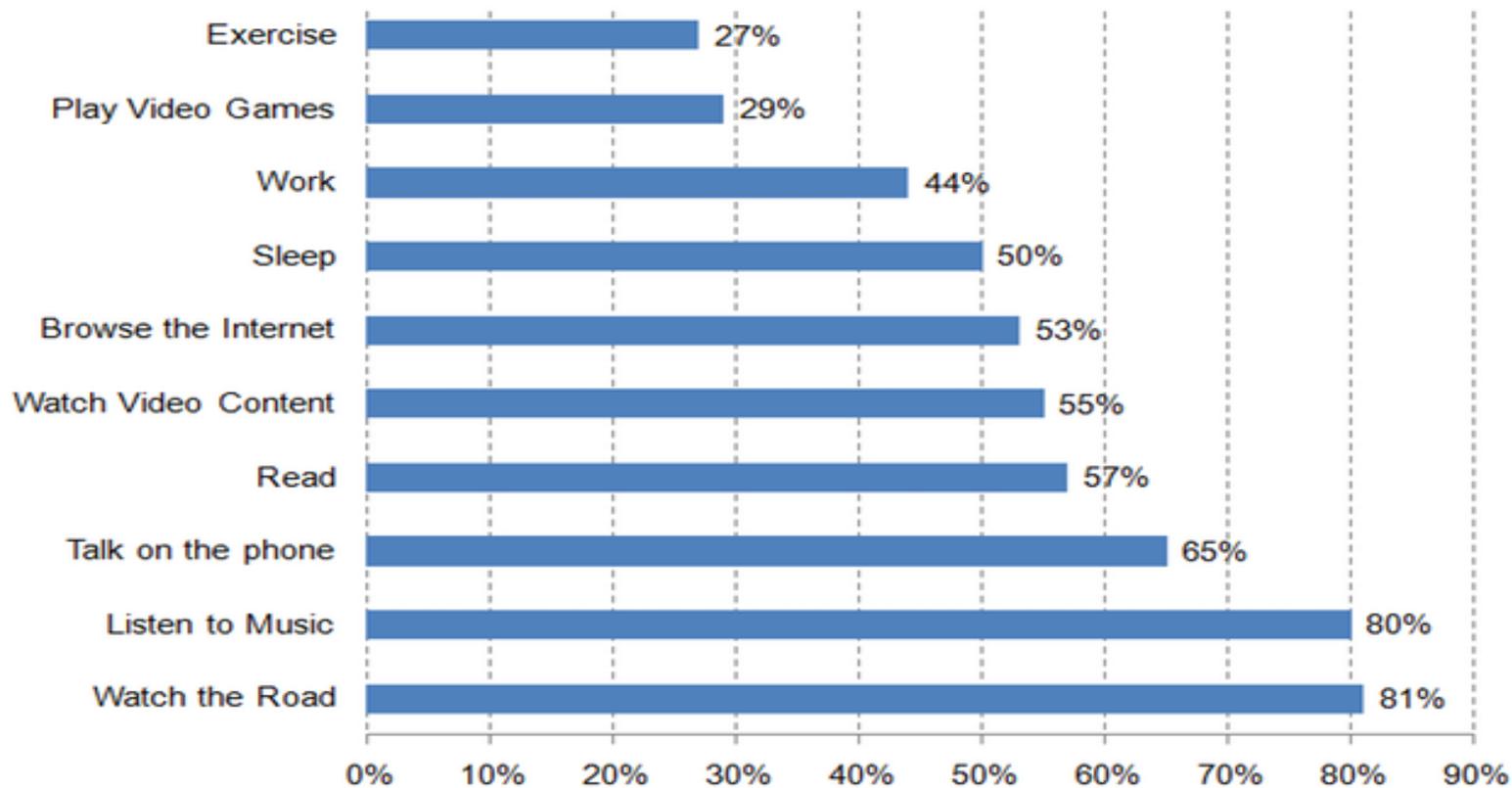
Average safe inter-vehicle distance (m)



Highway capacity (vehicles/hour/lane)

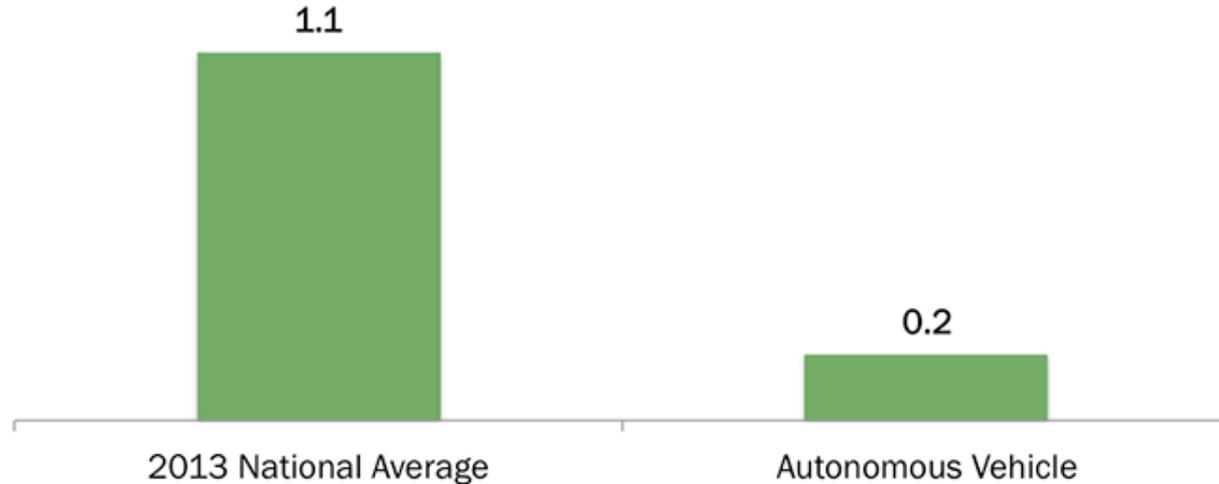


## Preferred Passenger Activities in Self-Driving Cars



## U.S. Fatality Reduction Expected with Autonomous Vehicles

(Units in deaths per 100 million vehicle miles traveled)



## Estimated Auto Insurance Costs: Self-Driving Vs. Human-Driven Cars Of Same Model (Self-Driving Price In Red)

