CONNECTED & AUTONOMOUS VEHICLES

ITTC BREIFING

MARCH 2017

ERIC POLLARD, CLEAN CITIES COORDINATOR

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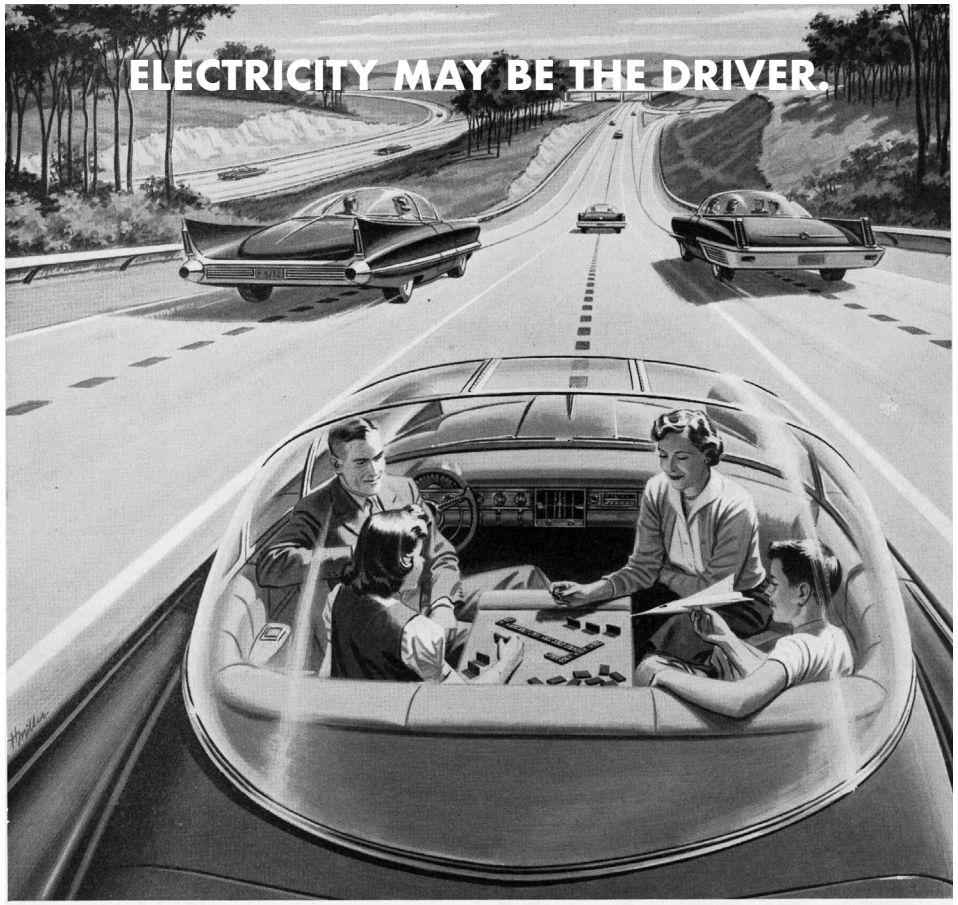
NOT A NEW IDEA...



ELECTRICITY MAY BE THE DRIVER. One day your car may speed along an electric super-highway, its speed and steering automatically controlled by electronic devices embedded in the road. Travel will be more enjoyable. Highways will be made safe—by electricity! No traffic jams . . . no collisions . . . no driver fatigue.

2025
Autonomous vehicles

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RECENT NEWS

- The self-driving revolution will be mostly electric (9/21/16)
- Volkswagen says it will have an electric self-driving car by 2025 (10/6/16)
- Nissan, Renault, and Microsoft partner to develop technologies to support the launch 10+ vehicles with autonomous driving technology by 2020 (9/26/16)
- Uber Debuts Self-Driving Cars in Pittsburgh (9/14/16)
- Volvo will hand over this self-driving SUV to a Swedish family next year (9/14/16)
- Ford: Robotaxis in 2021, Self-Driving Cars for Consumer 2025 (9/12/16)

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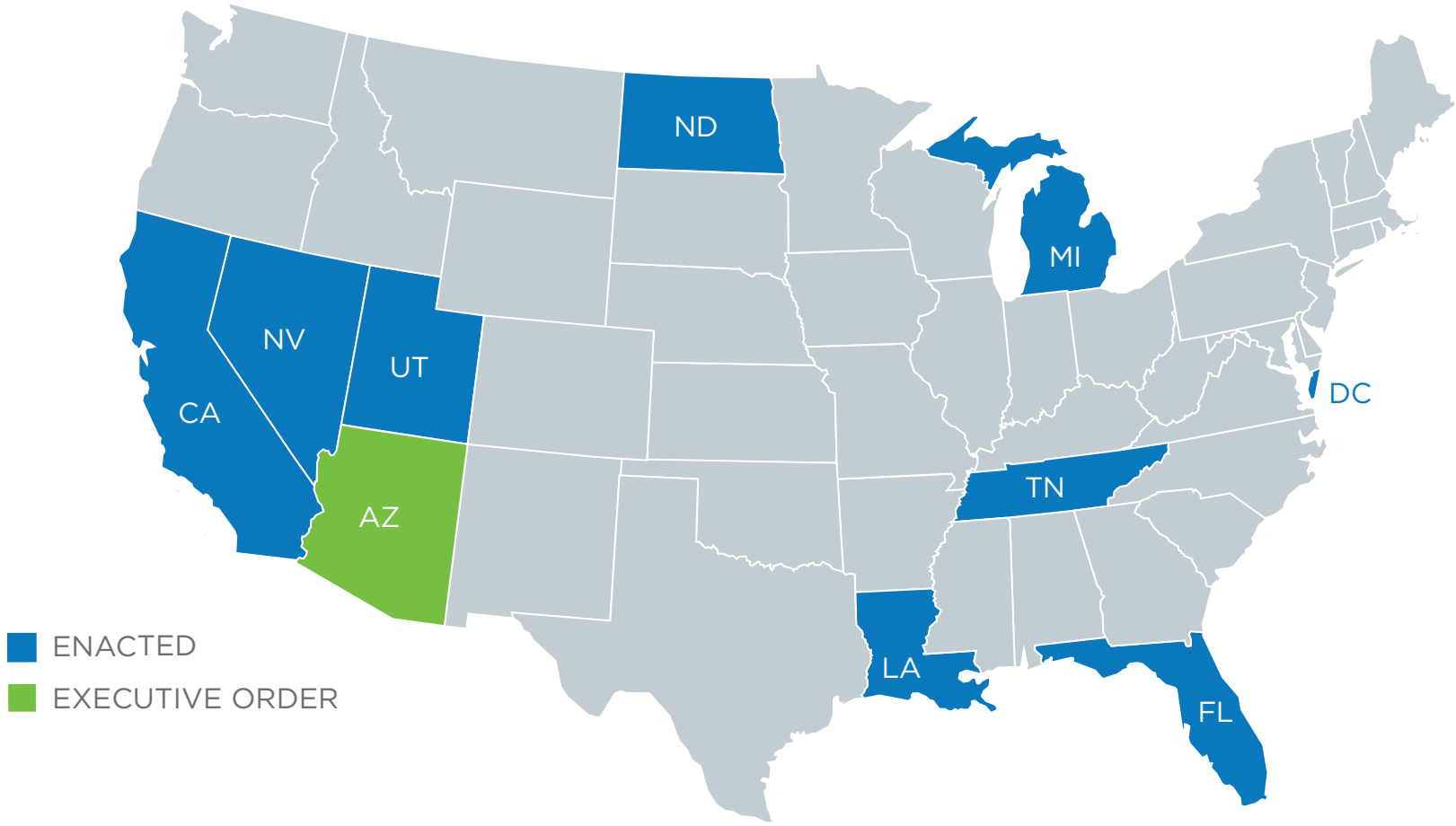
RECENT NEWS

- Ford Plans Autonomous-Car Services (9/12/16)
- World's First Self-Driving Taxis Debut in Singapore (8/25/16)
- Autonomous trucks successfully platoon across Europe (4/5/16)
- USDOT Announces New Federal Committee on Automation (1/11/17)
  - City of Oklahoma City Mayor Mick Cornett announced as Committee Member

9 STATES ALLOW AUTONOMOUS VEHICLES



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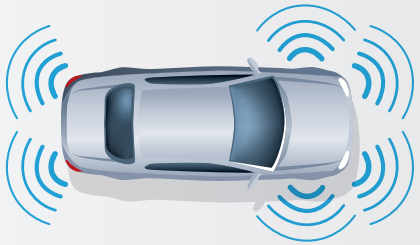
CONNECTED VS. AUTONOMOUS VEHICLES

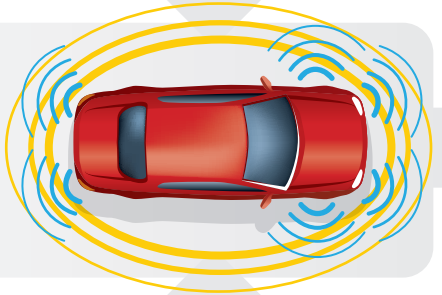
AUTONOMOUS VEHICLE

Operates in isolation from other vehicles using internal sensors.



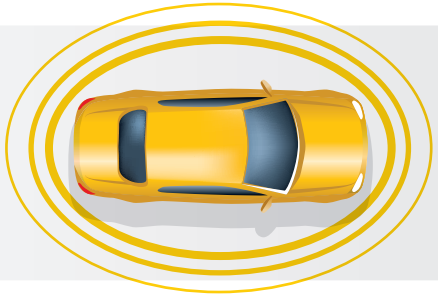
CONNECTED AUTOMATED VEHICLE

Leverages autonomous and connected vehicle capabilities.



CONNECTED VEHICLE

Communicates with nearby vehicles and infrastructure.



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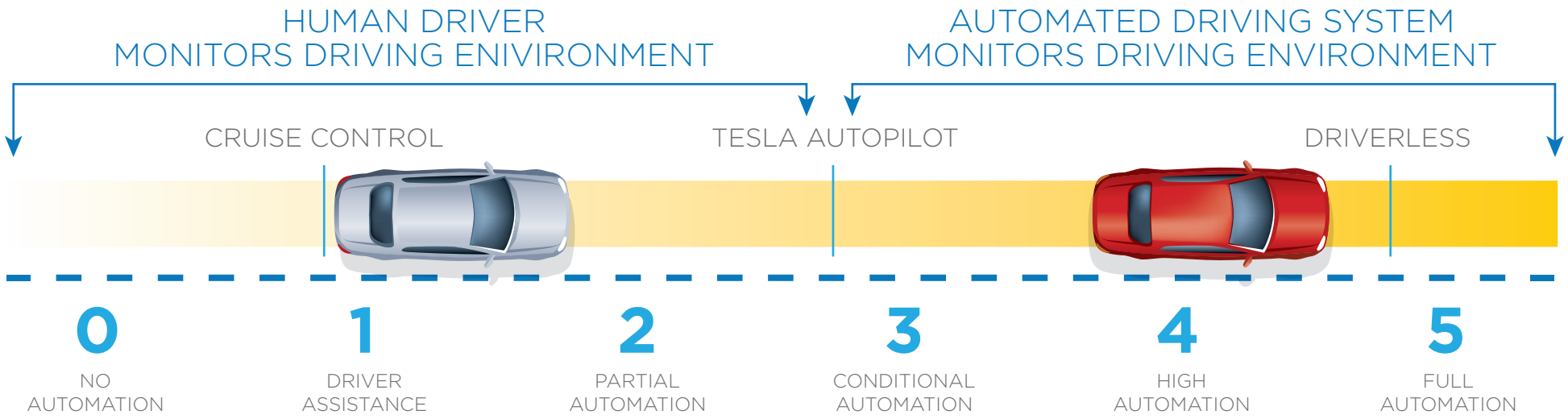
LEVELS OF AUTOMATION FOR ON-ROAD VEHICLES



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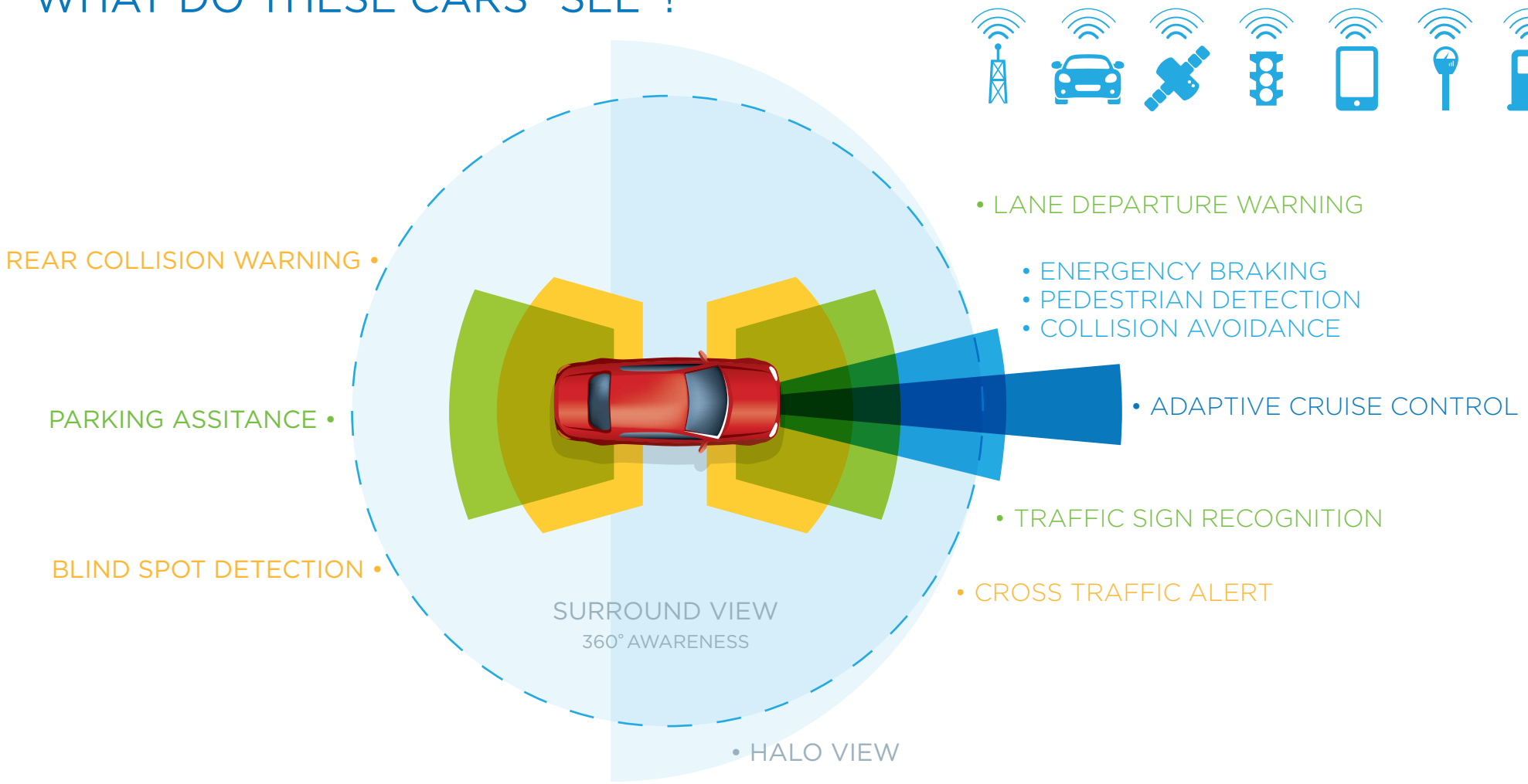
WHAT DO THESE CARS "SEE"?



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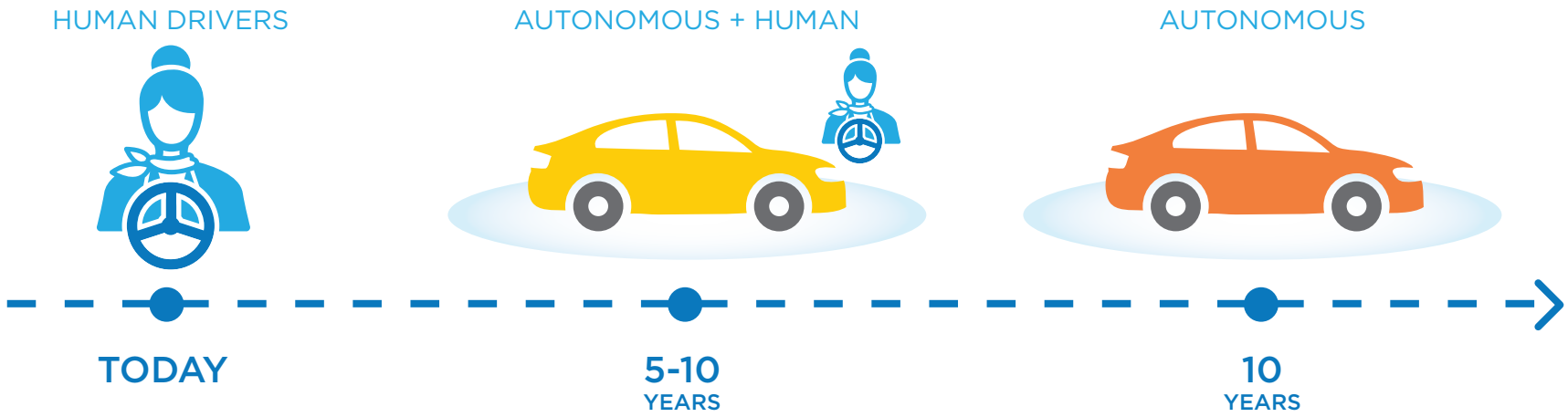
POSSIBLE TIMELINE FOR TRANSITION



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C/AV CONSIDERATIONS FOR . . .

PLANNERS

ENGINEERS

PUBLIC SAFETY OFFICIALS

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US DOT AUTOMATED VEHICLE POLICY SAFETY ASSESSMENT CRITERIA

- Data Recording & Sharing
- Privacy
- System Safety
- Vehicle Cybersecurity
- Human Machine Interface
- Crashworthiness
- Consumer Education and Training
- Registration and Certification
- Post-Crash Behavior
- Federal, State and Local Laws
- Ethical Considerations
- Operational Design Domain
- Object and Event Detection and Response
- Fall Back (Minimal Risk Condition)
- Validation Methods

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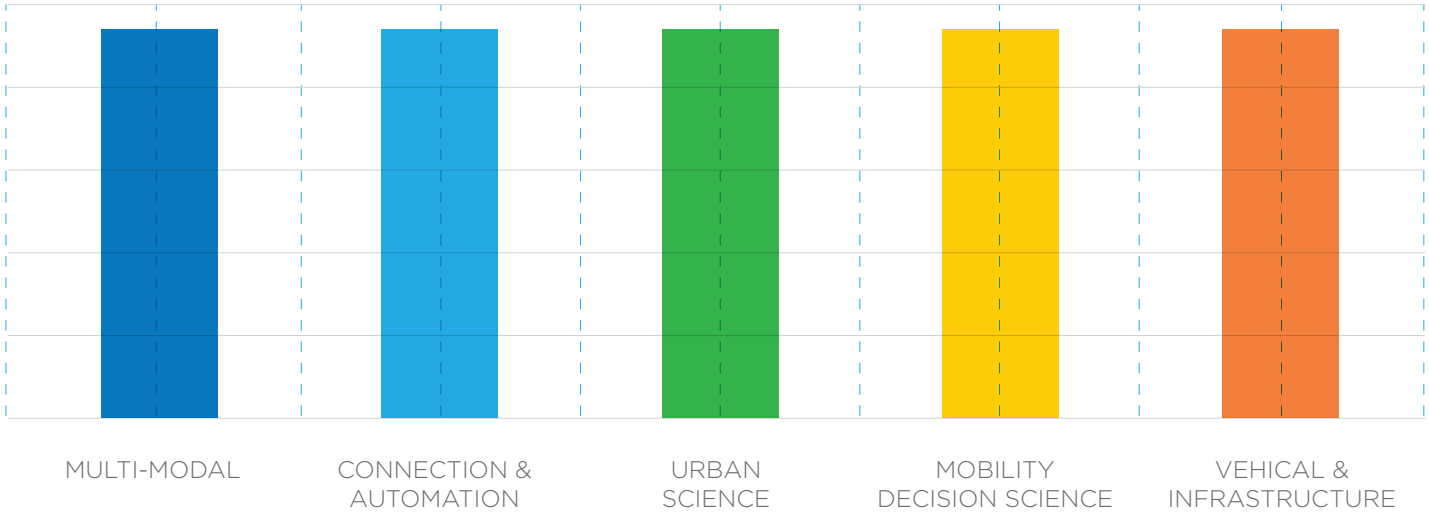
U.S. DEPARTMENT OF ENERGY SMART MOBILITY SYSTEMS AND MODELING FOR ACCELERATED RESEARCH IN TRANSPORTATION CONSORTIUM

FIVE PILLARS OF PROPOSED DOE TRANSPORTATION-AS-A-SYSTEM FRAMEWOK



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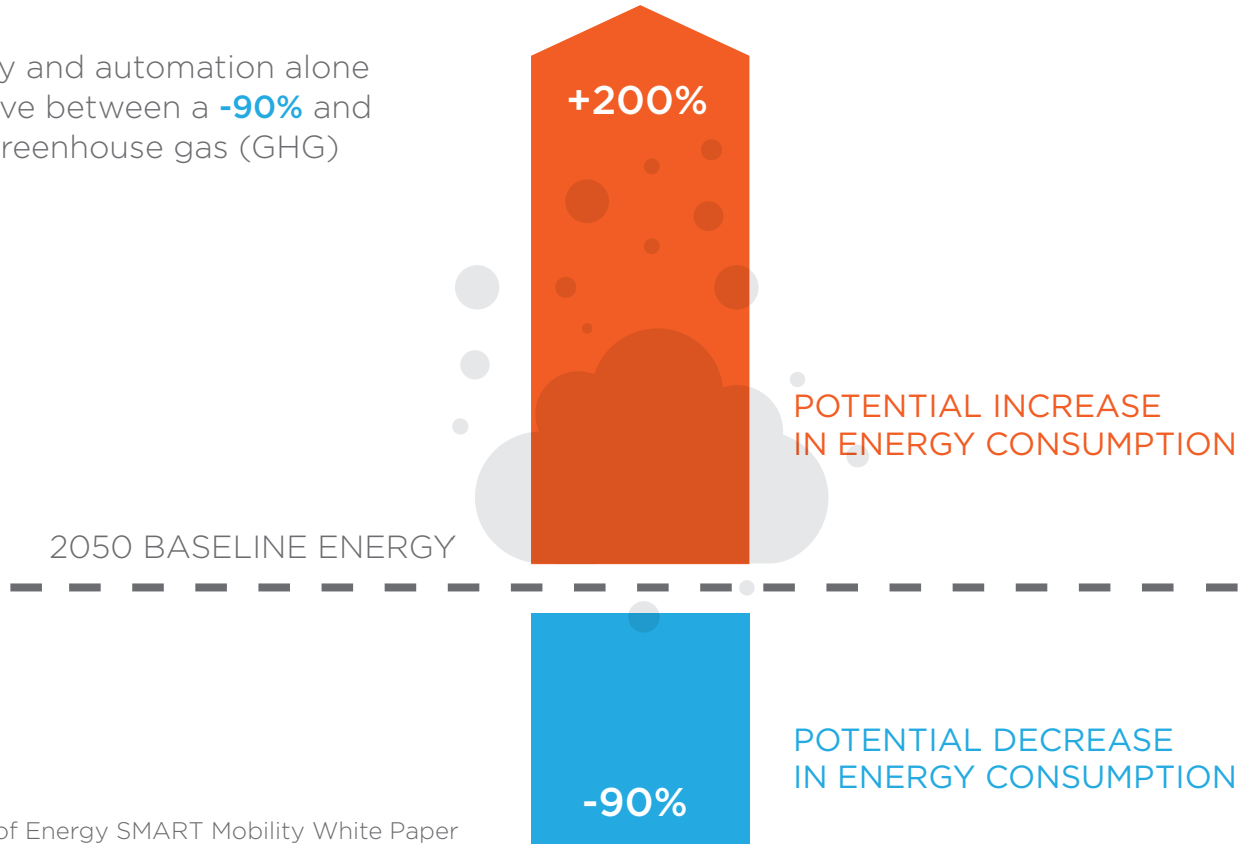
AIR QUALITY IMPACT?

Vehicle connectivity and automation alone are projected to have between a **-90%** and **+200%** impact in greenhouse gas (GHG) emissions by 2050.



Source: U.S. Department of Energy SMART Mobility White Paper

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CONGESTION MITIGATION?

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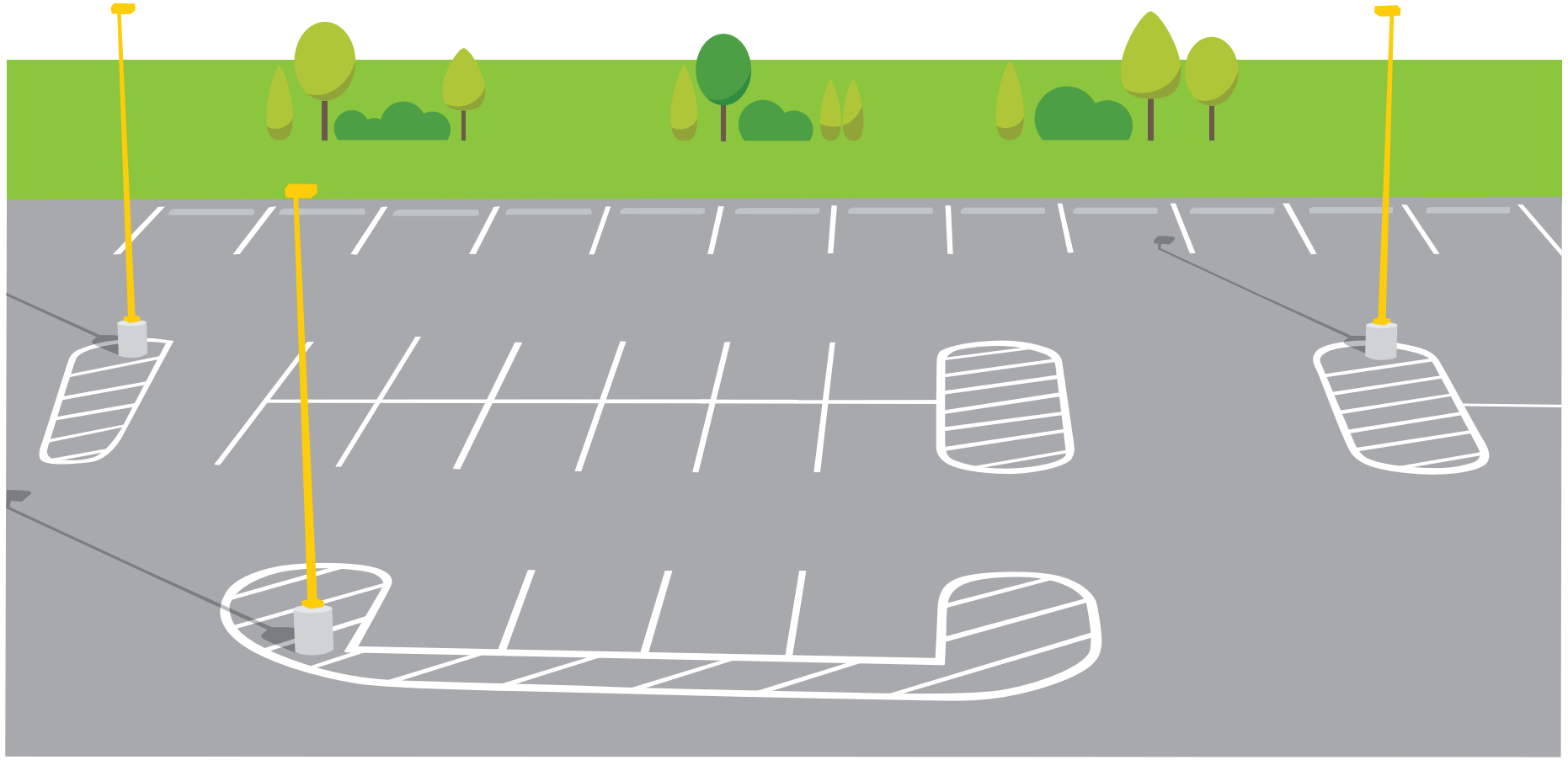
URBAN DEVELOPMENT IMPLICATIONS



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NEXT STEPS FOR ACOG MEMBERS

- Review U.S. DOT 'Connected Vehicle Impacts on Planning' Primer
  - Specifically section on impacts of C/AV on transportation planning (pg 16):
    - Strategy
    - Performance measurement and evaluation
    - Infrastructure investment
    - Planning products
    - Data collection, processing, and analysis
    - Education and Training
- Follow technology developments and pilot projects as they emerge
- Follow and contribute to regulatory discussions
- Funding Opportunities?

QUESTIONS?

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