ARE CARS DRIVEN MORE OR LESS WHEN THERE IS NO DRIVER?

Ronald T. Milam, AICP, PTP
Director of Evolving the Status Quo
Fehr & Peers
r.milam@fehrandpeers.com
roadmap

• Why we did this?
• What we did?
• What happened?
• What were the key findings?
“Very smart people have very different opinions on the pace of implementation, market acceptance, and impacts of technology in transportation. But, folks are hungry for answers, and in the absence of information speculation is running rampant”

Steven Polzin, University of South Florida
VMT IS A KEY METRIC BY WHICH WE MEASURE MOBILITY AND IMPACTS

How will technology influence VMT?
Here are some opinions.
Moving beyond opinions. Can we continue to estimate travel behavior with the tools we have when self-driving vehicles are ubiquitous?
what was tested?

• Tested 7 regional models
• Tested 8 effects + cumulative effects
what was tested?

• Assumed Level 4, 100% fleet mix

- **Level 0:** No vehicle autonomy
  Driver has control

- **Level 1:** Vehicle provides driver info/warnings
  Driver has informed control

- **Level 2:** Vehicle integrates detection/response
  Driver ready to take control

- **Level 3:** Vehicle fully autonomous
  Driver takes control in emergency

- **Level 4a:** Vehicle fully autonomous
  Occupants do not need ability to drive

- **Level 4b:** Vehicle connected, cooperating
  Optimized system operation & passive driver experience
what specific tests?

• Increased household auto availability
• Increased discretionary trip making
• Decreased value of time
• Decreased access time
• Decreased parking costs
• Increased freeway capacity
why these tests?

Example: Increase Auto Availability

Image Source: BMW Blog
why these tests?

Example: Increase Freeway Capacity

Image Source: USDOT
http://www.its.dot.gov/communications/image_gallery/image36.htm/
what happened.

Cumulative effect of privately-owned autonomous vehicles:

• 12-68% increase in VMT
• 2-26% increase in vehicle trips
• 43% decrease to 16% increase in transit trips

Model data available at:
http://www.fehrandpeers.com/fpthink/
what happened.

Cumulative effect of shared autonomous vehicles simultaneously serving multiple trips (50% share):

• 4-43% increase in VMT
• 1% increase to 7% decrease in vehicle trips
• 43% decrease to 16% increase in transit trips

Model data available at:
http://www.fehrandpeers.com/fpthink/
what can we infer?

- Increase in vehicle travel is likely to occur.
- Current bus transit service susceptible to largest shift.
- Current models do not account for new trip making made possible by AVs.
- Regulations will matter.
THANK YOU.