Connected and Autonomous Vehicles

CAV Task Force Meeting
September 16, 2016
10 am to 3 pm
CAV Task Force Meeting
Introductions
Morning Session

• Introductions
• Opening Remarks
• Mission Statement and Role
• CAV 101: An Orientation
• Overview: Miami-Dade County “Ollie” Pilot Project with IBM/Local Motors
Mission Statement and Role

MISSION
• Enhance interagency dialogue and collaboration
• Facilitate CAV project development and deployment in Miami-Dade County

ROLE
• Build community awareness of CAV
• Support pilot project implementation
• Identify other potential CAV projects
CAV 101: An Orientation
Connected and Automated VEHICLES
The driver is in complete and sole control of the primary vehicle controls – brake, steering, throttle, and motive power – at all times.
Automation at this level involves one or more specific control functions. Examples include electronic stability control or pre-charged brakes, where the vehicle automatically assists with braking to enable the driver to regain control of the vehicle or stop faster than possible by acting alone.
This level involves automation of at least two primary control functions designed to work in unison to relieve the driver of control of those functions. An example of combined functions enabling a Level 2 system is adaptive cruise control in combination with lane centering.
Vehicles at this level of automation enable the driver to cede full control of all safety-critical functions under certain traffic or environmental conditions and in those conditions to rely heavily on the vehicle to monitor for changes in those conditions requiring transition back to driver control. The driver is expected to be available for occasional control, but with sufficiently comfortable transition time. The Google car is an example of limited self-driving automation.
The vehicle is designed to perform all safety-critical driving functions and monitor roadway conditions for an entire trip. Such a design anticipates that the driver will provide destination or navigation input, but is not expected to be available for control at any time during the trip. This includes both occupied and unoccupied vehicles.
AV Market Development

**STAIRS**
Add automated features and applications one at a time. (Most traditional OEMs)

**ESCALATOR**
Announce autonomy by a certain date while keeping non-autonomous vehicles available for purchase

**ELEVATOR**
Currently designing and manufacturing fully autonomous vehicles (no staged implementation)
**Key AV Considerations**

All fully autonomous vehicles must independently:

- function in all weather conditions
- recognize road lanes
- recognize road signage
- recognize other vehicles, obstacles, people, and bicycle

Auto manufactures have said they want:

- No laws
- Clear lane striping
- Clear signage
Connected Vehicle Development Timeline

- **1999**: Federal Communications Commission allocates 5.9 GHz
- **Oct 2008**: New York City World Congress, first urban deployments of 5.9 GHz systems
- **2012**: US DOT Ann Arbor Safety Pilot
- **Sep 2014**: GM’s Mary Bara announced that the 2017 Cadillac CTS will have 5.9 GHz-based equipment in the vehicle
- **Feb 2015**: NHTSA Advanced NPRM
- **Now**: NHTSA NPRM
- **Dec 2016**: NHTSA Rulemaking
Applications

- Speed Harmonization
- Wrong Way Driving Detection
- Intelligent Traffic Signal System
- Traffic Signal Priority
- Multi-modal Integration
- Pedestrian/Bike
Data Considerations
Privacy

- Will I be tracked?
- Law enforcement applications?
The IBM “Ollie” Pilot Project
LUNCH

• Video of industry initiatives
• Further discussion
Afternoon Session

- More about the technology
- Deployment considerations
- Briefings from technology leaders
- Other potential CAV projects in Miami-Dade County
- Emerging Priorities
- Summary and Closing Remarks
More About the Technology
Deployment Considerations

• Privacy
• Safety
• Liability
Technology Briefings

• Technology Briefings: Remarks from Industry Leaders
Emerging Priorities

- Safety and mobility
- Shared mobility on-demand
- Addressing mobility congestion
- Using existing infrastructure
- Scalability
- Differently abled (disabled, seniors, etc...)
- Somewhat improving technology
- Preservation of mobility
Other Potential CAV Projects
Summary & Closing Remarks
Connected and Autonomous Vehicles

Thank you