Florida’s Automated Vehicle Initiative
Outline

- Overview of Autonomous Vehicles and Connected Vehicles
- Florida’s Automated Vehicles Initiative Activities
## Automated Vehicles

### Connected Vehicles

<table>
<thead>
<tr>
<th>Technology</th>
<th>Data Gathering/Information Exchange</th>
<th>Safety Critical Functions (steering/throttle)</th>
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### Autonomous Vehicles

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Connected Vehicles

Technology
- Direct Short Range Communications (DSRC) (5.9 Ghz)
- Cellular Phone Network

Data Gathering/Information Exchange
- Vehicle-to-Infrastructure (V2I)
- Vehicle-to-Vehicle (V2V)

Safety Critical Functions Are Not Affected (steering/throttle/brake)
Autonomous Vehicles

Technology
- Connected Vehicle technology not required
- Internal sensors, cameras, GPS, and advanced software utilized

Various Levels of Automation (defined by NHTSA)

Safety Critical Functions (steering/throttle) Affected Without Direct Driver Input
Levels of Automation

0. NO AUTOMATION
   Forward collision warning, lane departure warning, blind spot monitoring

1. FUNCTION SPECIFIC AUTOMATION
   Temporarily cede control of either forward (speed) or lateral (side-to-side) movements, but not at the same time.
   Dynamic brake support, electronic stability control, adaptive cruise control

2. COMBINED FUNCTION AUTOMATION
   At least two primary control functions designed to work in unison
   Adaptive cruise control in combination with lane centering.

3. LIMITED SELF-DRIVING AUTOMATION
   Enable the driver to cede full control of all safety-critical functions
   Designed so that the driver is not expected to constantly monitor the roadway while driving.

4. FULL SELF-DRIVING AUTOMATION
   Designed to perform all safety-critical driving functions and monitor roadway conditions for an entire trip.

*Abridged from the National Highway Traffic Safety Administration
Active FDOT Initiatives

- **ITS Office Connected-Vehicle Test Bed**
  25 Miles of roadway in Orlando, FL along portions of I-4, International Drive, and John Young Parkway

- **Florida Automated Vehicles Summits**
  2013 - Tampa
  2014 - Orlando

- **Stakeholder Working Groups**
- **Pilot Projects**
- **University Research Partnerships**
- **Public Outreach**
Pilot Projects

- **Quantify Improvements**
  - Safety
  - Mobility
  - Efficiency

- **Performance Measures**
  - Before and after various levels of automation are implemented

- **Initial Test Beds**
  - Managed lanes (commuter)
  - Freight and transit (multi-modal)
  - Closed-course (Level 4 automation)
Pilot Project Goals

- Leverage Existing Infrastructure to Maximize Benefits
- Develop Rich Dataset that Demonstrates Quantitative Safety and Efficiency Benefits

“If you can not measure it, you can not improve it.” (Lord Kelvin)
Miami-Dade Floral Freight Pilot Project

Preliminary Efforts

- Identify partners
- Identify repetitive routes
- Engage and collaborate with public/private stakeholders
Miami-Dade Floral Freight Pilot Project

Three Cost-Effective Phases Over Multiple Years

- Measure
- Prioritize
- Automate
FDOT District 7 Pilot Project -
Advanced Safety Warnings

Participating Agencies
FDOT District 7
Hillsborough Area Regional Transit
Tampa Bay Area Regional Transit
Pinellas County Transit Agency
Pasco County Public Transportation

100 vehicles with GeoTab (telematics device)
Serves for comparison of study vehicles

50 with MobilEye (Advanced Driver Assistance)
Stakeholder Working Groups

- Identify potential challenges and opportunities
- Recommend ways to leverage opportunities and mitigate challenges
- Provide recommendations to FDOT (and other state agencies as identified) regarding AV/CV technology in policies, standards, and infrastructure investments
Universities in Florida have been conducting research on AV/CV technology for >10 years.

Research Topics

- Autonomous technology (engineering)
- Effects of AV/CV technology on roadways (transportation modeling)
- Environmental impacts (sustainability)
- Policy implications (planning)
- Behavioral relationship between operator and vehicle (psychology)
Public Involvement

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- Resources
  - News articles
  - Legislation
  - Blogs
  - Reports/presentations/videos
- Events
  - FDOT
  - National
- Public Forum

Recent Articles

- Will The Google Car Force A Choice Between Lives And Jobs?
  ...Jobs will only be lost if Google or some other innovator delivers fully autonomous cars. That would also mean, however, that we could reap tremendous gains in vehicle safety. We would be forced to choose between saving lives and losing jobs.
  27 days ago
- State Should Not Idle on Transportation Technology Planning
  Transportation officials see emerging technologies playing a role in helping address issues like traffic safety. A new report stresses the need for the state to consider partnering with the private sector on certain initiatives.
  30 days ago

FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT). This site will follow the
December 15-16, 2014
Orlando – Walt Disney World

- Day 1 – Coronado Springs
  Updates on progress since Summit in Tampa (2013)
  Status of the Industry

- Day 2 – WDW Speedway
  Demonstrations and Exhibit Hall
Questions?

FDOT Systems Planning Office oversees the automated vehicle initiatives.

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Email questions/comments to: automatedFL@dot.state.fl.us