

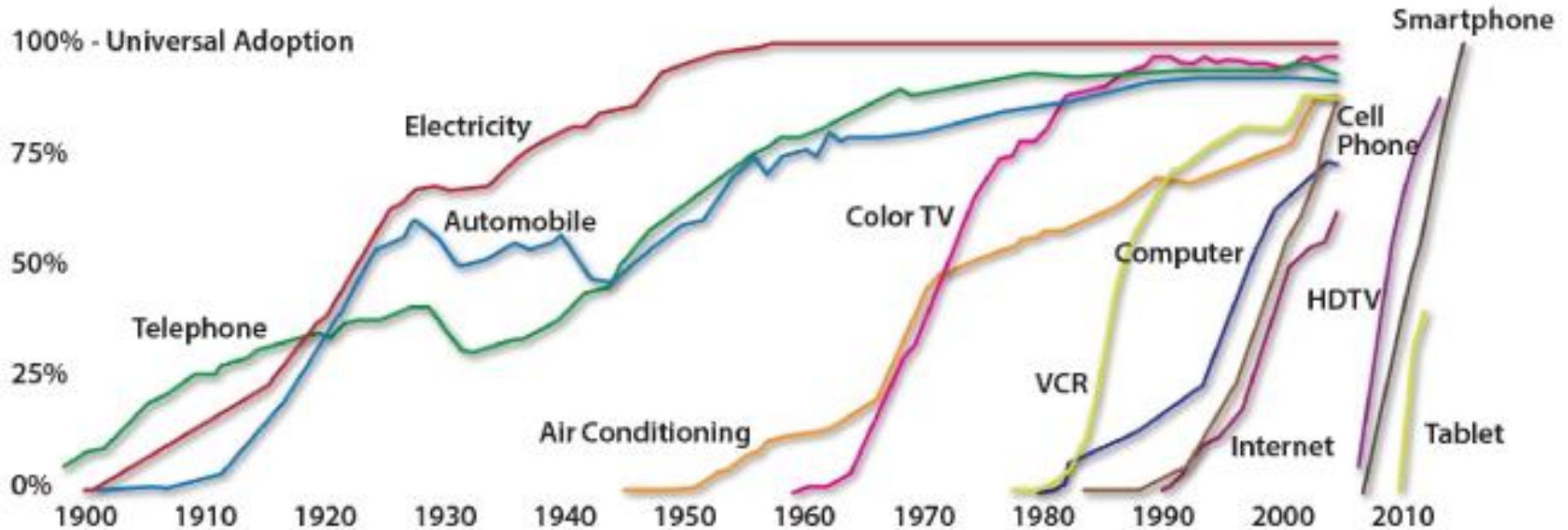


Florida's Automated Vehicle Initiative

*Creating the Framework
for Implementation*



Technology Adoption Rate



Distracted Driving

A person texting
while driving is

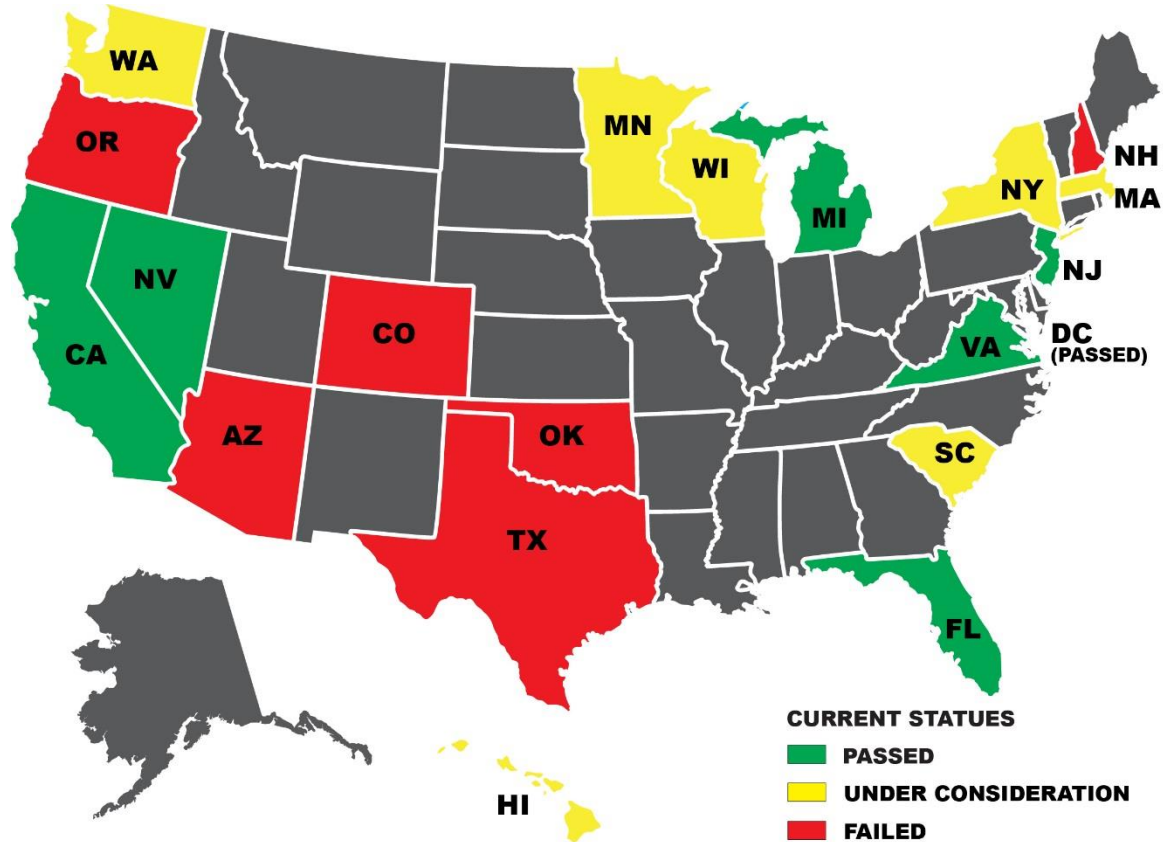
6 times more likely

to cause an accident
than a drunk driver.

*Driving has become
the distraction.*



AV Legislation



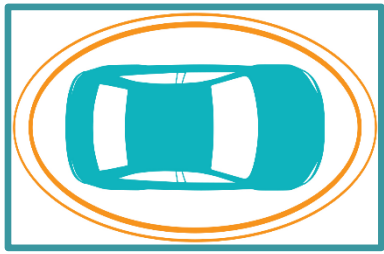
Automated Vehicles

CONNECTED VEHICLES



AUTONOMOUS VEHICLES





Connected Vehicles

Technology

- Dedicated Short Range Communications (DSRC)
(5.9 GHz designated to transportation by FCC)
- Cellular network (safety critical data excluded)
- Satellite communications (limited applications)

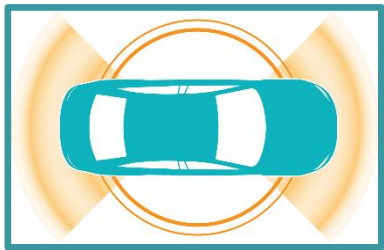
Data Gathering/ Information Exchange

- Vehicle-to-Infrastructure (V2I)
- Vehicle-to-Vehicle (V2V)
- Vehicle-to-Bike/Ped/Other (V2X)

Safety critical functions of the vehicle (steering/throttle)
not affected (operator is in control at all times)



Enhanced Situational Awareness



Autonomous Vehicles

Technology

- Sensors: Lidar, Radar, Cameras, GPS
- Advanced computing and algorithms

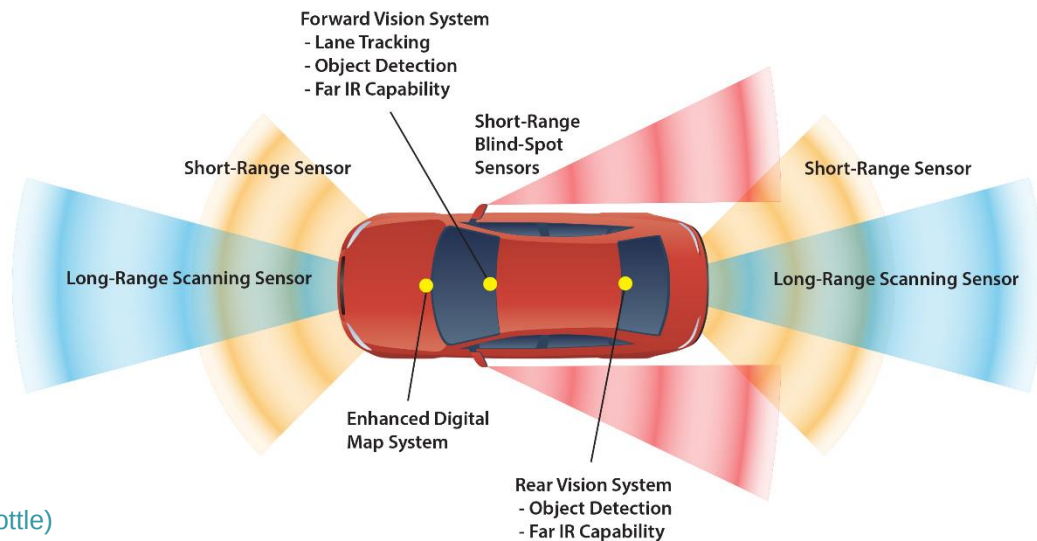
Various levels of automation

(defined by NHTSA and SAE)

Connected Vehicle technology is *not required*

Safety critical functions of the vehicle (steering/throttle)

are affected without direct driver input



GM Announced 'Super Cruise' at ITS World Congress (9/8/2014)

- **Semi-automated driving technology**
(1st available on 2016 Cadillac CTS)
- Hands free, feet free (*not mind free*) driving
 - highway cruising speeds
 - stop-and-go congestion

*"Through technology and innovation,
we will make driving safer."*

— Mary Barra, GM CEO



Tesla to Upgrade Cars Through the Internet

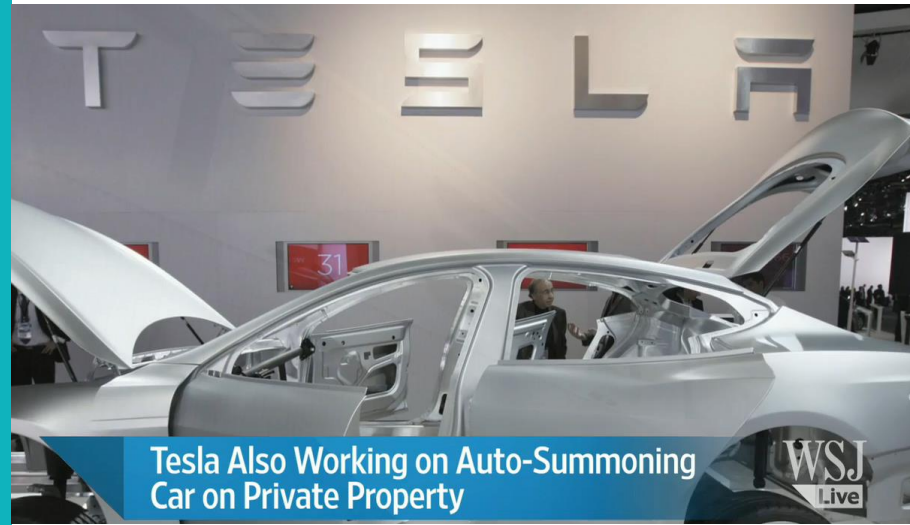
The Wall Street Journal, 3/19/2015

Models sold after October 2014 with “Auto Pilot Hardware” have cameras and radar sensors already installed, but software was not included at time of sale

Select Model S owners have received software updates to allow Auto Pilot features for beta-testing

Traffic-Aware Cruise Control
Auto-Steering for 20-85 mph

Auto-Summoning on private property



Implementation Challenges of Automated Vehicles

Lack of Business Model

Requires new benefit/cost analysis to support deployment decisions
Needs systematic & strategic approach

New Investments Needed

Funding sources
Infrastructure requirements
Staffing needs

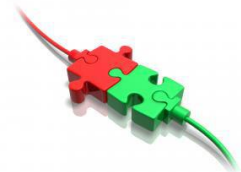
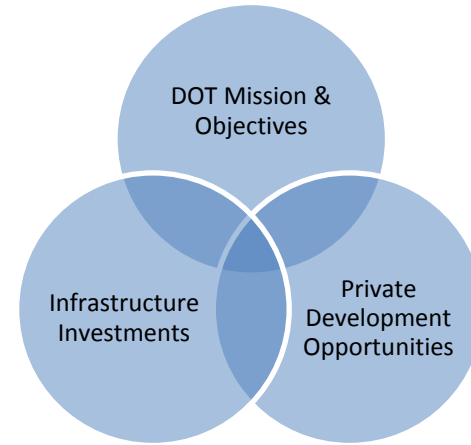
Data Issues

Ownership
Privacy/security
Access & support

Interoperability

Local, regional, national – multiple protocols
Multi-jurisdictional testing and pilot agreements

Public Sector Perspective



Challenges Ahead for Transportation Professionals

Engineering Design Standards for AV

- Updates to the Florida Greenbook
- Potential changes to the Manual for Uniform Traffic Control Devices
- Adaptive/Flexible infrastructure
- Design for large structures (50+ year lifespan)

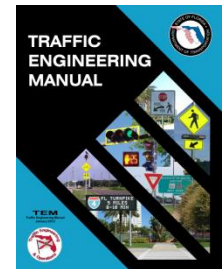
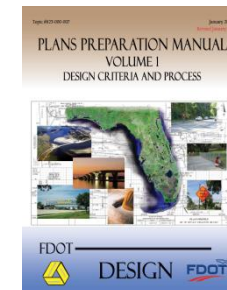
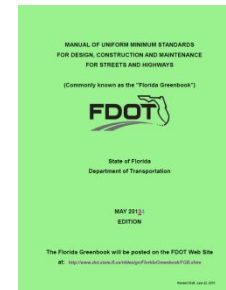
Increased Focus on ITS Support for CV

- Intelligent Transportation Systems
- New hardware and software skill sets
- Information Technology demands

Changes in Right-Of-Way Usage

- Potential for dedicated AV-only lanes
- Additional facilities for non-traditional vehicles
- Infrastructure requirements
- More efficient use of existing ROW

Private Sector Implications



Active FDOT Initiatives



- **Connected-Vehicle Test Bed in Orlando (2011)**
- **Public Outreach and Education**
- **Florida Automated Vehicles Summits**
 - 2013 – Tampa
 - 2014 – Orlando
 - 2015 – Jacksonville
- **Stakeholder Working Groups**
- **University Research Partnerships**
- **Pilot Projects**
- **Stakeholder Working Groups**

FDOT AV/CV/ITS Steering Committee

Earlier this year, Secretary Jim Boxold established a Steering Committee comprised of key FDOT stakeholders, led by Assistant Secretary Rich Biter, to coordinate and provide leadership direction over FDOT's AV/CV/ITS initiatives.



FDOT AV/CV/ITS Steering Committee

By the end of the year:

- Develop a Strategic Plan
- Draft Design Standards for Major Infrastructure Investments
- Initiate additional testing facilities
- Form new non-traditional partnerships
- Prioritize investment locations

In 2016:

- Include AV/CV in all state planning documents
 - LRTP
 - Strategic Highway Safety Plan
- Further enhance 2015/2016 accomplishments



Stakeholder Working Groups

- 1) Policies & Legal Issues
- 2) Infrastructure/Technology
 - Roadway improvements
 - Roadside devices
 - Engineering & design standards
 - Infrastructure investment
- 3) Modal Applications
 - Transit, Freight, Inspections



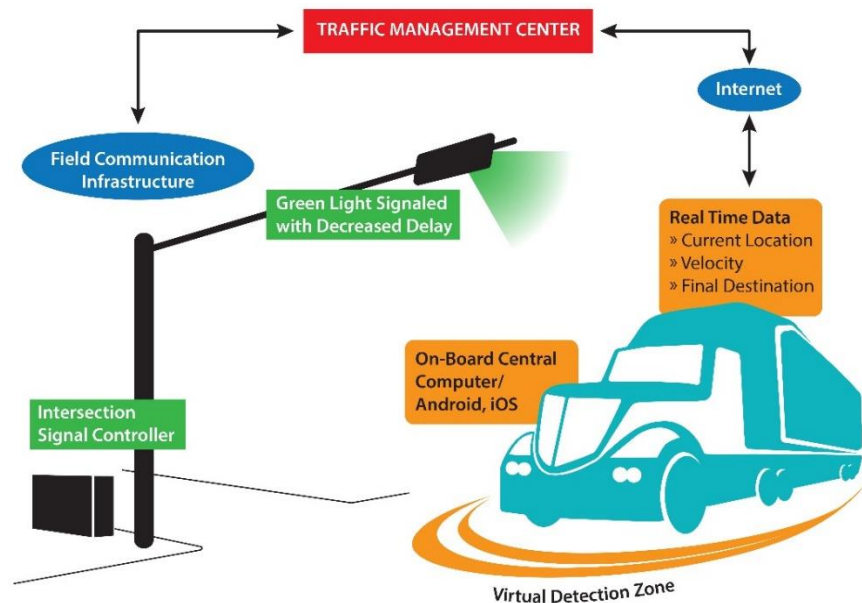
Pilot Projects

- Focused on reducing the frequency and severity of crashes
 - 80% of all avoidable collisions could be prevented
- Commercial vehicle applications
 - Improved intermodal connectivity
 - Reduce bottlenecks at ports
 - Increased safety at intersections



Freight Applications Pilot Project

Assessing Automated Vehicle Technologies for Miami's Perishable Freight Industry

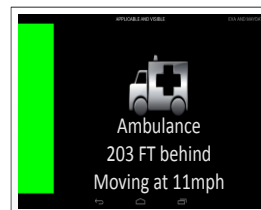
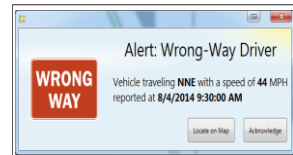


Partnership Opportunities

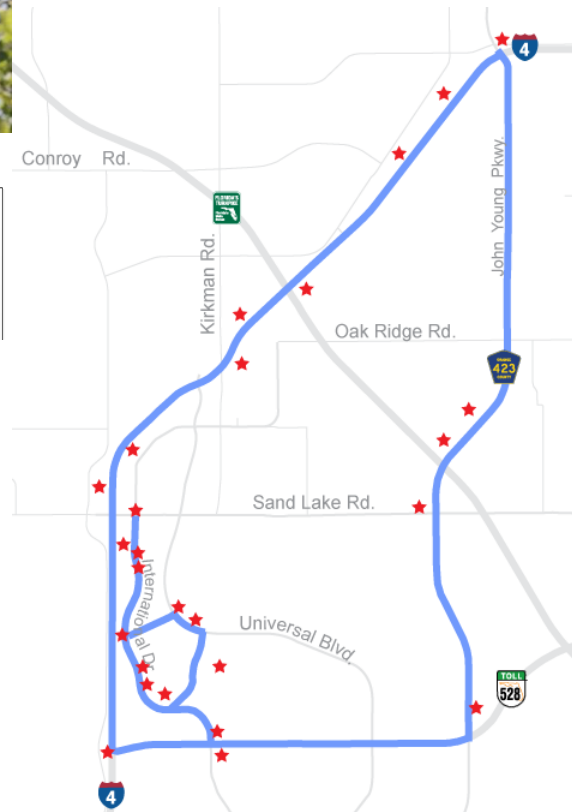
- Connected Vehicle Test Bed
- USDOT Connected Vehicle Pilot Deployment Grant Awarded to THEA



- Development of Test Track
- FDOT is investing in AV/CV to rapidly deploy emerging solutions



Connected Vehicle Test Bed in Orlando



FLORIDA DEPARTMENT OF TRANSPORTATION
PRESENTS



SUMMIT 2015

JACKSONVILLE, FLORIDA
DECEMBER 1 - 2, 2015



SAVE THE DATE



www.AutomatedFL.com

Questions?

www.AutomatedFL.com

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

