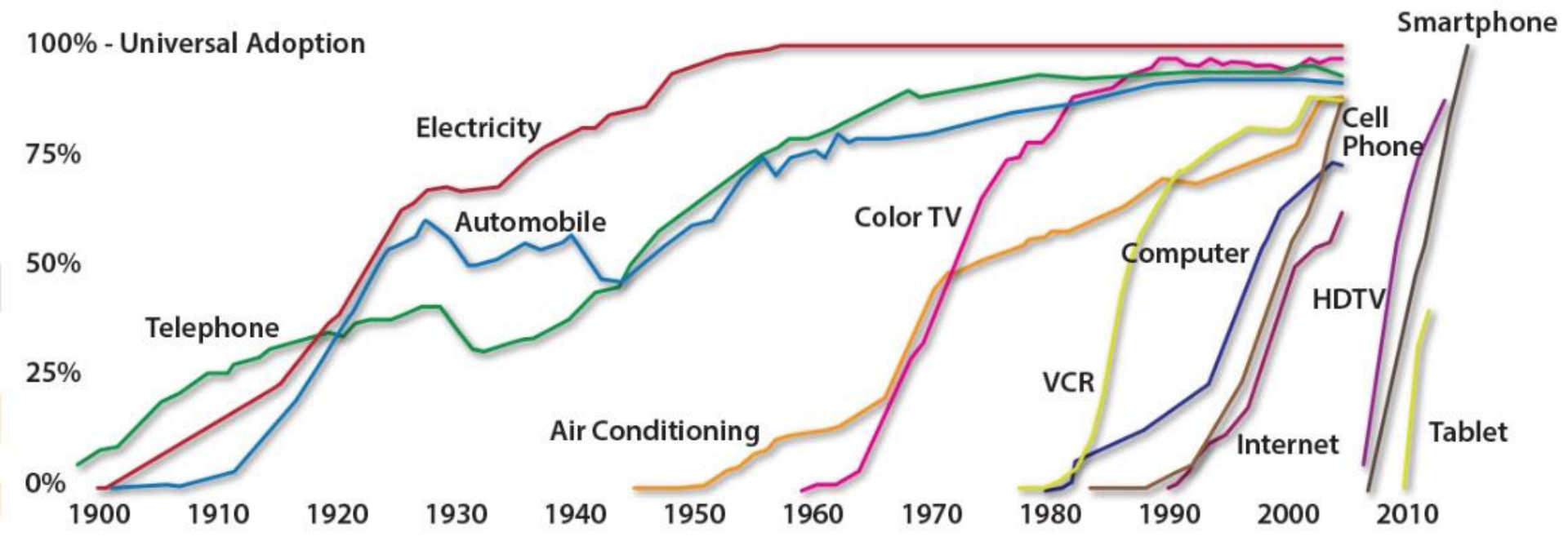
SIOR – Florida Chapter Meeting

Innovative Technologies

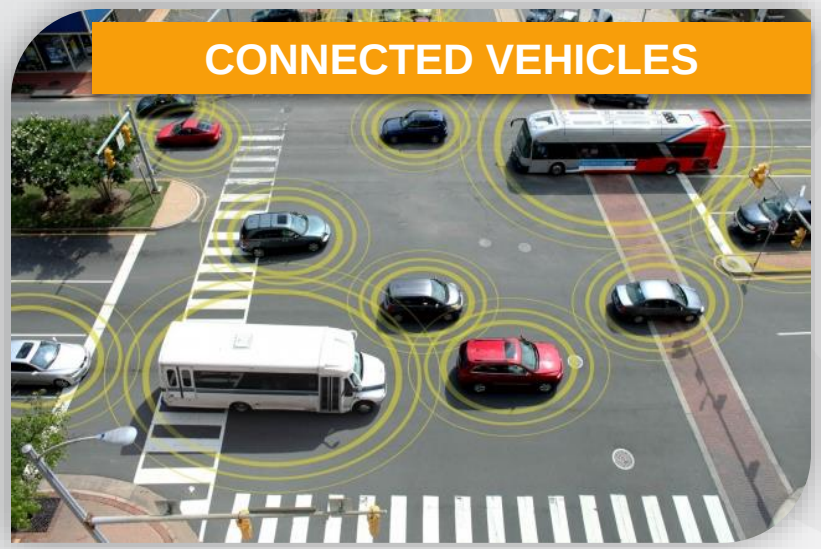
The Florida Automated Vehicles Initiative

Friday, May 20, 2016

Technology Adoption Rate



Automated Vehicles – An Umbrella Term



Automated Vehicles – Technologies Overview

FLORIDA AUTOMATED VEHICLES

CAMERAS

Stereo and infrared camera data helps avoid obstacles, identify road sign messages, and visualize lane markings.

SOFTWARE

On-board computers run advanced software to analyze data collected by sensors to make intelligent maneuvers and real-time route determination.

RADAR

Radar tracks nearby objects, which helps maintain the car's distance from vehicles ahead and detect blind spot obstacles.

LIDAR

Light detection and ranging system generates a point cloud that gives the car a 360-degree view.

DEDICATED SHORT RANGE COMMUNICATION

Provides communication between vehicles (Vehicle to Vehicle - V2V) and between vehicles and the transportation infrastructure (Vehicle to Infrastructure – V2I). DSRC is expected to be utilized where existing Intelligent Transportation Systems (ITS) are already in place, such as urban areas, high volume limited access facilities, and managed lanes.

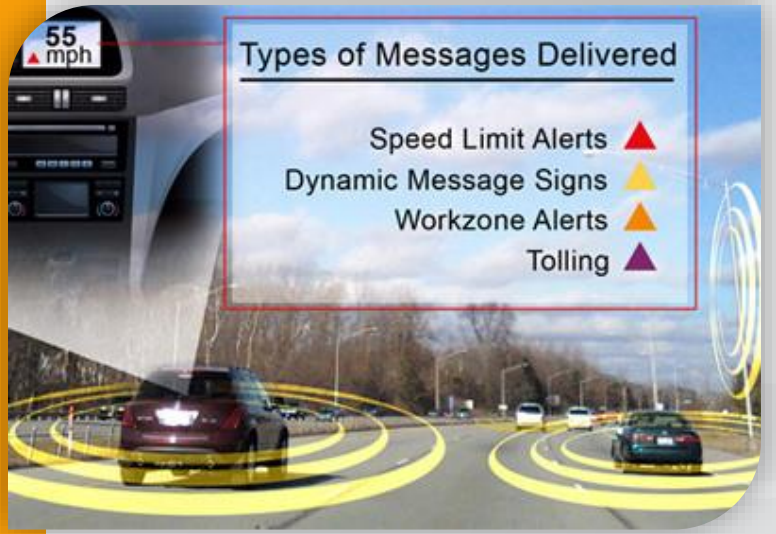
Connected Vehicles

Applications
- Safety Critical Warnings
- Mobility Enhancements
- Environmental Benefits
- 55+ specific applications/uses defined by USDOT

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



Connected Vehicles

Specific Applications FDOT has Developed and/or Integrated from USDOT into SunGuide

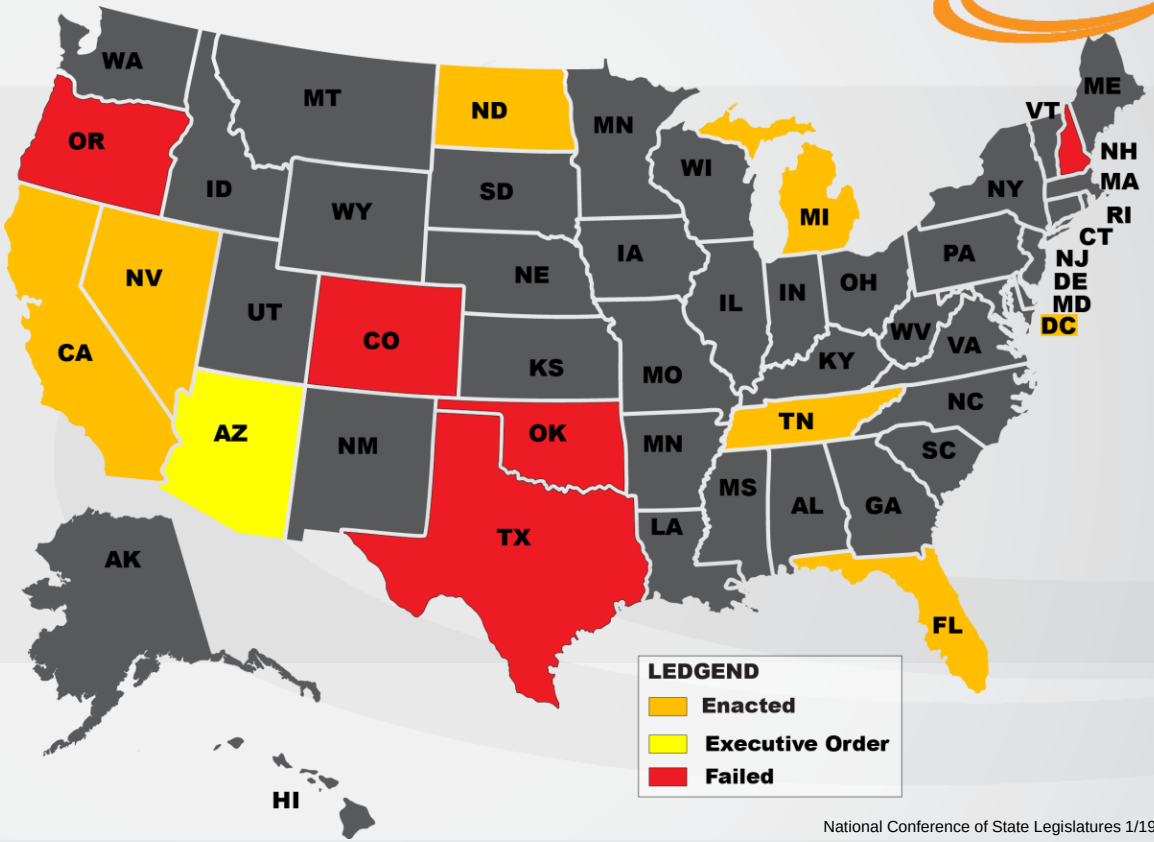
- Wrong Way Driver Detection and Alert
- Over-height Detection and Alert
- Emergency Braking
- Emergency Vehicle Alert
- Red Light Violation Warning

Demonstration from 2014 FAV Summit

AV Legislation

Thirteen states introduced legislation related to autonomous vehicles in 2015, up from 12 states in 2014, nine states and D.C. in 2013, and six states in 2012.

States with Enacted AV Legislation

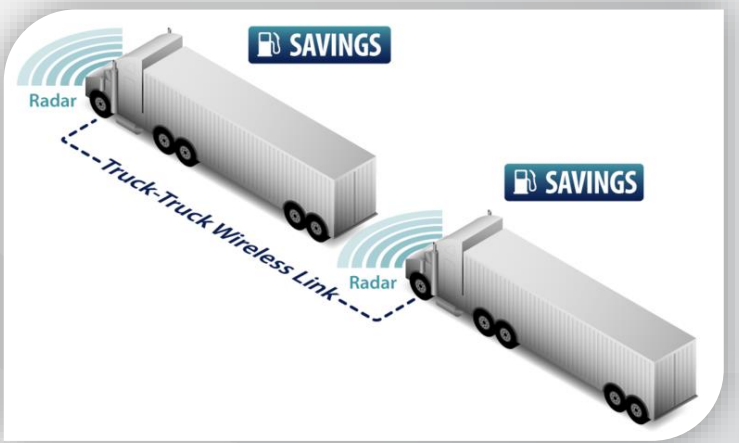


National Conference of State Legislatures 1/19/2016

Driver-Assistive Truck Platooning Study and Pilot Project

HB 7027 mandates:

"The Department of Transportation, in consultation with the Department of Highway Safety and Motor Vehicles, shall study the use and safe operation of driver-assistive truck platooning technology, as defined in s. 316.003, Florida Statutes, for the purpose of developing a pilot project to test vehicles that are equipped to operate using driver-assistive truck platooning technology."



Stakeholder Working Groups

FLORIDA AUTOMATED VEHICLES

Policies & Legal Issues

Infrastructure/Technology

- Roadway improvements
- Engineering & design standards
- Infrastructure investment

Modal Applications

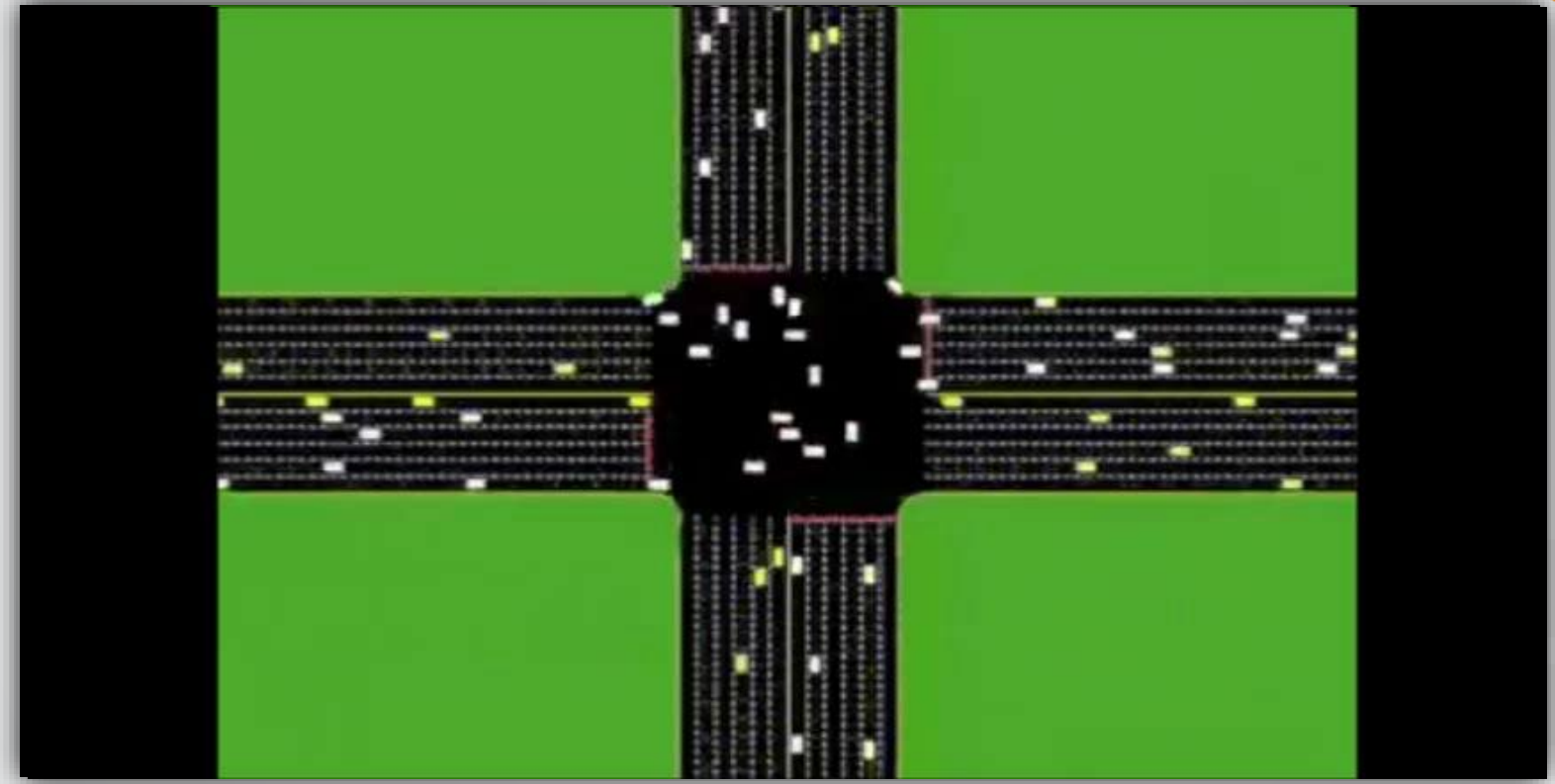
- Transit
- Freight
- Inspections

University Research Partnerships

Universities in Florida have been conducting research on AV/CV/ITS technologies for >10 years

- Policy Implications for AV Technology – MPO LRTPs (UF)
- Simulator for Connected Vehicle Messaging (UCF)
- Autonomous Technologies for Mobility Solutions for the Aging and Disabled Populations (FSU)
- Visioning Future Cities with AV Technologies (FSU)
- Unmanned Aerial Vehicles (FIT) and Unmanned Surface Vessels (FAU) for Bridge Inspections
- AV Requirements for Service Vehicles (ERAU)

Autonomous Intersection Management



Envisioning Florida's Future:
Transportation and Land Use in an Automated Vehicle World

Design Charrette at 2015 FAV Summit

100 transportation professionals brainstormed what cities may look like in 2040 and 2060 as a result of AV/CV

Major Takeaways:

- Smaller & more efficient ROWs
- A Drop-off revolution
- Parking reform
- Signage & signalization
- Bicycle, pedestrian, and small vehicle oriented
- Redevelopment opportunities

Blue Polygons = Parking

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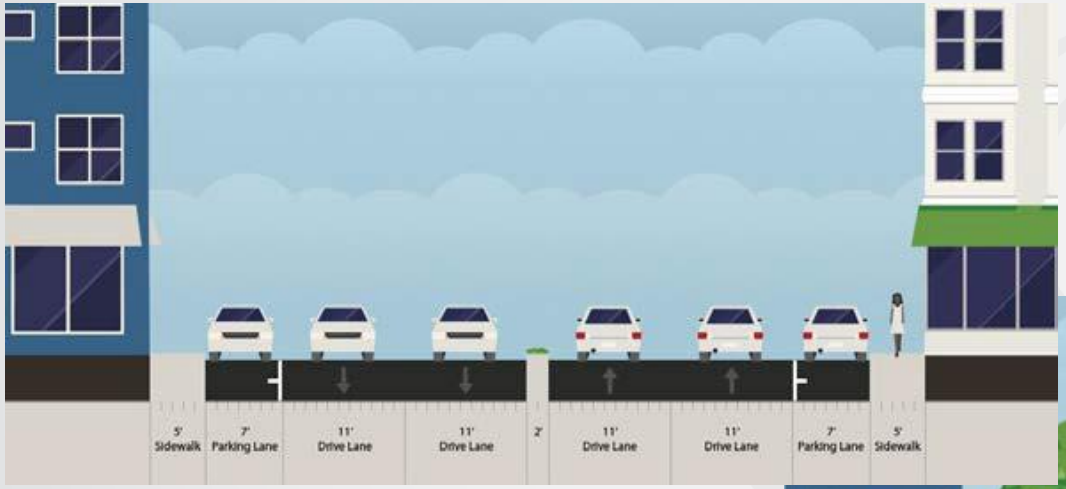
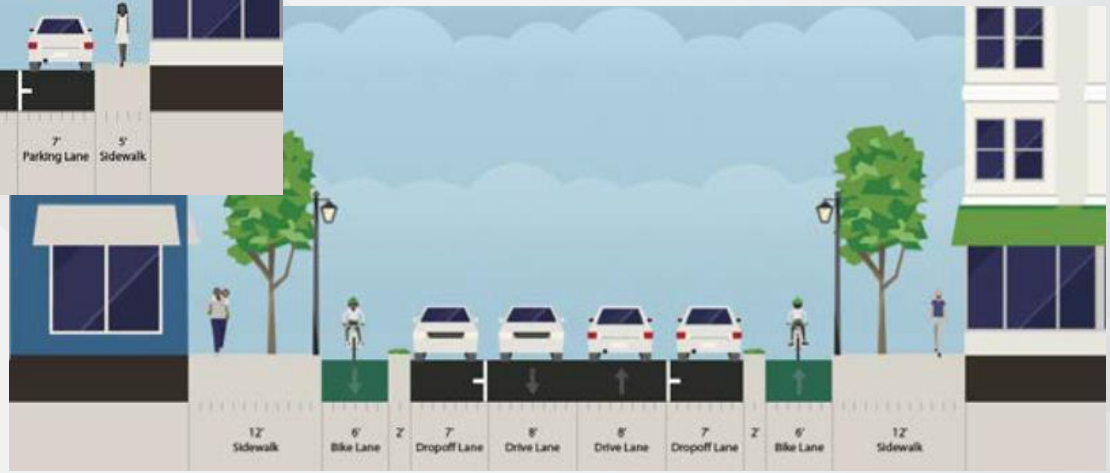


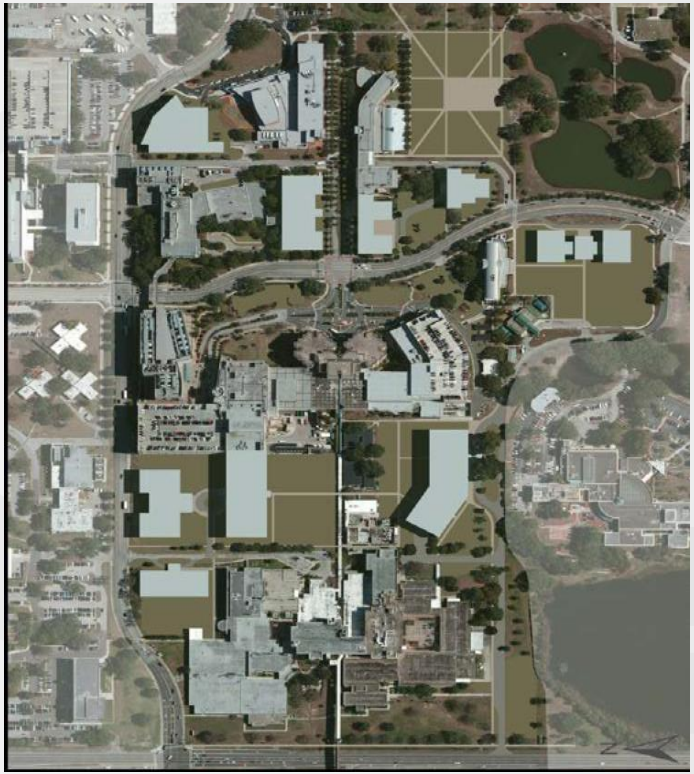


Envisioning Florida's Future:
Transportation and Land Use in an Automated Vehicle World

Figure 2.17 - AVs' Transformation of a City Block: Surface parking lots, traffic lights, and on-street parking, while common today, may disappear in an AV world. In their place we may find drop off lanes, pedestrian and bicycle amenities, in-fill development, and safer, less cluttered intersections.

Envisioning Florida's Future:
Transportation and Land Use in an Automated Vehicle World

FLORIDA AUTOMATED VEHICLES



Envisioning Florida's Future:
Transportation and Land Use in an Automated Vehicle World

Potential Effects of AV on Urban Planning

Parking Space Size

- Reduced width (doors don't need to open)
- Varied sizes to fit specific vehicle types

Parking Lot Location

- No spaces within 300' of building entrances?
- On-street parking repurposed
- Passenger drop off/pick up lanes at building entrance (similar to airport design)
- Remote lots to make better use of urban land

Development Patterns

- Higher density requirements may be more attainable
- Driveway placement and design
- Building setbacks
- Greater focus on bike/ped improvements

Blue Polygons = Parking

Questions?

Email questions/comments to:
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www.AutomatedFL.com