CONNECTED VEHICLE

Elizabeth Birriel, P.E.
Deputy State Traffic Engineer
Florida Department of Transportation
Agenda

• Why is Connected Vehicle Important
• Affiliated Test Bed
• Connected Vehicle Demonstration
Statistics

• Estimates indicate that connected vehicle technology can resolve about 80 percent of traffic incidents caused by non-impaired drivers
Affiliated Test Bed

- Coordinated by USDOT
- Orlando test bed - One of six nationally
- Data store located in Tennessee
- FDOT focus on safety and mobility
- Agency partnerships
Connected Vehicle Demonstration
Roadside Unit

- Installed at Richard Petty Driving Experience
- Communicates with autonomous vehicles, overheight detectors, and SunGuide software
- Facilitates safety applications (i.e. wrong-way detection)
Onboard Unit

- Installed in vehicles
- Communicates with other vehicles and roadside equipment
- Performs local processing to interface with the driver and autonomous systems in the vehicle
Overheight Detector

- Overheight detection unit
- Beam across roadway between pair
- Installed on short poles across roadway
- Communicates with roadside unit
SunGuide Software Modification

- Special prototype build
- Supports vehicle-to-infrastructure applications
Autonomous Vehicle Operations

- Commercial vehicle autonomy
- Autonomously driven for portions of the demonstration route
- Autonomously applies brakes in response to overheight warning
Connected Vehicle and Autonomous Vehicle Demonstrations

• Vehicle-to-infrastructure (V2I)
  – Wrong-way driver detection and alert
  – Overheight detection and alert

• Vehicle-to-vehicle (V2V)
  – Emergency braking
  – Emergency vehicle alert
Overheight Detection and Alert
Overheight Detection and Alert

CAUTION
OVERHEIGHT
TAKE NEXT LEFT

Overheight Stop
Overheight Caution
Overheight Exit

START

SUNGUIDE
Florida's Intelligent Transportation System
Overheight Detection and Alert

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**WARNING OVERHEIGHT**

**CAUTION OVERHEIGHT TAKE NEXT LEFT**

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**Overheight Stop**  
**Overheight Caution**  
**Overheight Exit**  
**START**

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[Logo: Sunguide]
Overheight Detection and Alert

- WARNING OVERHEIGHT STOP
- CAUTION OVERHEIGHT TAKE NEXT LEFT
- Alert: Overheight Detection
  Vehicle traveling NNE with a speed of 44 MPH reported at 8/4/2014 9:30:00 AM
  Locate on Map  Acknowledge

Overheight Stop  Overheight Caution  Overheight Exit

SUNGUIDE Florida’s Intelligent Transportation System
Wrong Way Driver Detection and Alert
Wrong Way Driver Detection and Alert
Wrong Way Driver Detection and Alert
Wrong Way Driver Detection and Alert
Emergency Braking

Hard Braking / Deceleration Detected
Emergency Braking

BRAKE

Hard Braking / Deceleration Detected
Emergency Vehicle Alert
Emergency Vehicle Alert

Ambulance 203 FT behind
Moving at 11mph

Emergency Activated
Emergency Vehicle Alert

- Ambulance 203 FT behind
  Moving at 11mph

- Ambulance Approaching
  458 FT ahead
  Moving at 11mph

Emergency Activated
QUESTIONS?

Elizabeth Birriel, P.E., FDOT
Elizabeth.Birriel@dot.state.fl.us