Accidents We Can Avoid Using DSRC

- I-94, Western MI
- Jan 9, 2015
- Temp 16°F
- 0°F wind chill
- 193 vehicles
- 1 death
- 21 hospitalized
- Reopened after 2 days
Ann Arbor Connected Vehicle Test Environment (AACVTE) Team
Safety Pilot Model Deployment (SPMD)

- $30.1M
  - $25.5 M Federal Funds
  - $4.6 M Cost Share
    - University of Michigan
    - MEDC
    - MDOT
- 30 month program
  - 12 months planning
  - 12 months deployment
  - 6 months decommissioning
- Extended to 36 months program with limited decommissioning
SPMD Impact

• Key data for USDOT analysis and rulemaking
  – 70+ TB data collected to date
  – 6.9 Million Trips
  – 44.9 Million Miles
  – 1.6 Million Hours
  – 138.5 Billion Records

• NHTSA Advanced Notice of Proposed Rulemaking:
  – New FMVSS No. 150: V2V communication capability for light vehicles
  – Minimum performance requirements for V2V devices and messages

• New Industry Standards
Ann Arbor Connected Vehicle Test Environment (AACVTE)

- $15M
- 3 year program
- Improve Quality of the existing environment
  - Improved verification for new installations
  - Characterize existing installations with corrective actions
  - Migrate to GNSS
- Update to new DSRC standards
  - SAE J2735
  - SAE J2945
  - IEEE 1609.2,3,4
  - SCMS
  - RSU 4.1
  - CVRIA
- Expand Infrastructure footprint
- Increase number of vehicle deployments
300 Aftermarket Safety Devices (ASD)

- Model Deployment
  - 200 with ASD installed
  - 100 with ASD and data system installed
- Targeted vehicles for DAS installs
  - based on greatest vehicle prevalence in 48105 zip code
  - vehicle CAN bus information (thanks to OEM cooperation)

Honda Accord
Saturn Aura
Chevrolet Malibu
Ford Fusion
Honda Civic
Toyota Camry
16 Retrofit Safety Devices in Commercial Vehicle Fleets

(Battelle, Denso, UMTRI)

Sysco Detroit LLC
- Food-service products for restaurants, schools, etc.
- Mix of tractors, trailers

(Southwest Research Institute)

Fleet: Con-way Freight
- Less-than-truckload carrier (daytime pickup/delivery, nighttime line-haul)
- UMTRI/DOT partner in past projects
Transit Safety Retrofit Package
(Safety applications on 3 vehicles)

(Battelle, Denso, UMTRI)

- Applications: Forward crash warning, emergency electronic brake lamps, curve speed warning, pedestrian crossing warning, vehicle turning in front warning
- Model deployment area spans two campuses with high bus traffic between and within.
- Individual buses can have up to 19 hours / day service.
Example ASD Unit Installations
Example Power, Antenna, Speaker Installs
Aftermarket Applications Deployed in SPMD

• Forward Collision Warning (FCW)
• Emergency Electronic Brake Light (EEBL)
• Curve Speed Warning (CSW)
• Transit Applications
  – Right Turn in Front Warning
  – Pedestrian Detection
Applications to be Deployed in AACVTE

- Forward Collision Warning (FCW)
- Emergency Electronic Brake Light (EEBL)
- Curve Speed Warning (CSW)
- Pedestrian in Crosswalk
- Emergency Vehicle Approach
- Red Light Violation
- Long-term:
  - Eco Approach/Departure
  - Event Traffic Management
Challenges with aftermarket

- Antenna Installation
  - Do no damage
  - Maximize performance
- Qualified installers
- Verification/quality control
  - Is the device transmitting
  - Are the antenna offsets correct
Get Connected!

www.aacvte.org