Enabling VII-based Rural Applications

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Foundations

- National ITS Architecture
  - Version 6.0
  - Added VII Functionality
- Enabling Standards
  - IEEE P1609 DSRC/WAVE Family
  - SAE J2735 Message Set
ATIS09 - In Vehicle Signing

Traffic Management
- TMC In-Vehicle Signing Management
  - traffic operator data
  - traffic operator inputs
  - short range communications status

Roadway
- Roadway Short Range Traveler Information Communications
  - roadway equipment coordination
  - driver inputs

Driver
- driver updates

Vehicle
- Vehicle Short Range Traveler Information Reception
  - vehicle signage data

Other Roadway

Maintenance and Construction Vehicle
- vehicle signage data
Non-Urban Environment

- Analyzed FHWA List of Use Cases
- Avoided Long-Range Communications between Vehicles and Remote Service Providers
- Localized
- Isolated
- Traveler Safety and Security Focus
- Non-Weather-related
Potential Non-Urban VII Applications

- Vehicle-to-Vehicle
  - Emergency Vehicle at Scene Warning
  - Post-crash Incident Warning to Other Vehicles
- Road Condition Warning to Other Vehicles
  - Road Feature Notification
  - Environmental Sensing Notification
- SOS Notification
Potential Rural VII Applications

- Vehicle-to-Vehicle (cont.)
  - Lane Change Warning
  - Pre-crash Sensing
  - Visibility Enhancer
  - Cooperative Glare Reduction
Potential Rural VII Applications

- Vehicle-to-Vehicle (cont.)
  - Highway Merge Assistant
  - Speed Limit Assistant
  - Limited Height Warning
Potential Rural VII Applications

- Roadway to/from Vehicle
- Highway / Rail Collision Warning
- Incident Notification via Relay
- Work Zone Information
- Animal Crossing Information
Potential Rural VII Applications

- Probe Data
- Accurate Mapping via Probe Data Feedback
Other Developments

- Traveler to/from Vehicle
Could work in a Rural environment too

Communication between Vehicle-Vulnerable road users with DSRC
Challenges

- Non-Urban Footprint
- Communications
- Operations
- Maintenance
- Institutional
Thank You!

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