Moving VII Forward

NRITS Session F3:
“Rural VII – An Incremental approach ...”

Ralph L. Robinson
ITS Integration Office
September 5, 2008
VII Proof-of-concept Testing

- Goals of the VII Proof of Concept Program
  - Test concept system hardware and software
  - Day 1 applications selected for system performance confirmation

- Vehicle fleet tested in an area located in Novi, MI.
  - 54 RSEs deployed across 40 square mile
  - Small fleet (20 vehicles) gathering probe data
  - VIIC providing 5 for full system performance and application testing and verification
  - Program completed September, 2008
Changes in Direction?

- POC completed
  - Technology, innovation and experience
  - Lessons learned
  - Tough business case hurdles

- Did not resolve all problems but can we move forward quickly?

- Changes Needed
  - Separate “mobility” from “Safety” deployments
  - Increased stakeholder participation
  - Standardized interfaces and protocols
Many VII-like “mobility” applications are emerging in the marketplace now and should be encouraged to grow.

VII “mobility” applications tied to DSRC deployments will be slow and costly.

Which Day 1 Applications really require DSRC?
## Day 1 “Mobility” Applications

<table>
<thead>
<tr>
<th>Applications</th>
<th>V2I</th>
<th>DSRC</th>
<th>LBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Signal Violation Warning</td>
<td>No</td>
<td>Yes</td>
<td>yes</td>
</tr>
<tr>
<td>Stop Sign Violation Warning</td>
<td>No</td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Driver Assistance at Intersections</td>
<td>No</td>
<td>Yes</td>
<td>yes</td>
</tr>
<tr>
<td>Curve Speed Warning</td>
<td>No</td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>In-vehicle signage</td>
<td>Maybe</td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Traffic Signal Optimization</td>
<td>No</td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Ramp Metering</td>
<td>No</td>
<td>Yes</td>
<td>yes</td>
</tr>
<tr>
<td>Traveler Information</td>
<td>Yes</td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Corridor Management</td>
<td>Yes</td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Roadway Maintenance</td>
<td>Yes</td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Electronic Toll Collection</td>
<td>Maybe</td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Electronic Payment</td>
<td>Yes</td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Remote Diagnostics, Map Updates and System Management</td>
<td>Yes</td>
<td>No</td>
<td>yes</td>
</tr>
</tbody>
</table>
Focus on “Mobility” Requirements

- Location based services (LBS) require:
  - Communications system
  - Positioning system (lane level accuracy)
  - Geometric map database (dynamic updates)

- Define these required architecture elements and system interfaces then Standardize them
  - Allow freedom of technology evolution
  - Assure interoperability
  - Help to manage obsolescence
  - Embrace commercial competitiveness
Collision avoidance technologies and applications are a high priority for state, federal and automobile manufacturers.

V2V enables collision avoidance but has a long lead time to deploy in vehicles.

Autonomous technologies deploy quicker:
- Lane departure, rear end collision, etc.
- Expensive radar, lidar and camera technologies.
Let’s Get Started

- USDOT needs to continue to fund VII research into Phase II
- Reform National Working Group among key stakeholders
  - Identify and resolve institutional issues adjusting technologies and architecture as needed
  - Solicit inputs from commercial fleet managers, freight haulers, tolling industry, maintenance organizations, rural agencies, counties, cities, other local agencies and telecoms
- AAHSTO should take a stronger role
  - Define state DOT priorities, requirements and key standards needed
  - A four year Pooled Fund initiative has been started