SafeTrip-21 is in Phase I of redefined VII

**Phase 1** - Leveraging and demonstrating what can be done today:
- POC Test Bed
- SafeTrip-21 Field Operational Test
- V2V and V2I DSRC Applications

**Phase 2** – Preparing for what’s on the horizon

**Phase 3** – Projecting what’s over the horizon
Field Test Bed Scope / Hypotheses

Safety
- Inattention is a contributing factor in majority of crashes; in-vehicle signing can improve safety
- Dynamic alerts reduced slow / stopped traffic crashes at blind curve by 80% in Japan
- Improved pedestrian / bicycle visibility can help improve safety

Mobility
- Traffic probes can provide real-time information on travel conditions – enabling safe trip choices

E-payment
- Parking information and/or electronic payment options facilitate transit
- Enables HOT lane / congestion pricing options
### SafeTrip-21 Field Test Milestones

<table>
<thead>
<tr>
<th>2008</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
</table>

- **Develop Preliminary Operational Capability**
- **Establish Evaluation Criteria / Performance Metrics**
- **Establish Baseline Data Sets**
- **Refine / Finalize Operational Capability**
- **World Congress Exhibition**
- **Initiate Field Test and Data Collection**
SafeTrip-21: Field Operational Test

- Shared Public / Private Commitment
- “Demonstrable” near-term benefits:
  - Informed traveler choice – all roads, all modes, anywhere, anytime
  - Safety, mobility, convenience, energy conservation, environmental footprint
- National test bed and visibility
- Objective evaluation and results
- Sustainable deployment prospects
SAFE TRIP-21: Initial Field Test Site

San Francisco Bay Area
- I-80 / U.S. 50 (200 miles)
  - Bay Area to Lake Tahoe
- I-880 Corridor
  - BART
- SR 84 - Dumbarton Bridge
- SR 237 HOV / HOT
- VII California Test Bed
  - U.S. 101 / SR 82 + I-680
  - Public Transit Services
    - Caltrain
    - VTA Bus / Light Rail
    - SamTrans Bus
    - Stanford Marguerite Shuttle
SF Bay Area Field Test Bed Partners

- Caltrans
- California Center for Innovative Transportation (CCIT)
- California Partners for Advanced Transit and Highways (PATH)
- Metropolitan Transportation Commission (MTC)
- Nokia
- NAVTEQ
- Nissan Motor Company
- U.S. DOT RITA Volpe Center
- Valley Transportation Authority

- $9.5 Million
  Caltrans / Partners
- $2.9 Million
  U.S. DOT
Bay Area Field Test Bed: Safety Sites

- I-880 Corridor
  10-15 Crashes daily

- U.S. 101
  “Hospital Curve”

- California VII Test Bed
  DSRC Intersections

- Others TBD
## Bay Area Test Bed: Vehicle Probes

- **I-80 Corridor to Lake Tahoe**
  - 1,000 probes in 2008

- **SF Bay Area**
  - up to 10,000 in 2009;
  - Coverage of arterials

- **California VII Test Bed**
  - Buses as probes w/wo transit signal priority
Bay Area Test Bed: Extensible Platforms

www.connected-traveler.org
SafeTrip-21: Connected Travel Exhibit at the ITS World Congress

Exhibit Hall Booths
- U.S. DOT / RITA
- California PATH
- Nokia / NAVTEQ

Demonstration Venues
- 11th Avenue Theater
- Manhattan Loop
- TMC of the Future
World Congress Exhibition: Multi-network VII Communications Connectivity

GSM General Packet Radio Service

Consumer Devices

GPS

OBE

V2I

DSRC

RSE

Wi-Fi Hot Spot

Internet

USB

V2V

Backhaul

Bluetooth

Wi-Fi

DSRC
World Congress Exhibition: Intersection Safety Alerts

Watch out for me! Pedestrian, Bicycle

DSRC / WiFi Connectivity for Consumer Electronics
- Cell Phones
- Navigation Devices
- Mobile Internet Devices

Stop Sign Violation Warning
World Congress Exhibition: Situational Safety Alerts

Static Information
- School Zones
- Speed Zones
- Low Clearance

Dynamic Information
- Curve Over Speed
- Active Work Zone
- Slow / Stopped Traffic
- Hazardous Conditions
World Congress Exhibition: Intermodal Trip Planning

Personalized routing choices:
- Shortest
- Quickest
- Predictable
- Lowest Cost
- Reduced Risk
- Energy Efficient
- Bicycle / Pedestrian
- Low Carbon Footprint
World Congress Exhibition: Dynamic Transit Trip Planning

Walk to Shattuck Ave at Kittredge St
Get on actransit, line 18
Next bus: 4 min
Total trip length: 10 min
World Congress Exhibition: GPS Cell Probe Traffic Data

- Privacy protection
- Incident detection
- Traffic speed data
- Dynamic routing
- Opt-in users get travel routing data
- I-80 data; possibly 100 NYC probes
World Congress Exhibit: Parking Reservation / E-Payment

- Find parking
- Reserve space
- Determine fare
- Pay for parking
- Pay for fare
Additional Field Test Possibilities

• SF Bay Area Test Bed or other locations
  • Additional BAA Funding Awards
  • Cooperative Research and Development Agreements

• Target additional SafeTrip-21 objectives, such as:
  • V2V safety applications
  • Commercial vehicle operations
  • Weather related travel safety
  • Wireless communications technology alternatives
SafeTrip-21: The Future Begins Today

- World Class Partners
- World Class Expectations
- World Changing Impact