

SafeTrip-21

ITS Program Advisory Committee

July 31, 2008



U.S. Department of Transportation
Research and Innovative Technology Administration

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

2008	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
------	-----	-----	-----	-----	-----	-----	-----	-----

Develop Preliminary Operational Capability



Establish Evaluation Criteria / Performance Metrics



Establish Baseline Data Sets



Refine / Finalize Operational Capability



World Congress Exhibition

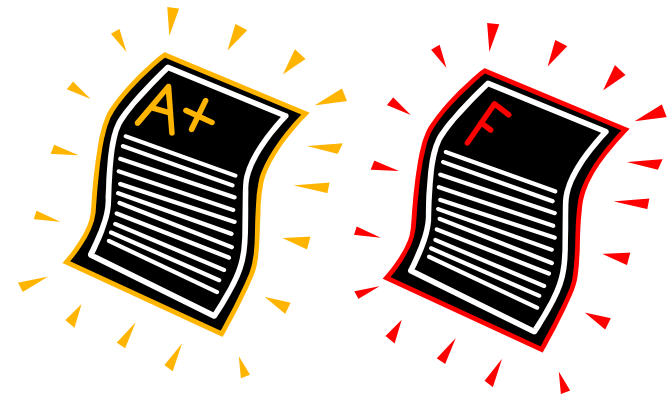


Initiate Field Test and Data Collection

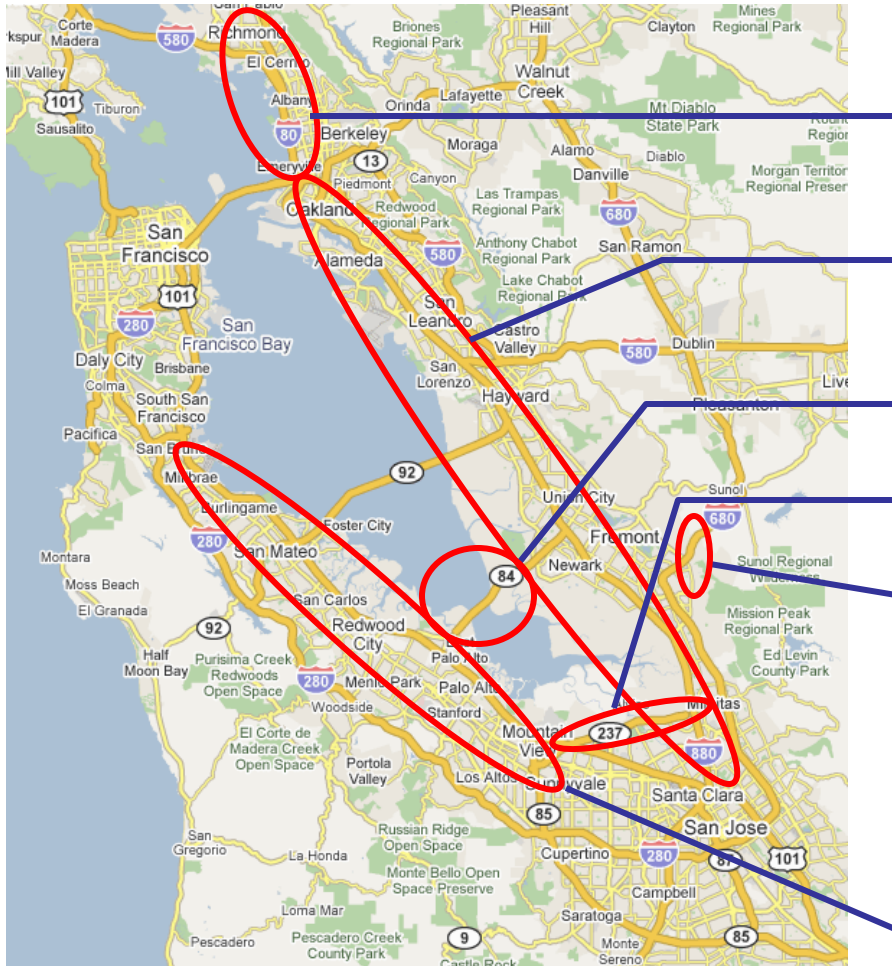


SafeTrip-21: Field Operational Test

- **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

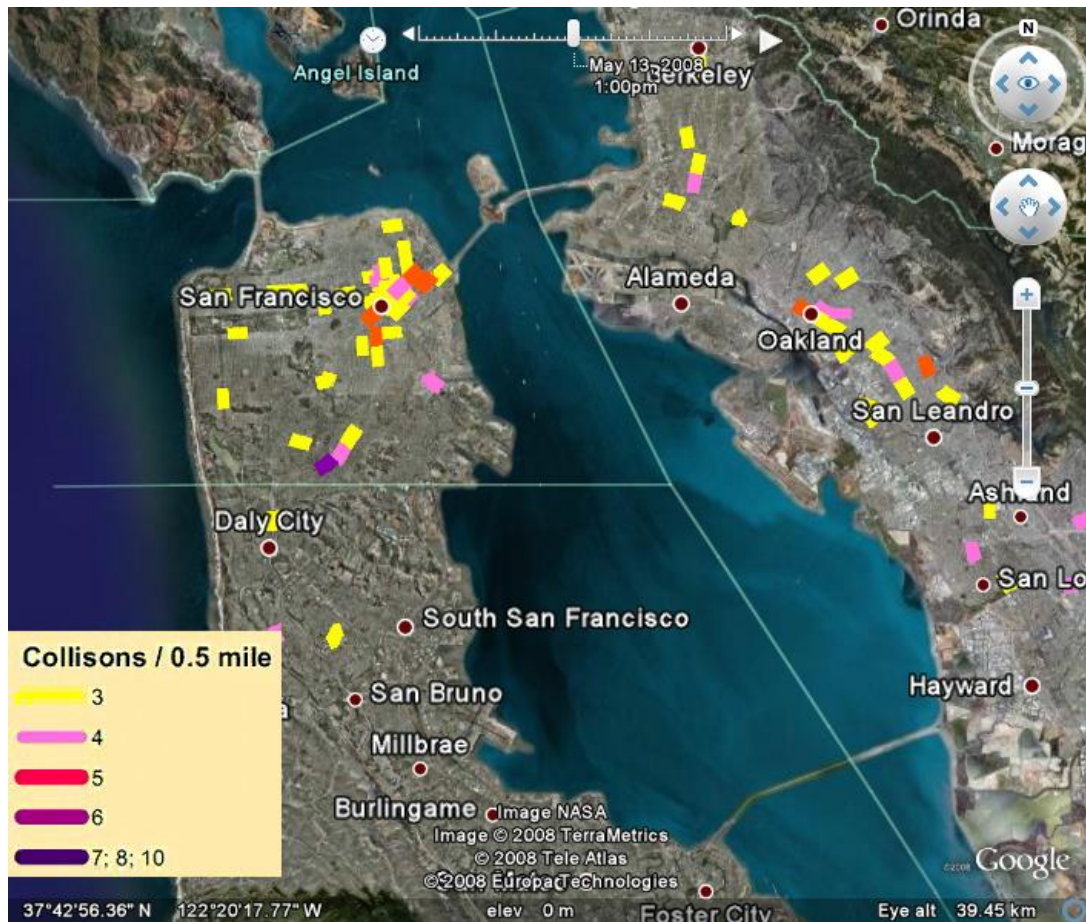
SF Bay Area Field Test Bed Partners



- **\$9.5 Million**
Caltrans / Partners
- **\$2.9 Million**
U.S. DOT

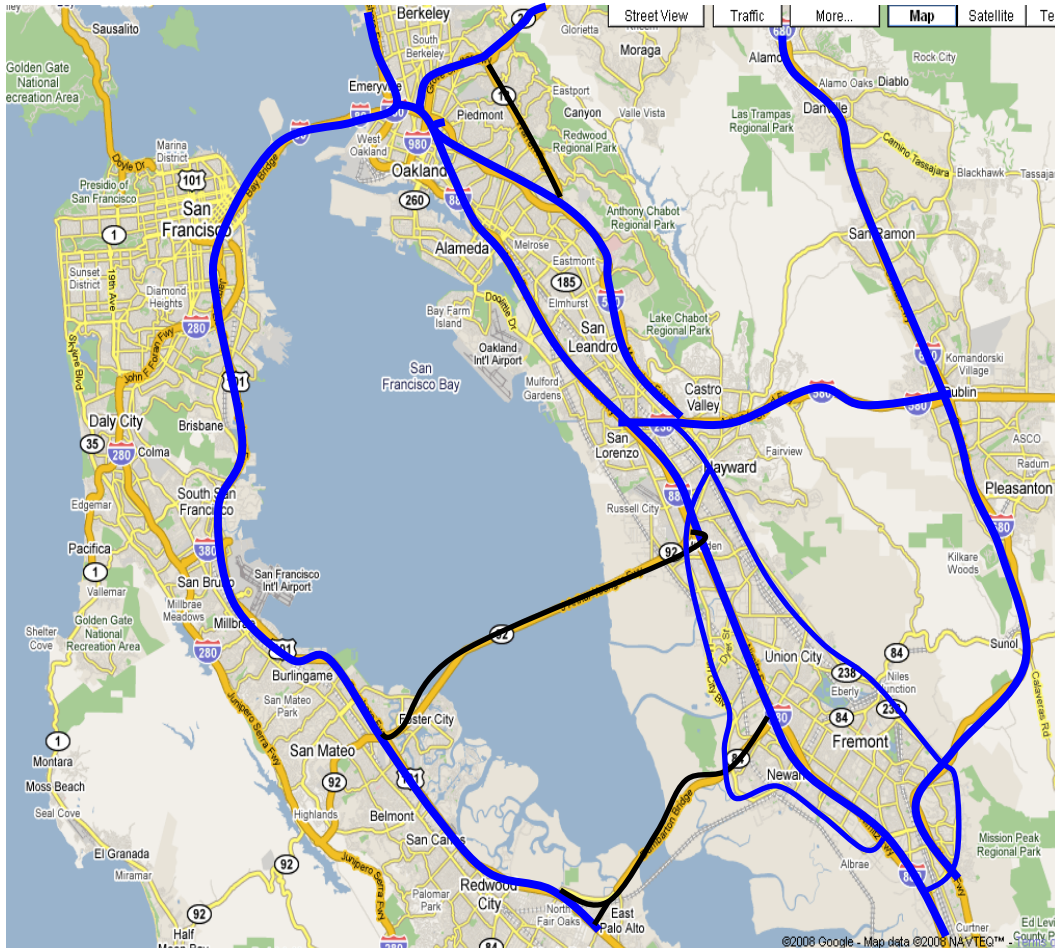
- Caltrans
- California Center for Innovative Transportation (CCIT)
- California Partners for Advanced Transit and Highways (PATH)
- Metropolitan Transportation Commission (MTC)
- Nokia
- NAVTEQ
- Nissan Motor Company
- U.S. DOT RITA Volpe Center
- Valley Transportation Authority

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

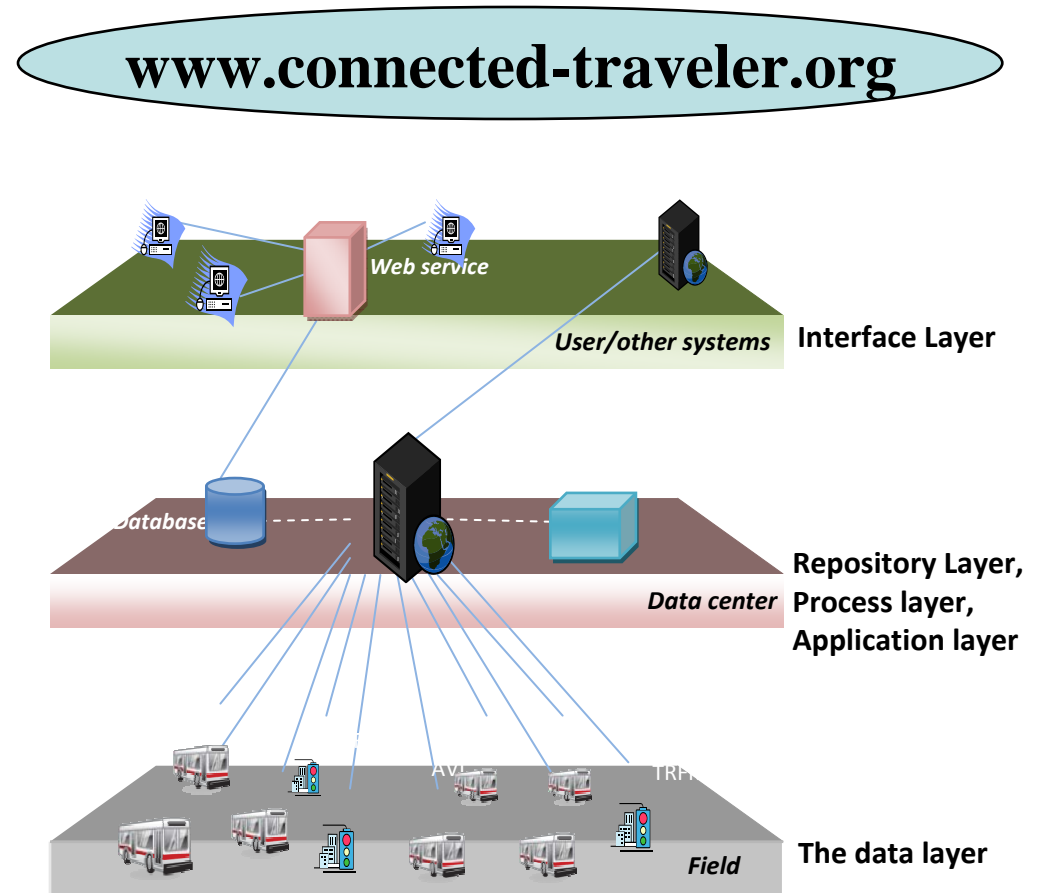
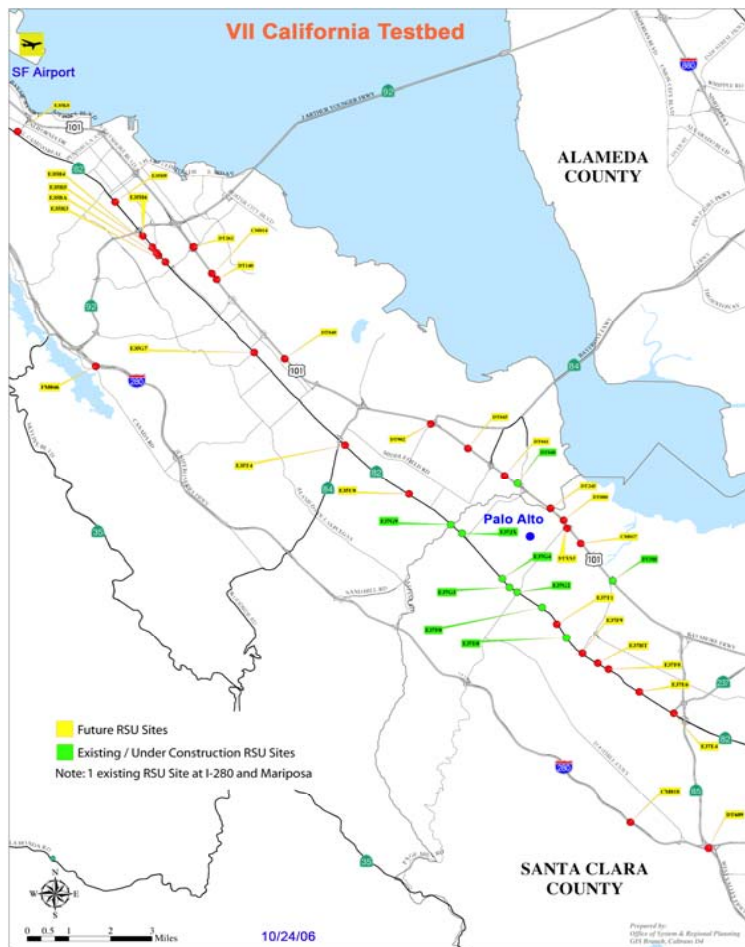
- **SF Bay Area**

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



SafeTrip-21: Connected Travel Exhibit at the ITS World Congress

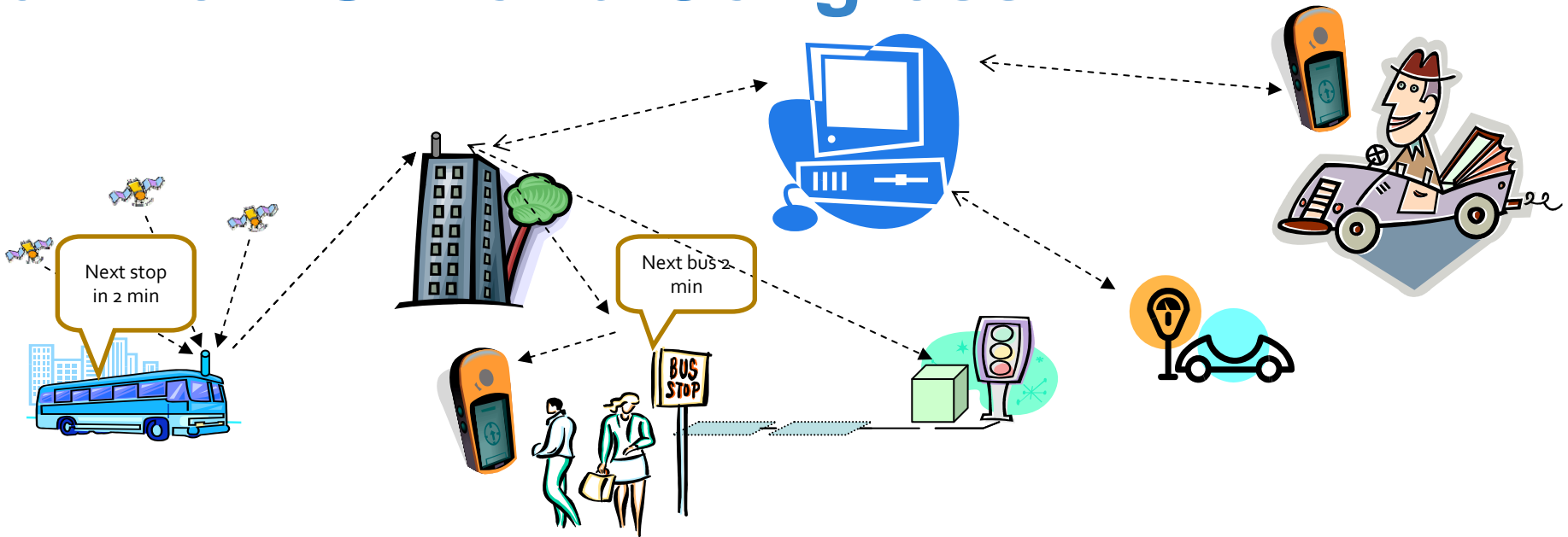


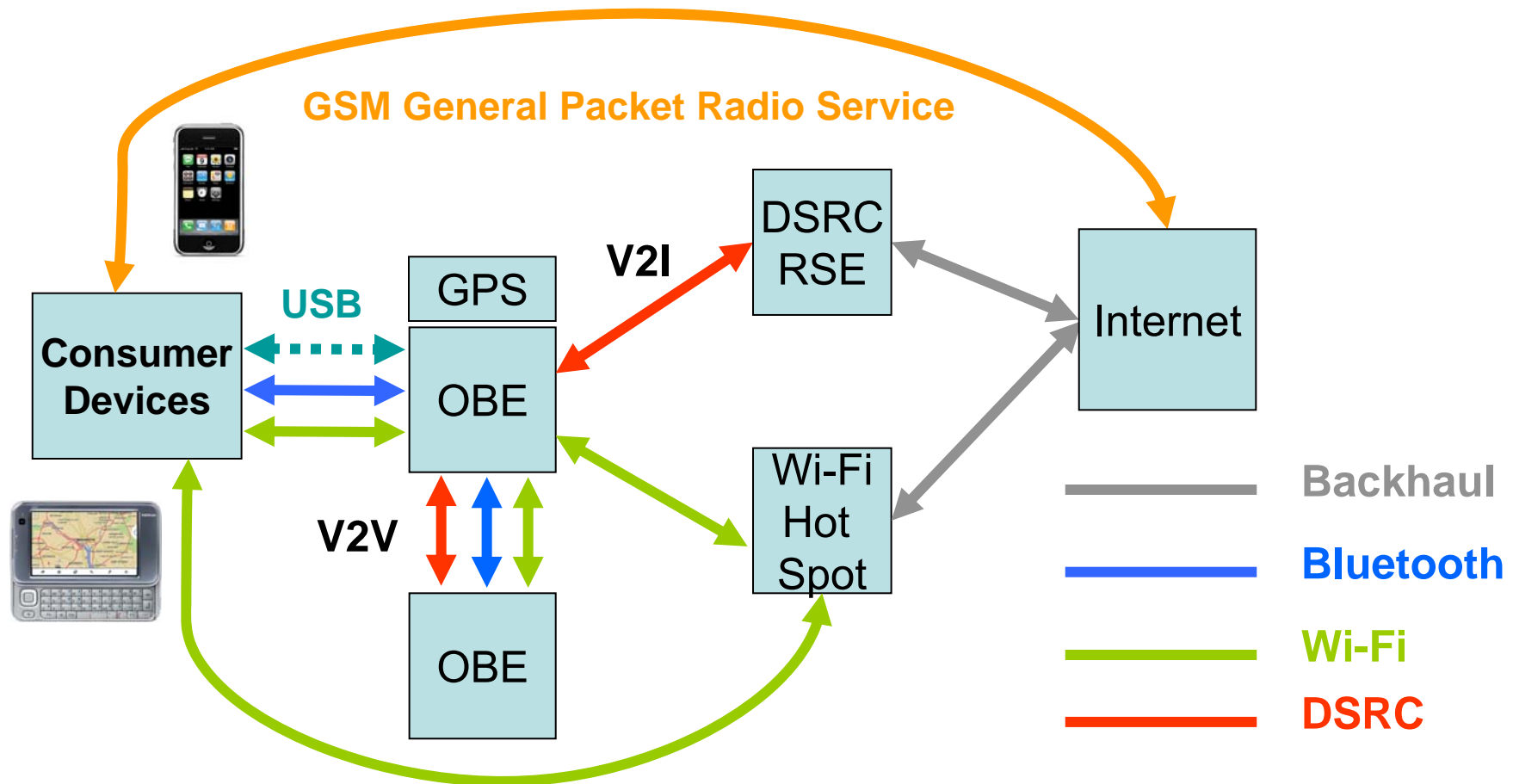
Exhibit Hall Booths

- 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



World Congress Exhibition: Intersection Safety Alerts

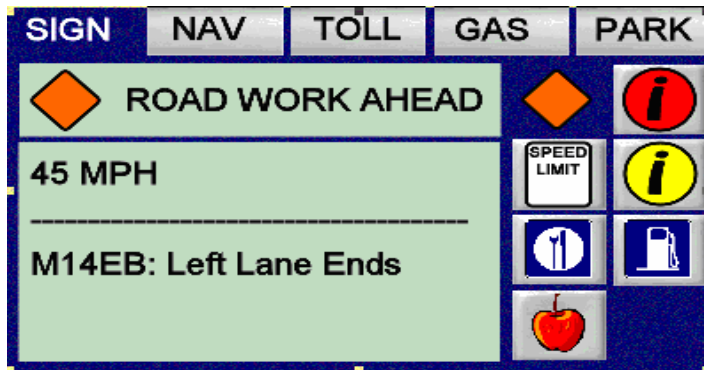


DSRC / WiFi Connectivity for Consumer Electronics

- Cell Phones
- Navigation Devices
- Mobile Internet Devices

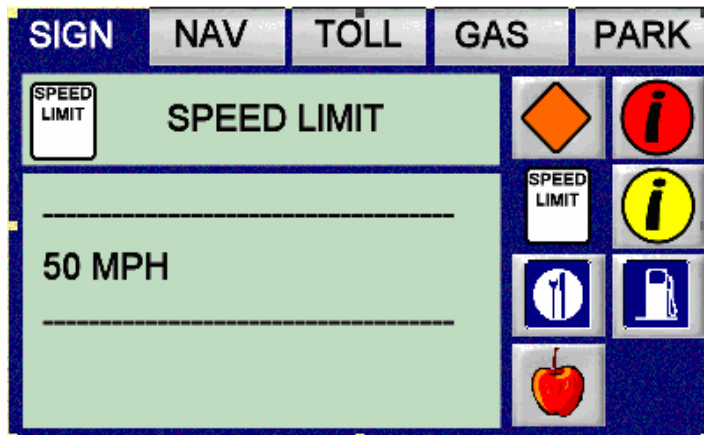


World Congress Exhibition: Situational Safety Alerts



Static Information

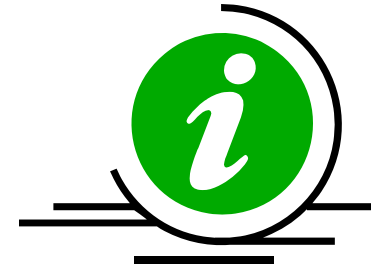
- School Zones
- Speed Zones
- Low Clearance



Dynamic Information

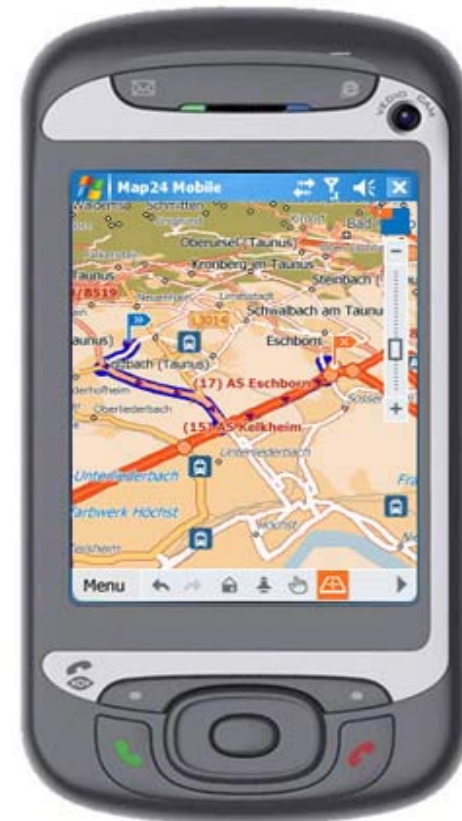
- Curve Over Speed
- Active Work Zone
- Slow / Stopped Traffic
- Hazardous Conditions

World Congress Exhibition: Intermodal Trip Planning



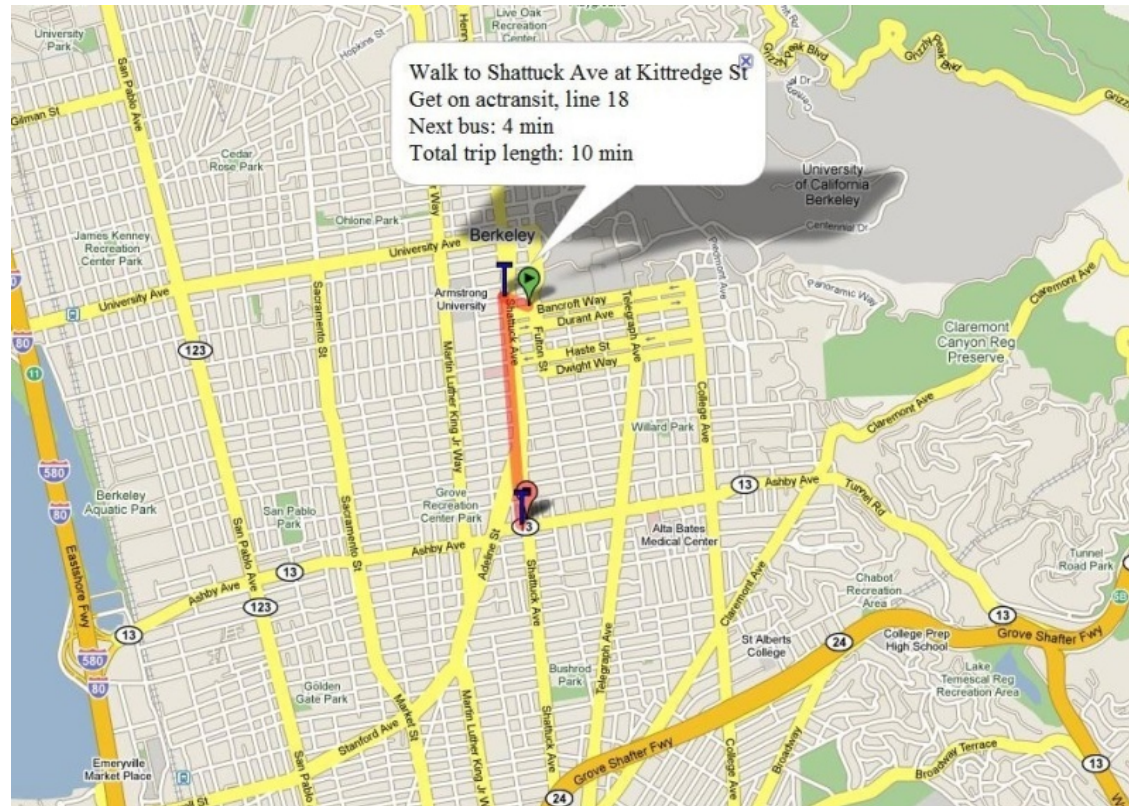
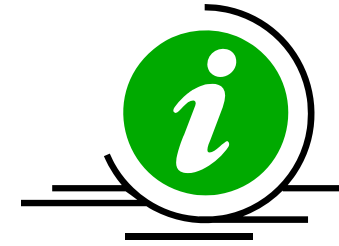
Personalized routing choices:

- Shortest
- Quickest
- Predictable
- Lowest Cost
- Reduced Risk
- Energy Efficient
- Bicycle / Pedestrian
- Low Carbon Footprint

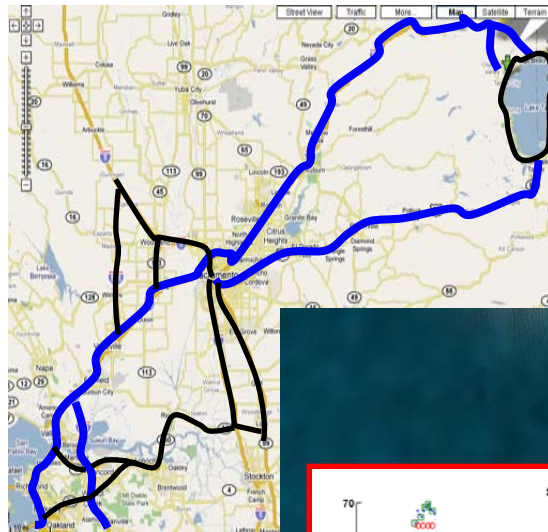
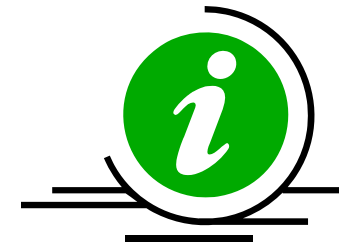


15

World Congress Exhibition: Dynamic Transit Trip Planning

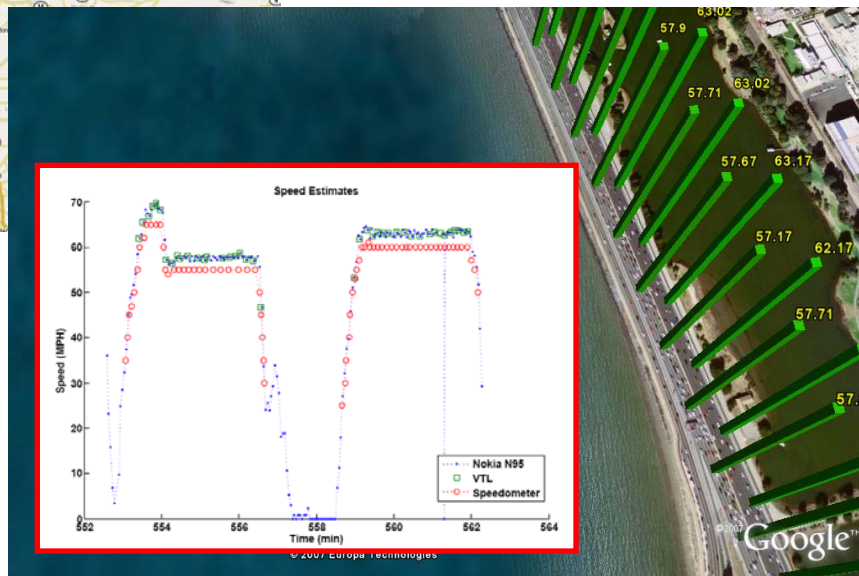


World Congress Exhibition: GPS Cell Probe Traffic Data



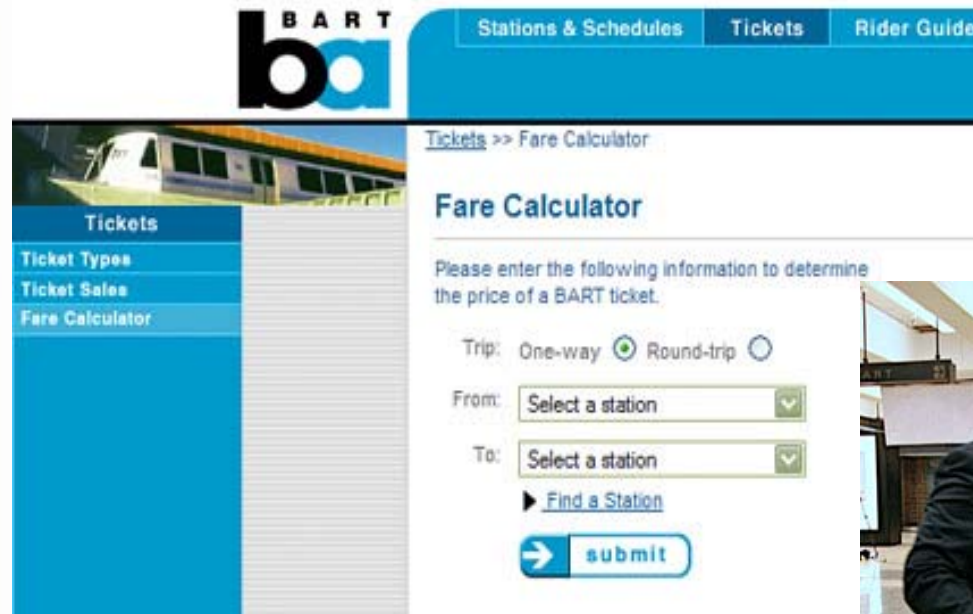
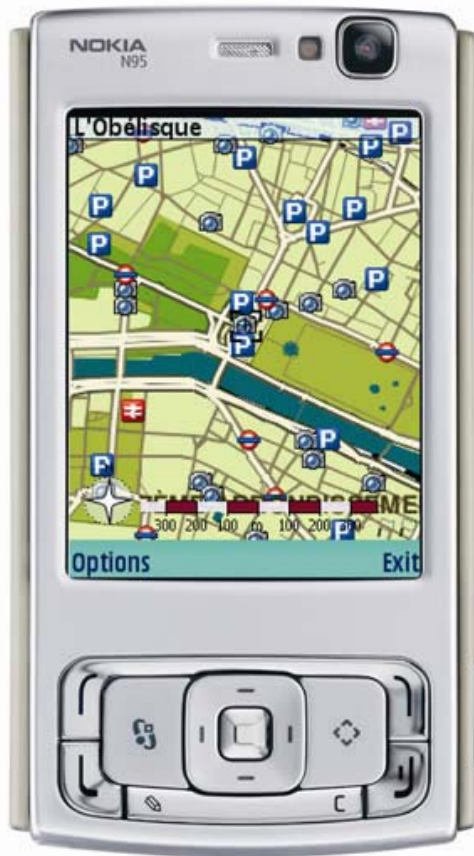
Lake Tahoe

SF Bay Area



- 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

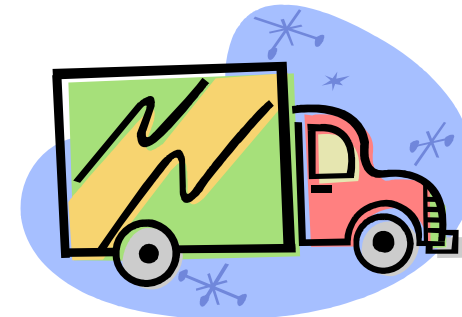


- Find parking
- Reserve space
- Pay for parking
- Determine fare
- Pay for fare



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