I-95 Corridor Coalition Vehicle Probe Project Validation

ITS World Congress

November 2008

Philip J. Tarnoff

University of Maryland

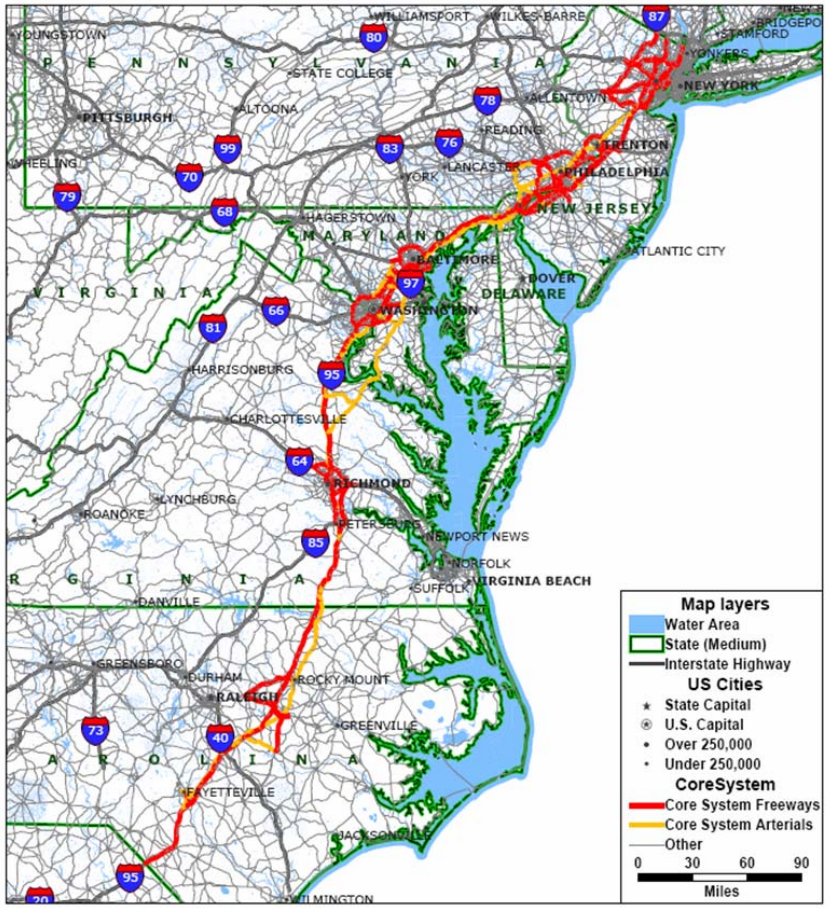
Network Coverage

Core Coverage

- 1500 Freeway miles
- 1000 Arterial miles
- New Jersey to North Carolina

Expansions

- All NJ Freeways
- NC Freeways
  - in planning



Program Features

- **Data Feed Content**
  - Real-time Speed, Travel Time, Confidence level
  - Average Speed, Free Flow Speed
  - Travel Time Updates Every Two Minutes
- **Monitoring Site**
  - Agency Access Only
  - View data in real-time

Data Quality Specifications

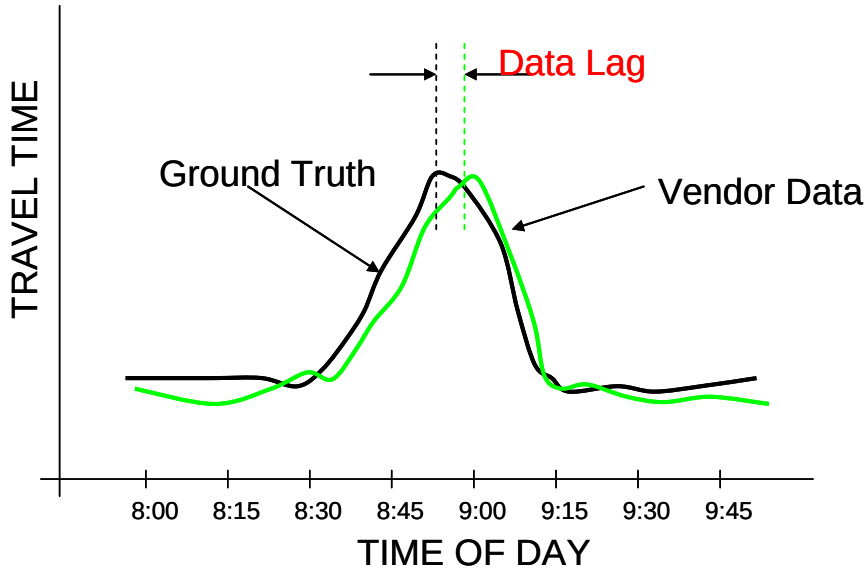
Specs are applied to freeways with flows/demand exceeding 500 vehicles per hour per direction

- Travel Time / Speed Data
  - Accuracy is assessed in four flow regimes
    0 - 30 MPH 30-45 MPH
    45-60 MPH > 60 MPH
- In each range the following apply
  - Max average absolute speed error 10 MPH
  - Speed error bias +/- 5 MPH Max
- Based on space mean speed - (distance/travel time)

Data Quality Specifications cont'd

- Data Lag - Maximum 8 minutes

Data Lag is the difference between the time the traffic flow is perturbed as a result of an incident and the time that the change in speed is reported in the traffic data.



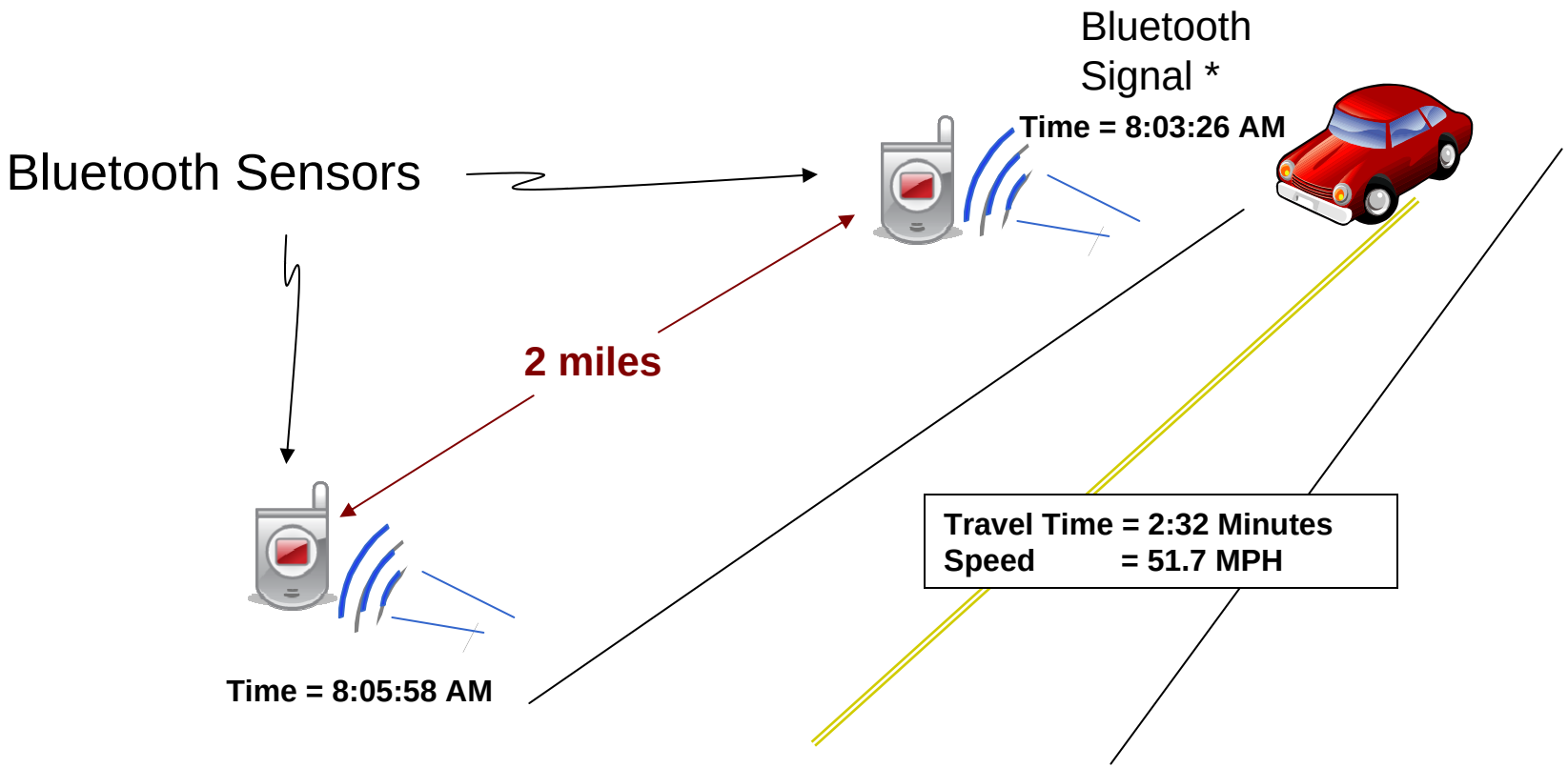
Data Validation

- Initial Validation (system acceptance)
  - July through October 2008
  - ~ 240 miles
  - Report due in October
- Ongoing Validation
  - Commences in October 2008
  - ~ 80 miles
  - Monthly reports

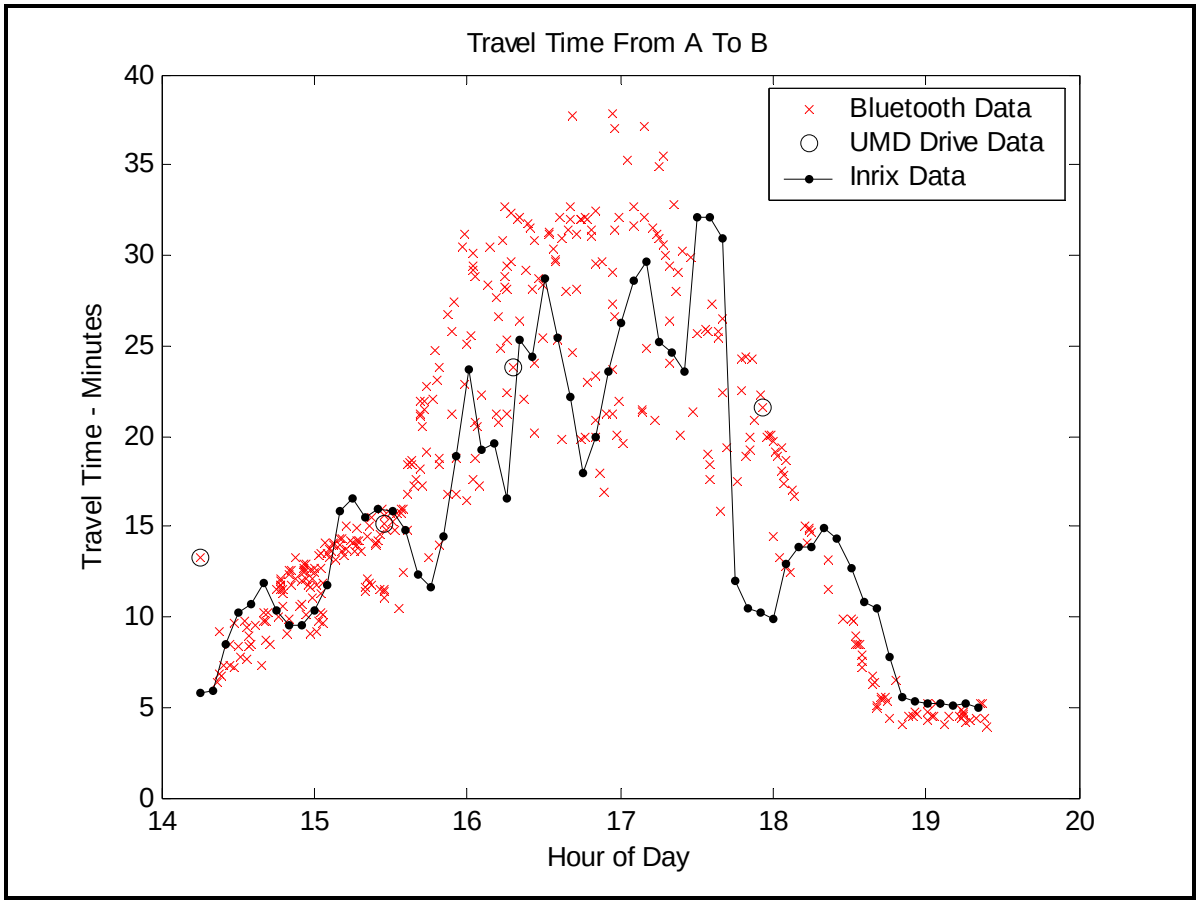
Data Validation cont'd

- Locations
  - Statistically representative of corridor
  - Chosen in cooperation with agencies
  - Seeking high likelihood of congestion
- Ground Truth Data
  - Floating car data
  - Bluetooth anonymous probes

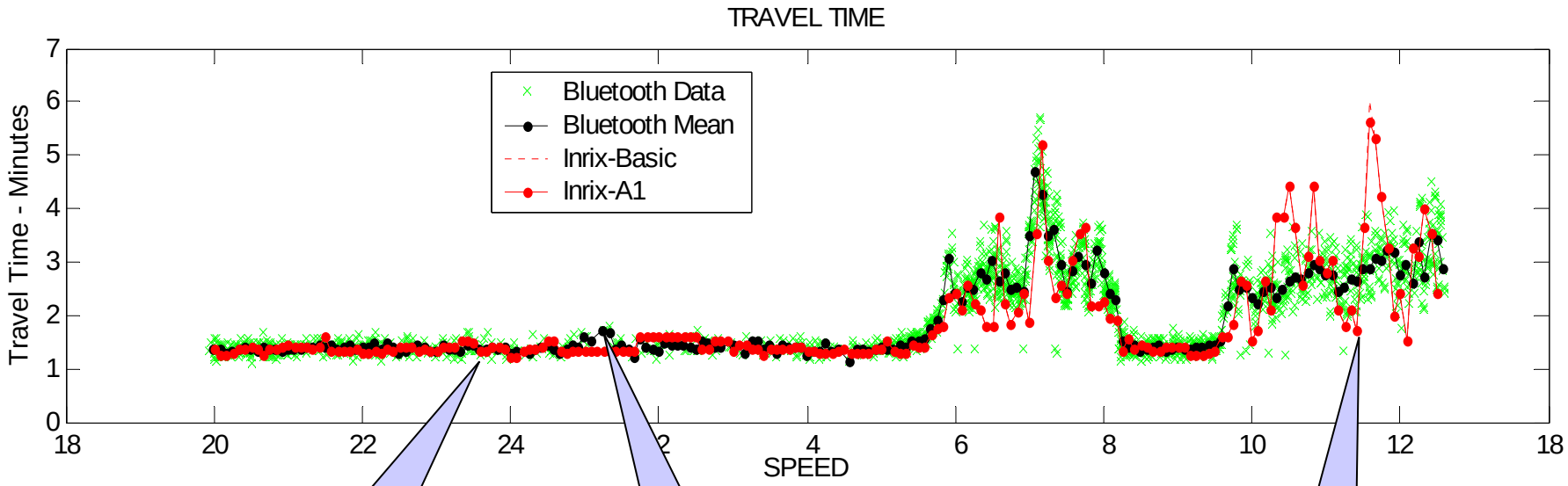
Bluetooth Traffic Monitoring



Sample Validation



Sample Travel Time - Plot

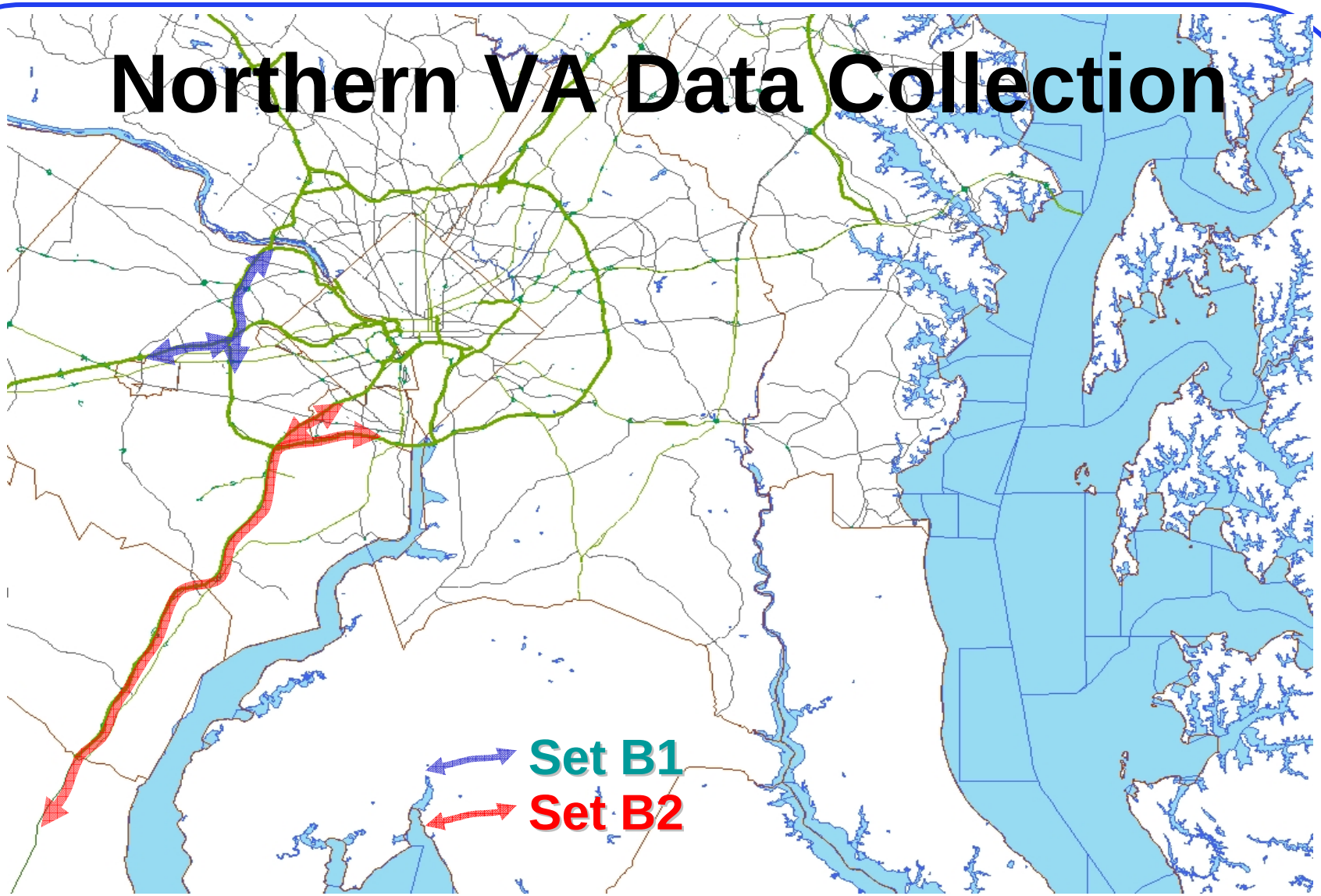


Green Markers: Individual Bluetooth Ground Truth Data Point

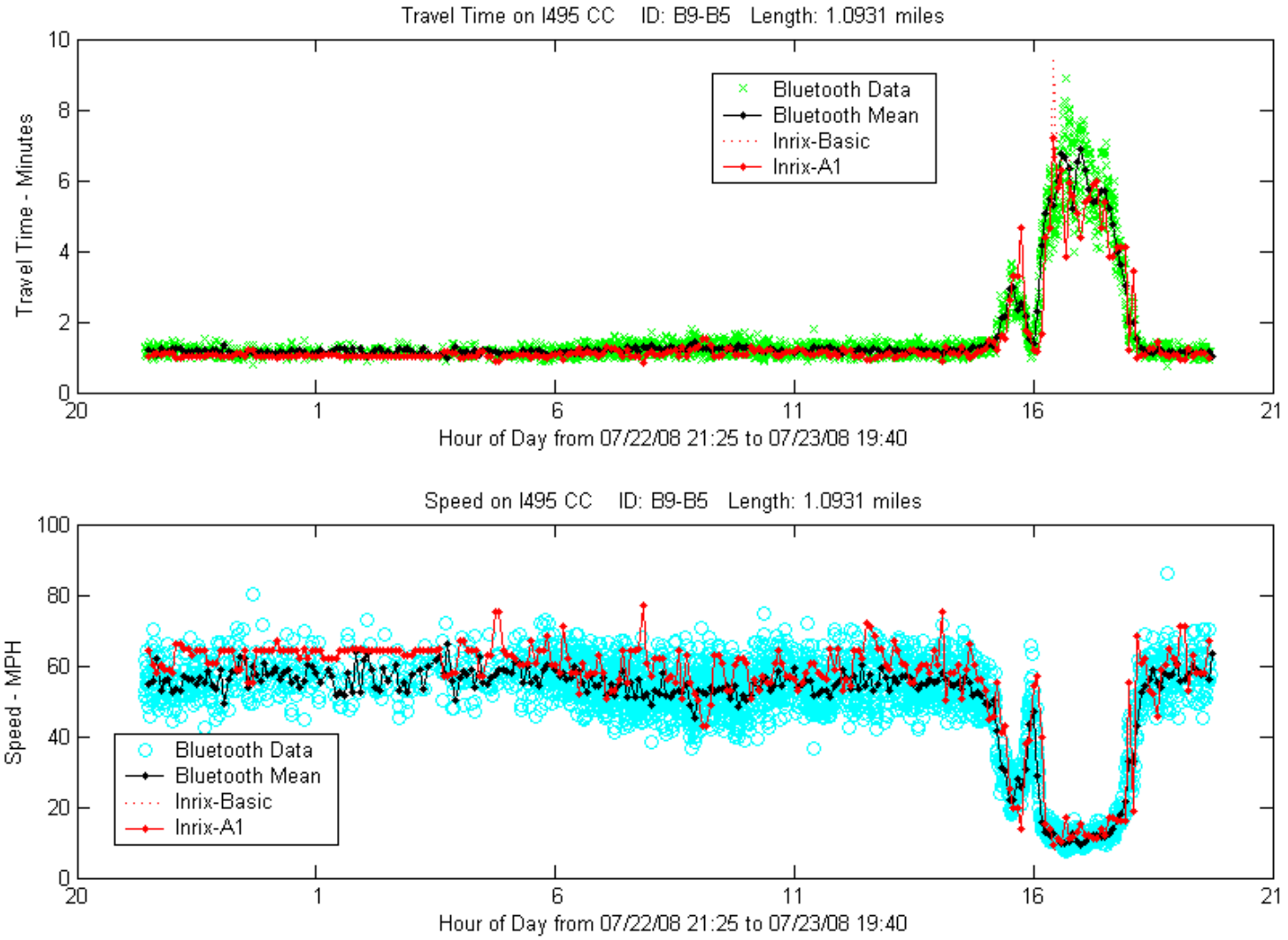
Black Line: Mean of the Bluetooth Ground Truth Data

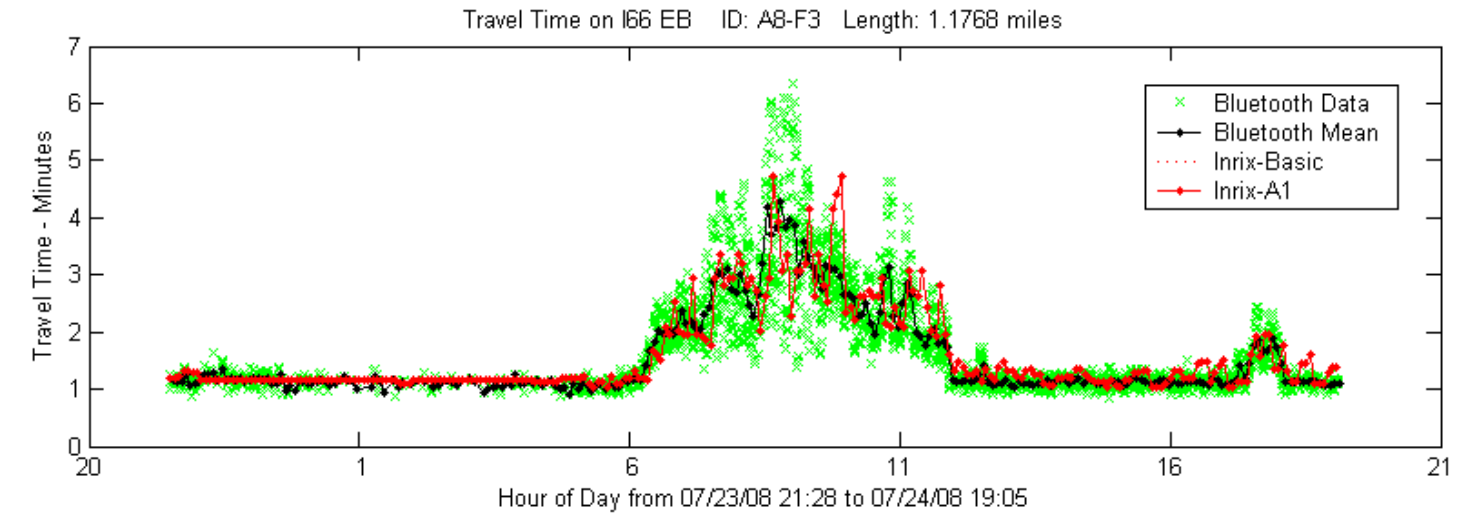
Red Line: Travel Time from Inrix Data Feed

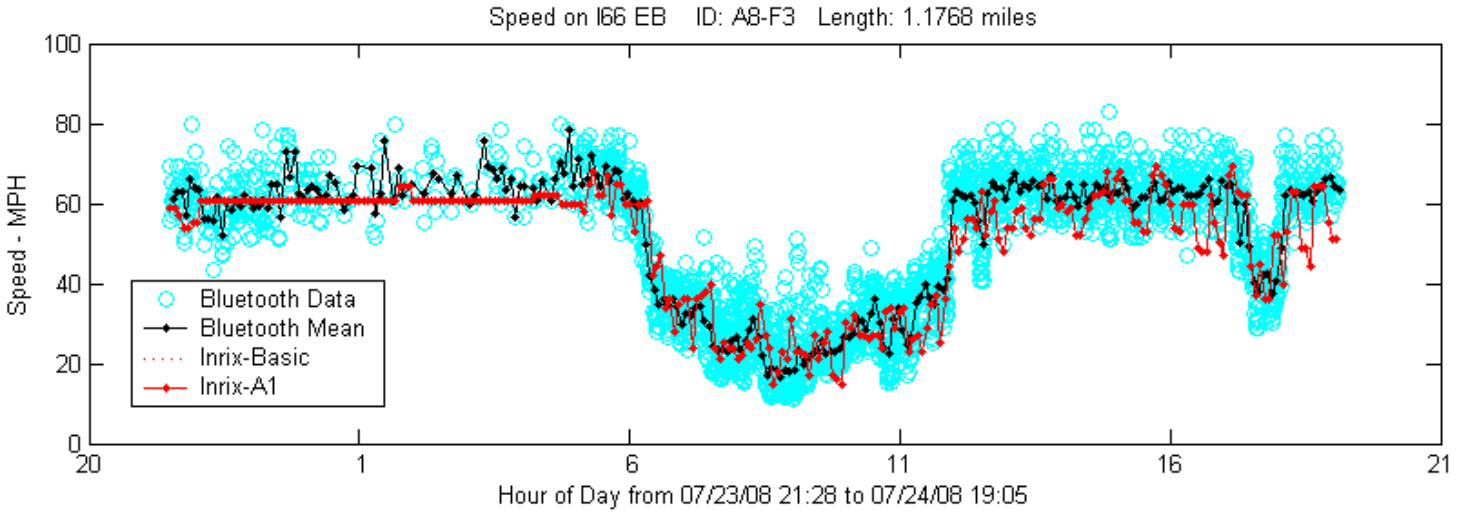
Northern VA Data Collection

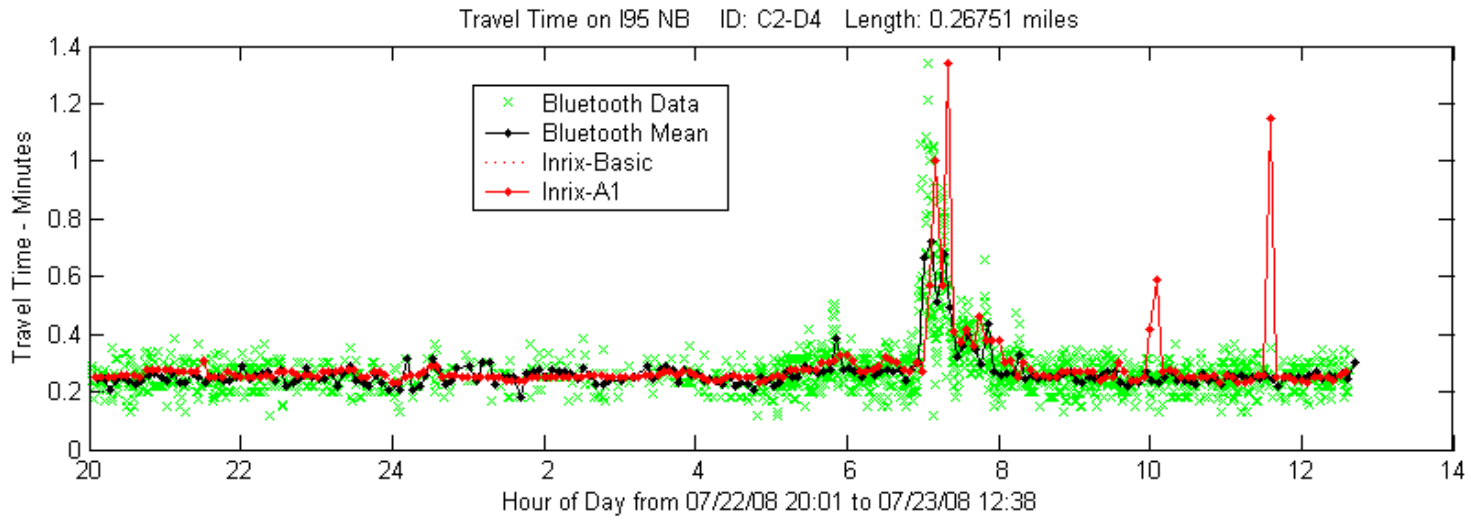


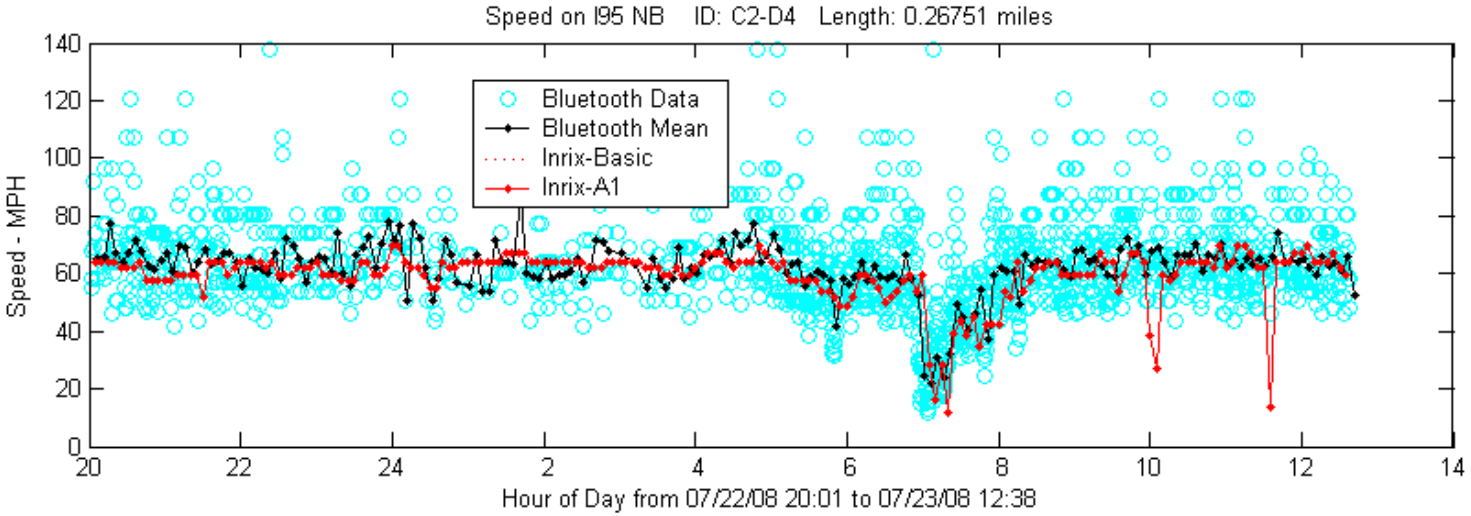
Revised 7-25-08


Travel Time on I495 CC ID: B9-B5 Length: 1.0931 miles
Travel Time - Minutes
Bluetooth Data
Bluetooth Mean
Inrix-Basic
Inrix-A1
Hour of Day from 07/22/08 21:25 to 07/23/08 19:40
Speed on I495 CC ID: B9-B5 Length: 1.0931 miles
Speed - MPH
Bluetooth Data
Bluetooth Mean
Inrix-Basic
Inrix-A1
Hour of Day from 07/22/08 21:25 to 07/23/08 19:40


Travel Time on I66 EB ID: A8-F3 Length: 1.1768 miles
Travel Time - Minutes
Hour of Day from 07/23/08 21:28 to 07/24/08 19:05
Bluetooth Data
Bluetooth Mean
Inrix-Basic
Inrix-A1


Speed on I66 EB ID: A8-F3 Length: 1.1768 miles
Speed - MPH
Hour of Day from 07/23/08 21:28 to 07/24/08 19:05
Bluetooth Data
Bluetooth Mean
Inrix-Basic
Inrix-A1


Travel Time on I95 NB ID: C2-D4 Length: 0.26751 miles
Travel Time - Minutes
Bluetooth Data
Bluetooth Mean
Inrix-Basic
Inrix-A1
Hour of Day from 07/22/08 20:01 to 07/23/08 12:38


Speed on I95 NB ID: C2-D4 Length: 0.26751 miles
Speed - MPH
Bluetooth Data
Bluetooth Mean
Inrix-Basic
Inrix-A1
Hour of Day from 07/22/08 20:01 to 07/23/08 12:38

Questions?

- Bill Stoeckert at 774.207.0367 or wstoeckert@yahoo.com
- Stan Young at seyoung@umd.edu or 301.403.4593
- Rick Schuman at 407.298.4346 or rick@inrix.com