

Vehicle Probe Project Web Conference



Status Update

December 8, 2010



Call Courtesies

- Please give your name and agency before asking your question (at least the first time)
- Please keep your phone muted until asking a question or speaking (**press *6 to mute/unmute individual phone lines**)
- Please press *0 to speak to an operator for questions regarding audio
- Please call 610-662-5569 for difficulties with the web application

Agenda

Topic		Speaker
1	Introductions and Welcome	Bill Stoeckert
2	Communications Update	Karen Jehanian
3	INRIX Update	Rick Schuman
4	Data Validation Update	Phil Tarnoff
5	Vehicle Probe Year 19 Update	Bill Stoeckert
6	Spotlight Presentation: Real-time System Management Information Program – Final Rule	Bob Rupert
7	Agency Questions and Updates	All
8	Contract Update	Kathy Frankle
9	Participation in Meetings/Conferences	Karen Jehanian
10	Review of Action Items from this call	Karen Jehanian
11	Selection of Date for Next Webcast	All

Introductions and Welcome

Bill Stoeckert
I-95 Corridor Coalition

Communications Update

Karen Jehanian

- Coalition Website Postings/
Correspondence
- Meetings with Agencies

Project Team Correspondence

Coalition Website Postings		
DOCUMENT	DATE POSTED	LOCATION ON WEBSITE
Information on Upcoming Webcast on the Use of Archive Data for Planning and Operations Performance Measures	November 19, 2010	TISPTC Page in the "Travel Information News Flashes" box
October 27, 2010 VP Team Webcast – Presentation and Meeting Minutes	November 13, 2010	On the Highlights page under "Project Presentations"
Original RFP Maps for Vehicle Probe Project	October 25, 2010	On the Highlights page under "Technical Information"
Correspondence Sent to the VPP Team		
DOCUMENT	DATE SENT	METHOD
October 27, 2010 VP Team Webcast – Presentation and Meeting Minutes	December 1, 2010	Via email

VP System Integration Meetings

State	2009 Meetings/ Webcasts	2010 Meetings/ Webcasts	2011 Meetings/ Webcasts
Delaware	Nov. 9, 2009		
Florida			
Georgia		Held on April 19, 2010	
Maryland	Sept. 29, 2009		
New Jersey	May 11, 2009		
North Carolina	July 2, 2009		
Pennsylvania		Held on April 1, 2010	
South Carolina	Nov. 18, 2009		
Virginia		Held on Aug. 30, 2010	

INRIX Update

Rick Schuman

- Project Statistics
- Other Topics
 - Maryland/MdTA Coverage Inclusion
 - Explaining Score by Time of Day

Project Statistics

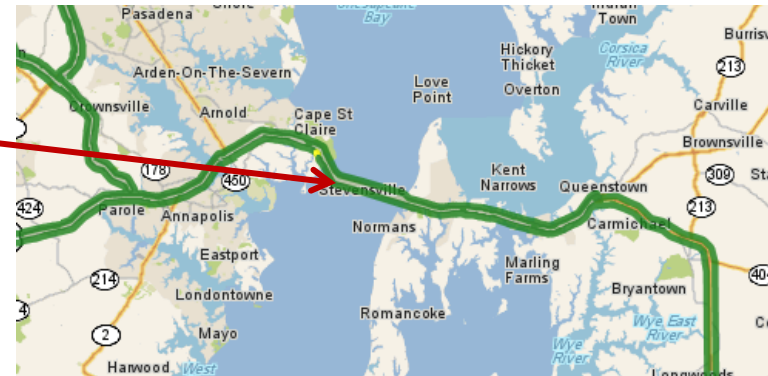
- Availability
 - 100% in October
 - 99.9%+ since launch (vs. 99% contract requirement)
 - November 17 issue
 - Reporting only “20” scores for 6hr, 10 min (05:03–11:13 EST)
 - Will be reflected in November availability results
- Users (as of 11/29/10)
 - Monitoring Site – 407
 - Data Feed – 43
 - Archive requests – 494 since launch

Maryland/MdTA Coverage Inclusion

MD Coverage Expansion (8/31/10)



US 50/Bay Bridge Gap Now Filled In



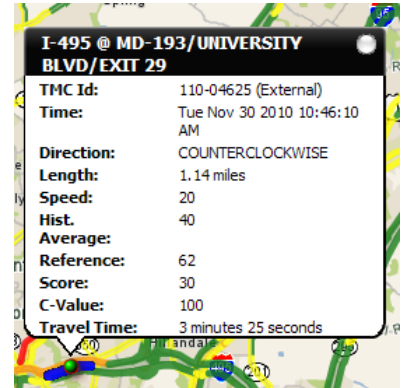
Included in Maryland TMC Sets for Feeds

Explaining Score by Time of Day

- Interface Guide explains Score and C-Value parameters
 - Technojargon
- Still get asked to “boil it down”
- Also asked recently by NJDOT/Transcom
 - What happens between 10pm – 5am?
- Next two slides offer layman's explanation

Explaining “Score” by Time of Day (page 2 of 3)

- 3 Speed Values in Data for each segment
 - “Reference” – free flow speed for segment
 - Determined by 85th percentile of overnight speeds
 - Capped at 65 MPH
 - Computed each map update – rarely changes
 - “Hist. Average” – expected speed that time/day
 - Average speed for specific time/day, between 5A and 10P
 - Computed each map update – rarely changes
 - Based 2 most recent years of data at time of map update
 - “Speed” – best estimate of current conditions
 - If enough raw real-time data to compute reliable speed estimate
 - Real-time speed estimate computed and published (Score = 30)
 - » C-Value (0-100 Scale; 0 – low, 100 – high) included as parameter when Score = 30
 - Note: Overnight (10P-5A) processing more rigorous to reduce false congestion reporting probability
 - If not enough raw real-time data to compute reliable speed estimate
 - From 5am to 10pm each day, historical speed is provided, (Score = 20)
 - From 10pm to 5am each overnight, reference speed is provided (Score = 10)



Explaining "Score" by Time of Day (page 3 of 3)

Metric	Hour of Day																									
	12-1A	1-2A	2-3A	3-4A	4-5A	5-6A	6-7A	7-8A	8-9A	9-10A	10-11A	11-12P	12-1P	1-2P	2-3P	3-4P	4-5P	5-6P	6-7P	7-8P	8-9P	9-10P	10-11P	11P-12A		
Speed ("S")	S or R					S or H														S or R						
Historical Speed ("H")	R				R	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	R	--	R
Reference Speed ("R")	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R

Examples

GARDEN STATE PKWY @ SEA ISLE BLVD/EXIT 17

TMC Id: 103+04545 (External)
 Time: Tue Nov 30 2010 10:15:54 AM
 Direction: NORTHBOUND
 Length: 3.66 miles
 Speed: 61
 Hist. Speed: 61
 Average: 65
 Reference: 65
 Score: 20
 Travel Time: 3 minutes 36 seconds

5A-10P

S → H (Score = 20)

I-76 @ US-1/CITY AVE/EXIT 340/EXIT 339

TMC Id: 103P04270 (Internal)
 Time: Wed Oct 27 2010 10:44:45 PM
 Direction: EASTBOUND
 Length: 0.67 miles
 Speed: 65
 Hist. Speed: 57
 Average: 57
 Reference: 57
 Score: 30
 C-Value: 24
 Travel Time: 37 seconds

10P-5A

S = S (Score = 30)

US-40 @ CR-581

TMC Id: 103-05594 (External)
 Time: Wed Oct 27 2010 10:42:21 PM
 Direction: WESTBOUND
 Length: 1.93 miles
 Speed: 52
 Hist. Speed: 52
 Average: 52
 Reference: 52
 Score: 10
 Travel Time: 2 minutes 14 seconds

10P-5A

S → R (Score = 10)

Data Validation Update

Phil Tarnoff

- Status and Schedule
- Maryland Results – October 2010
 - Freeway Summary
 - Ramp Summary
- More Score Analysis
- Other Issues

Data Validation Status

Month and Year	State / Location	Ground Truth Data Collection [By mid-month]	Data Processed and Preliminary Results Ready for Review [By end of Month]	UMD Review	INRIX Review	State Review & Briefing [+ 2 weeks]	Publish [+ 2 weeks]
				[+ 2 weeks]			
Aug-10	Pennsylvania	<i>Aug 19 - Aug 30, 2010</i>	<i>6-Oct-10</i>	<i>20-Oct-10</i>	<i>20-Oct-10</i>	10-Dec-10	24-Dec-10
Sep-10	Virginia	<i>Sep 8 - Sep 16, 2010</i>	<i>14-Oct-10</i>	14-Dec-10	14-Dec-10	15-Nov-10	29-Nov-10
Oct-10	Maryland	<i>Oct 8 - Oct 18, 2010</i>	<i>19-Nov-10</i>	<i>26-Nov-10</i>	<i>26-Nov-10</i>	10-Dec-10	24-Dec-10
Nov-10	Delaware	11/14/2010	14-Dec-10	28-Dec-10	28-Dec-10	13-Jan-11	27-Jan-11
Dec-10	-	-	-	-	-	-	-
Jan-11	North Carolina	1/1/2011	1-Feb-11	15-Feb-11	15-Feb-11	3-Mar-11	17-Mar-11
Feb-11	South Carolina	2/1/2011	1-Mar-11	15-Mar-11	15-Mar-11	31-Mar-11	14-Apr-11

- PA arterials corrected, final report updated
- VA deployed in Sep, report based on 30% historical data
 - Reprocessed in early Dec, pending Coalition review
- MD deployed in Oct, pending state review
- DE deployed in Nov, pending Coalition review
- NC in Jan 2011, SC in Feb 2011

Maryland Validation - Oct 2010

Freeways –

8 paths, 24 TMCs

Ramps -

7 ramps, 19 TMCs

5.9 miles of ramps

15 miles total

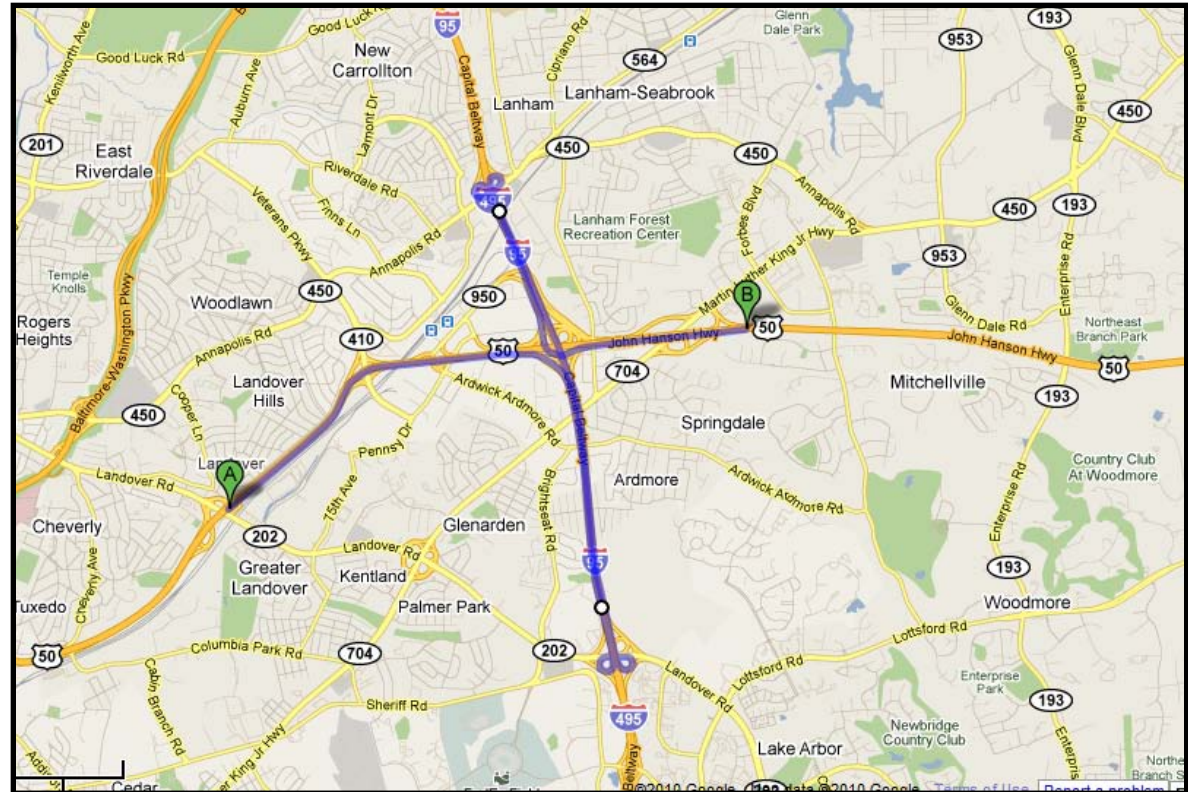
All ramps except

NB495 to WB50

Arterials –

4 paths, 7.6 miles

Most productive
deployment yet !!!!!



Maryland Validation

October 2010

- Freeway Summary
 - 8 Freeway segments on US50 and I495/I95
 - Oct 6, 2010 through Oct 18, 2010
 - 13.4 miles of Freeway validation
 - **35.3 hours < 30 MPH**
 - **28.4 hours 30-45 MPH**
 - AASE in lower two bands
2.4 / 4.3 (10 MPH is spec)

Maryland Validation Chart

October 2010

MD Evaluation Summary						
Speed Bin	Absolute Speed Error (<10mph)		Speed Error Bias (<5mph)		Number of 5 Minute Samples	Hours of Data Collection
	Comparison with SEM Band	Comparison with Mean	Comparison with SEM Band	Comparison with Mean		
0-30 MPH	2.40	3.50	1.20	1.50	424	35.3
30-45 MPH	4.30	7.40	3.10	5.40	341	28.4
45-60 MPH	2.60	5.50	2.10	4.50	2785	232.1
> 60 MPH	1.90	4.70	-1.40	-2.70	7837	653.1
All Speeds	2.16	4.93	-0.31	-0.54	11387	948.9

Based upon data collected from October 6, 2010 through October 18, 2010 across 13.4 miles of roadway.

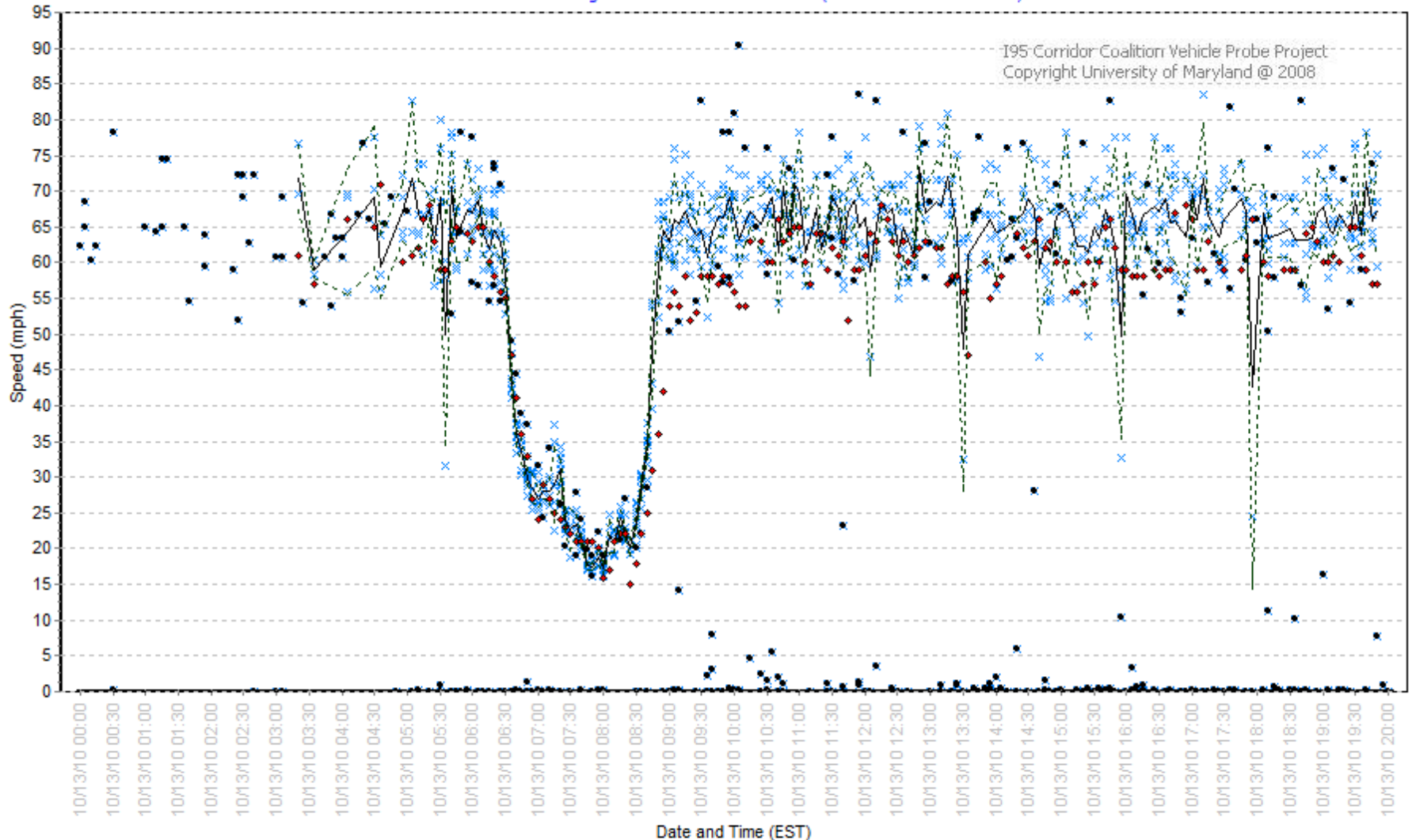
- Well within specifications
- 2.4 MPH AASE, lowest error score on record

Sample Freeway Data

MD - Oct 13, 2010 on US50 WB, ending at HWY202

TMC:MD04-0004

US 50 WESTBOUND ending at HWY 202/LANDOVER RD (2.06429004669189 miles)



I95 Corridor Coalition Vehicle Probe Project
Copyright University of Maryland @ 2008

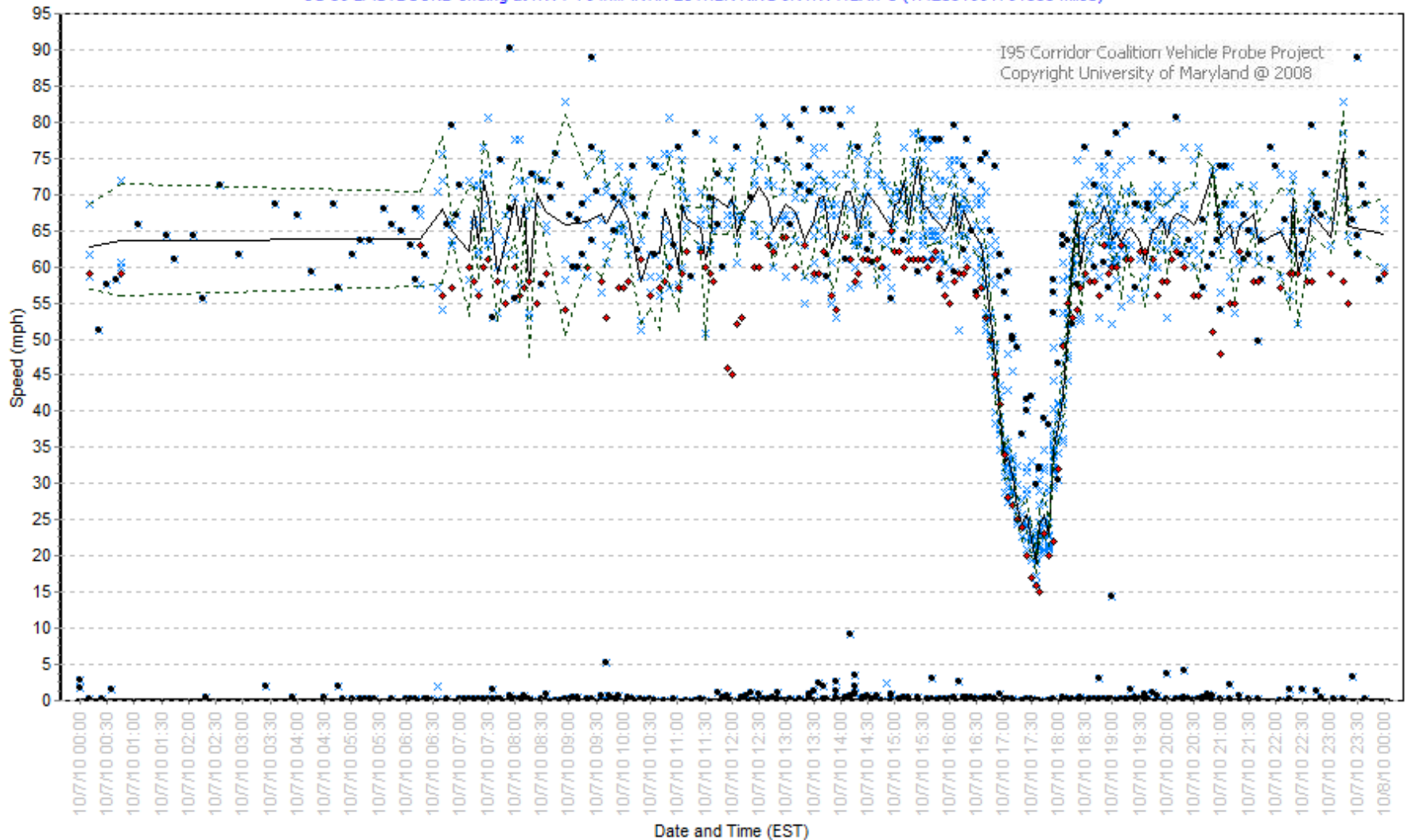
- × Bluetooth
- Filtered bluetooth
- Average bluetooth
- ◆ Inrix
- - - - - Band low
- · · · · Band high

Sample Freeway Data

MD - Oct 7, 2010 on US50 EB ending at 704 exit

TMC:MD04-0002

US 50 EASTBOUND ending at HWY 704/MARTIN LUTHER KING JR HWY/EXIT 8 (1.42891001701355 miles)



× Bluetooth • Filtered bluetooth — Average bluetooth ◆ Inrix - - - - - Band low Band high

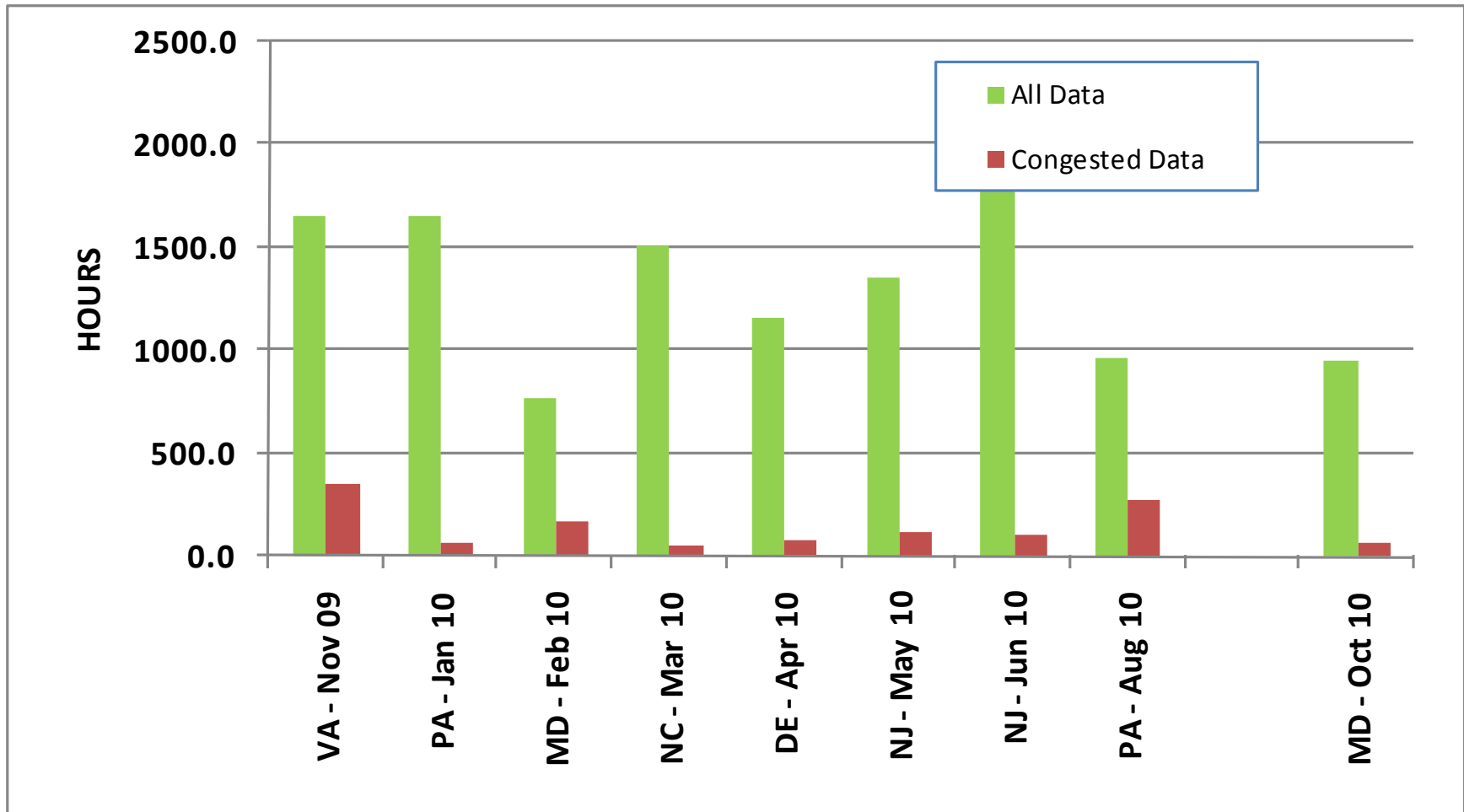
Maryland Cumulative

MD - Cumulative to Date						
Speed Bin	Absolute Speed Error		Speed Error Bias		Number of 5 Minute Samples	Hours of Data Collection
	Comparison with SEM Band	Comparison with Mean	Comparison with SEM Band	Comparison with Mean		
0-30 MPH	3.50	4.82	1.37	1.72	1727	143.9
30-45 MPH	4.35	6.76	1.96	3.01	2108	175.7
45-60 MPH	2.11	4.30	0.52	1.38	11198	933.2
> 60 MPH	1.80	4.29	-1.44	-2.81	19578	1631.5
All Speeds	2.14	4.47	-0.46	-0.88	34611	2884.3

- Four Validations
 - Initial 2008, Mar 09, Feb10, Oct 10
- 83.2 miles, > 310 hrs of congestion
- **AASE of 3.5 / 4.4 in lower speed bins**

Hours of Validation Data – State by State

(All Data vs. Congestion Data)



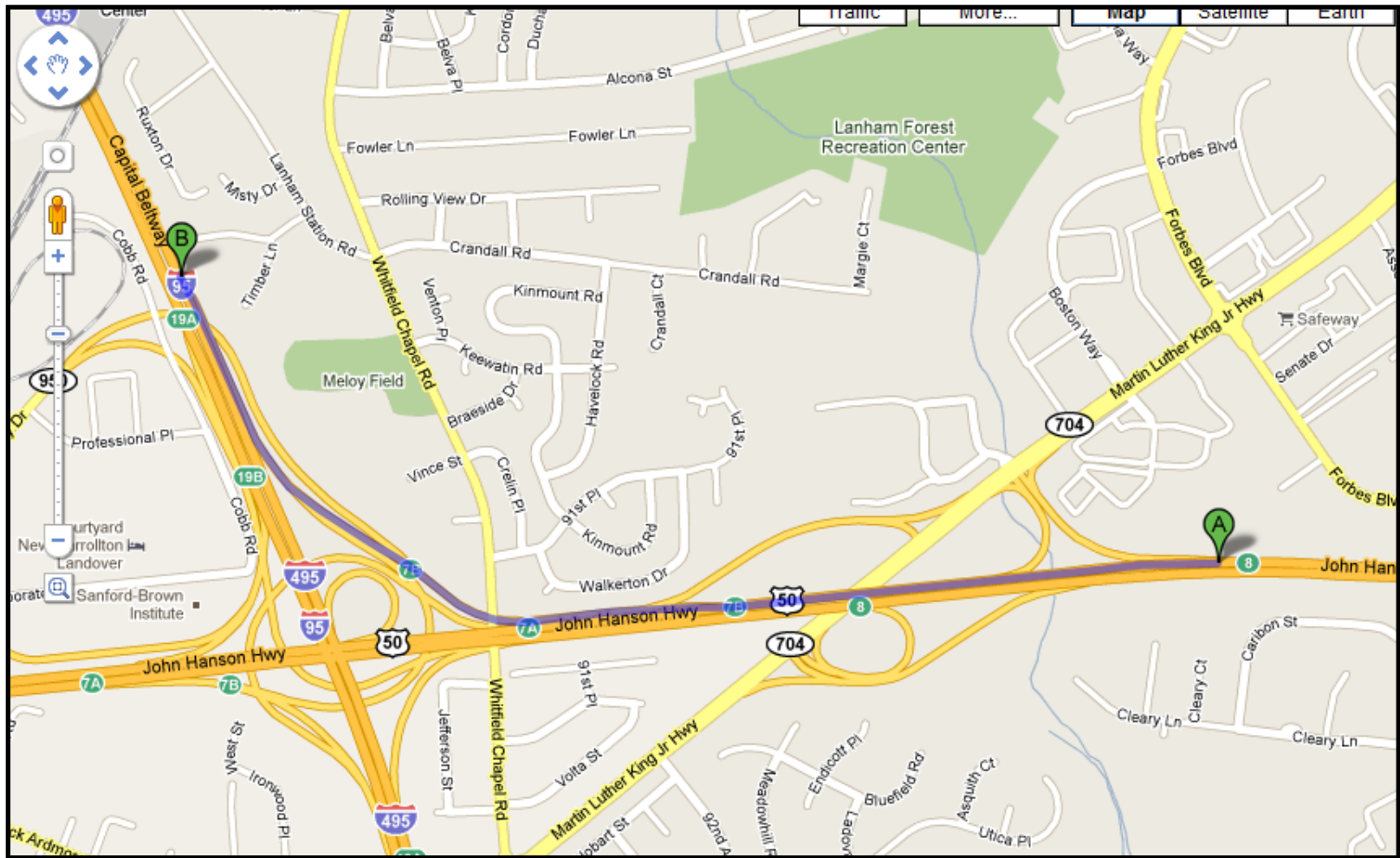
Maryland Validation

October 2010

- Ramps Summary
 - **7 ramps** that link US50 and I495/I95
 - Oct 6, 2010 through Oct 18, 2010
 - **5.9** miles of ramps (15 miles with freeway portions)
 - **31.8 hours** < 30 MPH
 - 81.8 hours 30-45 MPH
 - 417.7 hours 45-60 MPH
 - 101.9 hours >60 MPH
 - AASE in lower two bands
 - 5.9 / 2.4 (10 MPH is freeway spec)

Sample Ramp Data

MD – US50 WB to I495/95 NB

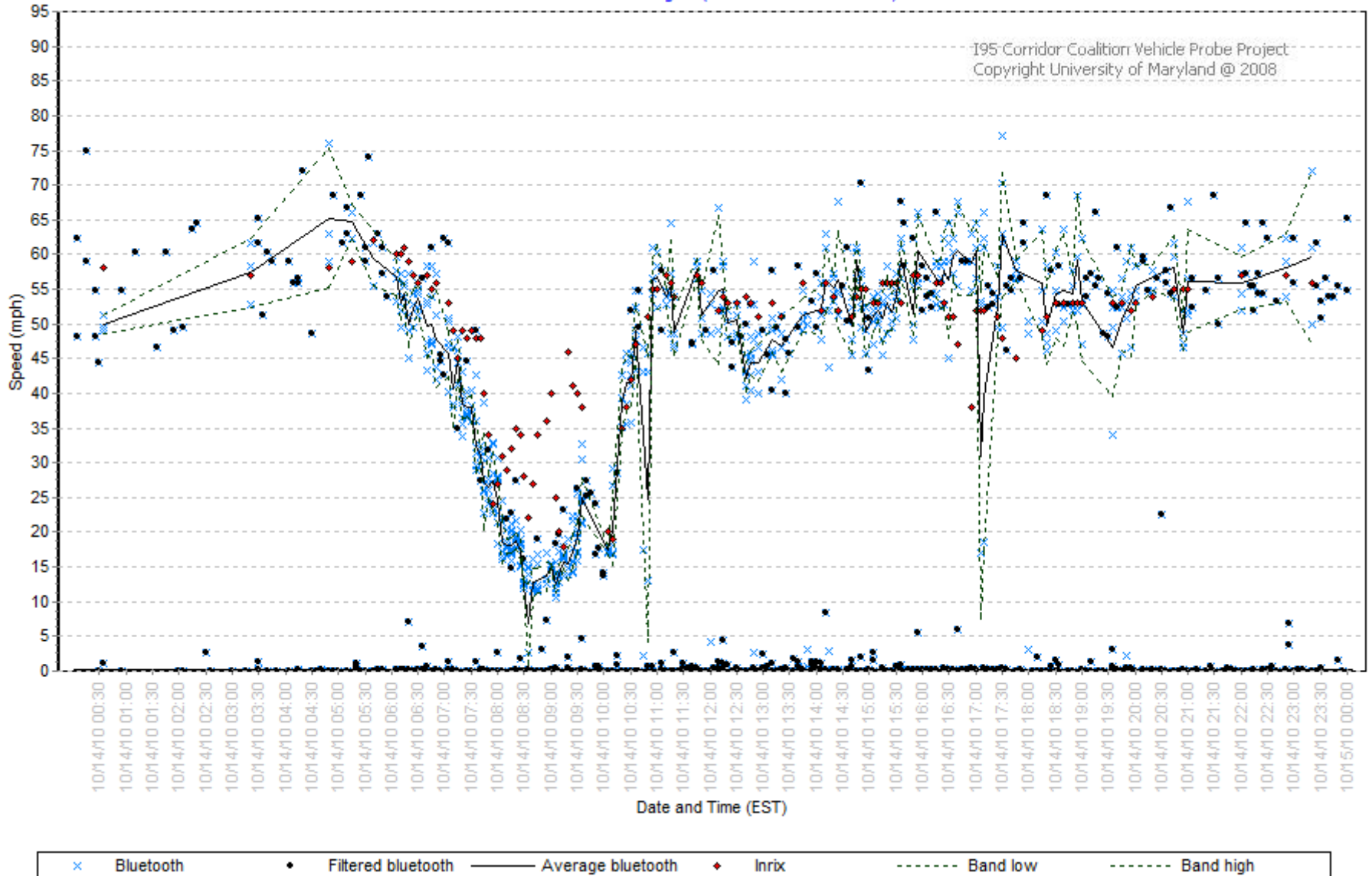


Sample Ramp Data

MD – US50 WB to I495/95 NB – Oct 14, 2010

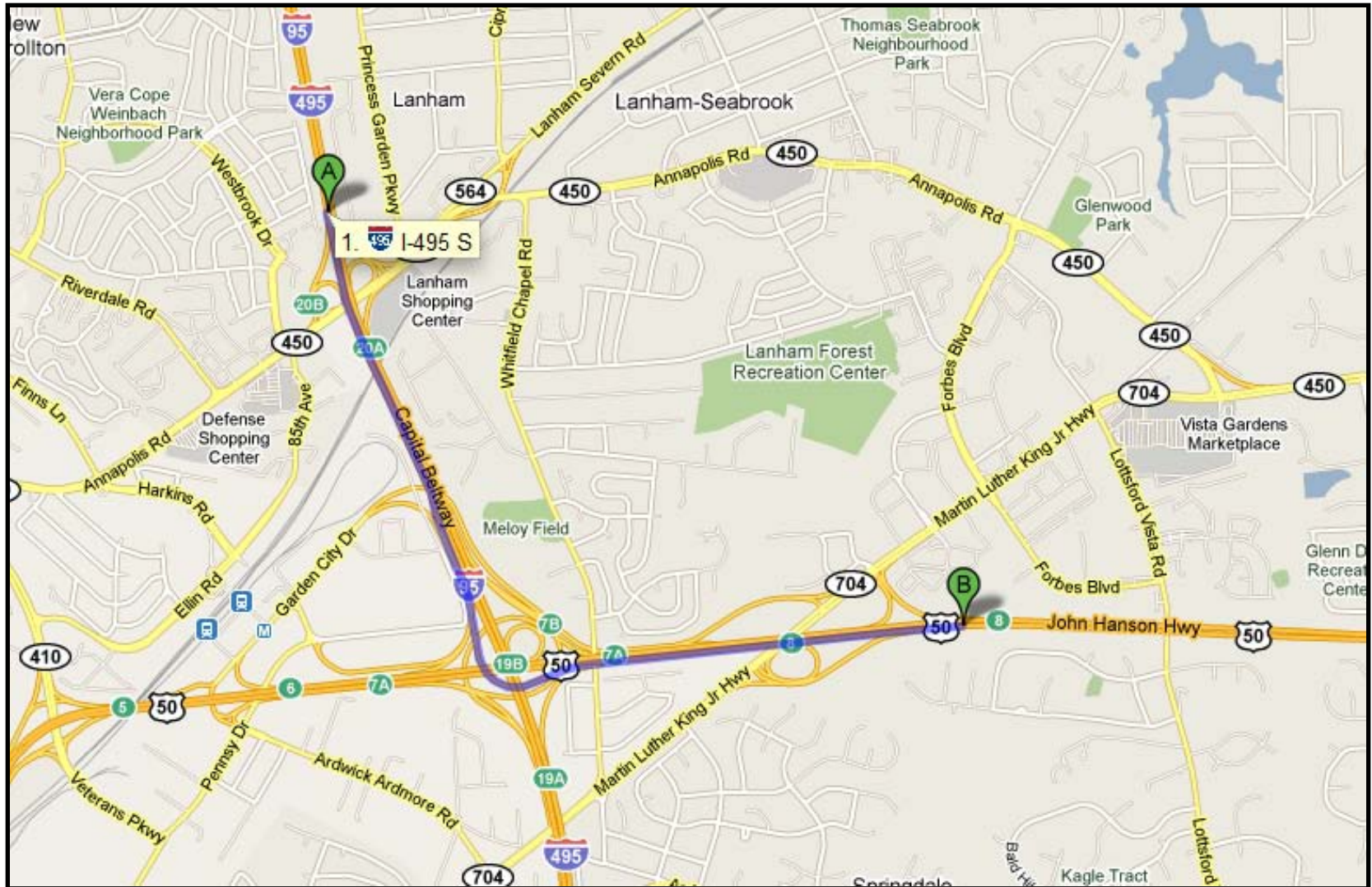
TMC:MD04-0009

US 50 WESTBOUND ending at (1.68462312221527 miles)



Sample Ramp Data

MD –I495/95 SB to 50 EB – Oct 7, 2010

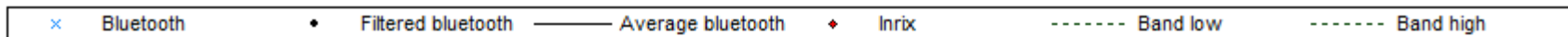
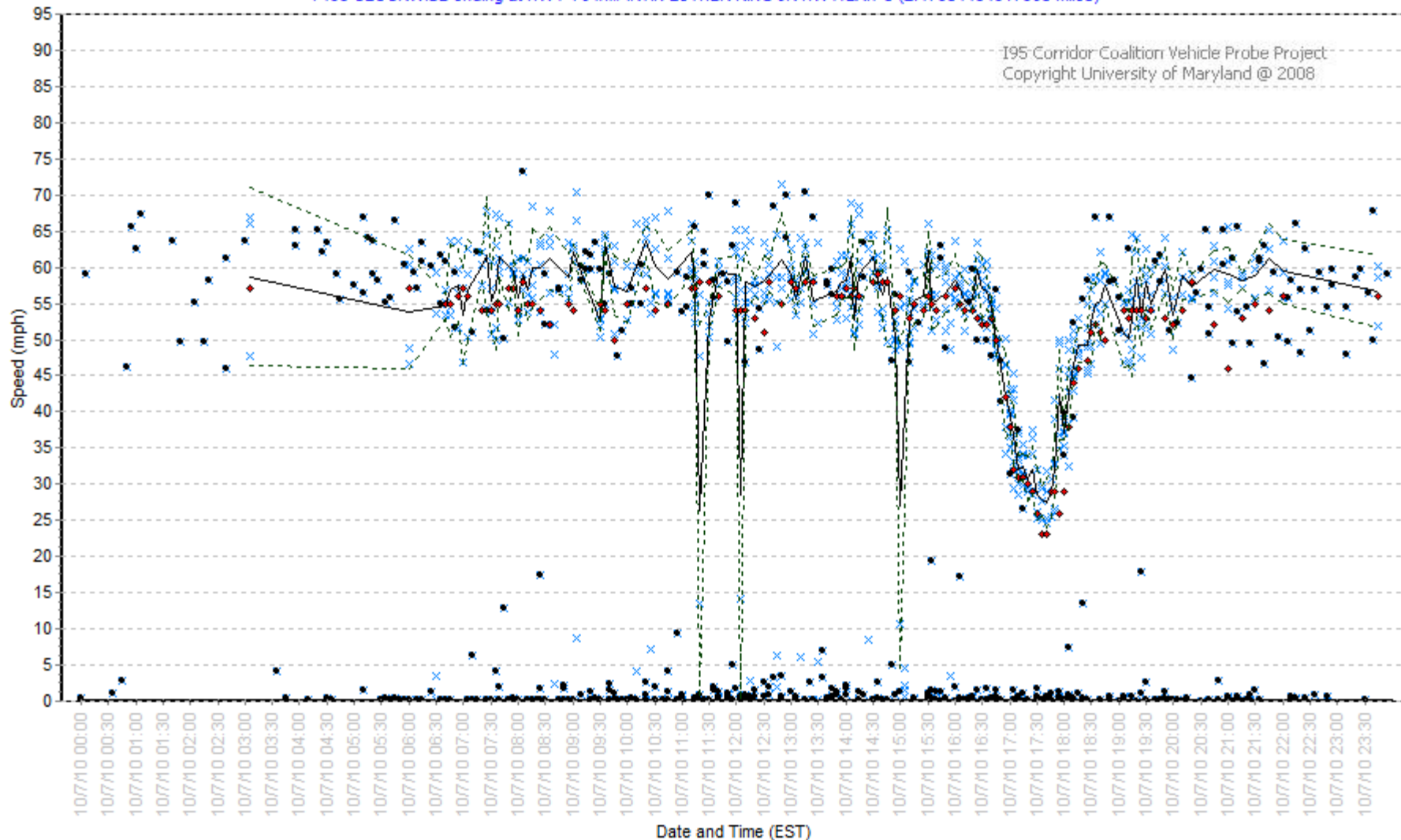


Sample Ramp Data

MD -I495/95 SB to 50 EB - Oct 7, 2010

TMC:MD04-0013

I 495 CLOCKWISE ending at HWY 704/MARTIN LUTHER KING JR HWY/EXIT 8 (2.47684454917908 miles)



Score Analysis

- Recall PA data filtered by Score

Data with Score < 30

- Averaged 15.6 AASE in 0-30 Band
- 10% of data in 0-30 Band was < 30

Data with Score = 30

- Reduced AASE lower speed bands
- Retained 70% of data overall

MD Filtering Based on Score

(Score <30)

MD Evaluation Summary					
Speed Bin	ALL DATA		DATA with SCORE < 30		
	AASE - SEM Band	Number of 5 Minute Samples	AASE - SEM Band	Number of 5 Minute Samples	% of Data
0-30 MPH	2.38	424	13.19	3	1%
30-45 MPH	4.32	341	3.60	6	2%
45-60 MPH	2.57	2785	1.33	159	6%
> 60 MPH	1.92	7837	2.30	1244	16%
All Speeds	2.17	11387	2.50	1412	12%

* PA validation data collected from August 19, 2010 through August 30, 2010 across 8.2 miles of roadway.

MD Filtering Based on Score

(Score =30)

MD Evaluation Summary					
Speed Bin	ALL DATA		DATA with SCORE = 30		
	AASE - SEM Band	Number of 5 Minute Samples	AASE - SEM Band	Number of 5 Minute Samples	% of Data
0-30 MPH	2.38	424	2.30	421	99%
30-45 MPH	4.32	341	4.33	335	98%
45-60 MPH	2.57	2785	2.65	2626	94%
> 60 MPH	1.92	7837	1.85	6593	84%
All Speeds	2.17	11387	2.13	9975	88%

- Minimal Impact as compared to PA
- MD had much less off peak congestion
- No negative consequences

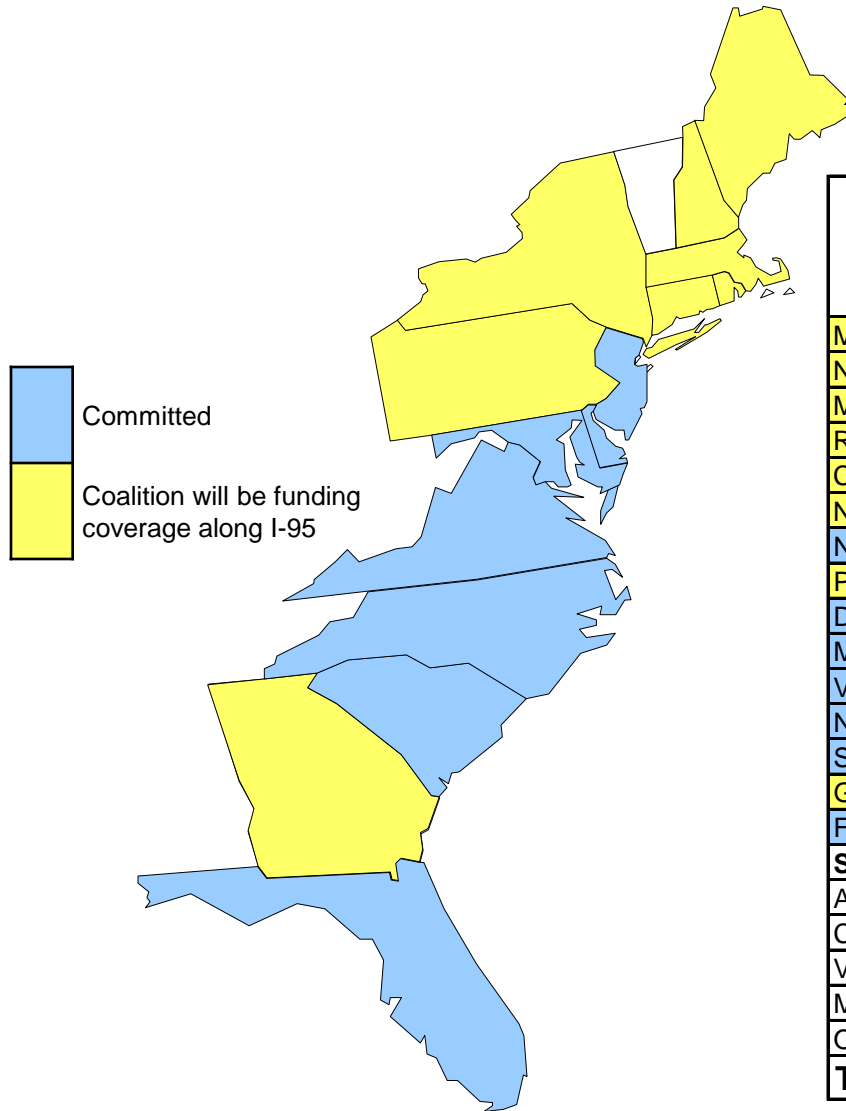
Other Issues

- Arterial Analysis
 - Webinar on December 16, 2010
- Currently in progress
 - Volume analysis – based on MD ATR data
 - C-Value analysis, similar to Score

Vehicle Probe Project Year 19 Update

Bill Stoeckert

Year 19 VPP Commitment Status



State	Total Miles	Total Cost	State Participation	Coalition Cost
Maine	53	\$39,750	\$0	\$39,750
New Hampshire	16	\$12,000	\$0	\$12,000
Massachusetts	88	\$66,000	\$0	\$66,000
Rhode Island	44	\$33,000	\$0	\$33,000
Connecticut	111	\$83,250	\$0	\$83,250
New York	24	\$18,000	\$0	\$18,000
New Jersey	470.5	\$365,375	\$188,938	\$176,438
Pennsylvania	51	\$38,250	\$0	\$38,250
Delaware*	46	\$34,500	\$17,250	\$17,250
Maryland/DC	297.2	\$235,400	\$123,950	\$111,450
Virginia*	305.5	\$229,125	\$114,563	\$114,563
North Carolina	261.8	\$208,850	\$110,675	\$98,175
South Carolina	220	\$177,500	\$95,000	\$82,500
Georgia	112	\$84,000	\$0	\$84,000
Florida	728	\$558,500	\$285,500	\$273,000
Sub-Total	2828	\$2,183,500	\$935,875.00	\$1,247,625.00
Additional Costs				
Contingency		\$100,000	\$0	\$100,000.00
Validation		\$336,279	\$0	\$336,279.00
Management		\$148,099	\$0	\$148,099.00
Overhead		\$12,500	\$0	\$12,500.00
Total		\$2,780,378	\$935,875	\$1,844,503

* Agency is contracting through Pooled Fund

Spotlight Presentation: Real-time System Management Information Program Final Rule

Bob Rupert, FHWA

Real-time System Management Information Program – Final Rule

Roll-out

November 4, 2010




Agenda

- Background / SAFETEA-LU
- Provisions of the Rule
- Changes from NPRM
- Request for Additional Comments
- Rule Summary



Background – Legislation

- **SAFETEA-LU, Subtitle B, 1201**
 - *Real-Time System Management Information Program*
- Establish a real-time system management information program in all States
- Monitor traffic & travel conditions of the major highways
- Share information to address congestion problems and facilitate traveler information.



Background – Approach

- No new funding provided
 - Explicit Federal-aid eligibility under NHS, STP, CMAQ
- Technology & detailed approach agnostic
 - Information-based requirements
- Build off of existing systems
 - Most States currently have some information
- Potential applications of information
 - Real-time performance monitoring
 - Traveler information



Provisions of the Rule – 23 CFR 511 (1/2)

- Two-stage implementation
 - All Interstates within 4 years (November 8, 2014)
 - Other metropolitan “Routes of Significance” as identified by States in collaboration with local agencies within 6 years (November 8, 2016)
- Information to be made available
 - Construction lanes closures
 - Road- or lane-blocking traffic incidents
 - Hazardous conditions and road or lane closures due to adverse weather
 - Travel times (in Metropolitan areas)
- “Metropolitan” defined as greater than 1 million



Provisions of the Rule – 23 CFR 511 (2/2)

- Timeliness of information
 - Construction & Incident information within 20 minutes / within 10 minutes in Metro areas
 - Adverse weather conditions within 20 minutes
 - Travel times within 10 minutes
- Quality measures
 - Accuracy of 85%
 - Availability of 90%



Changes from NPRM (1/3)

- Change times for compliance from 2 to 4 years for initial (Interstate routes) phase, and from 4 to 6 years for phase 2 (other *routes of significance* as identified by States/locals)
 - Allows time to examine Regional ITS Architectures and transportation plans to accommodate Real-Time Program
 - Allows time to establish institutional arrangements (as needed) to meet 24/7 monitoring requirements, e.g., police or other public agency observation of road/lane closures
 - Allows States to consider / fund Program requirements across an additional budget years



Changes from NPRM (2/3)

- Change roadway weather requirements from all conditions to hazardous conditions and road/lane closures due to adverse weather conditions
 - Aligns weather impacts with those associated with construction & incidents
 - Reduces infrastructure or other cost requirements to meet weather reporting parameter, providing flexibility to States in addressing needs



Changes from NPRM (3/3)

- Require States (in collaboration with FHWA) to identify methods used to ensure quality of information meets minimum requirements
- Travel times only required for limited-access routes
 - Addresses comments about arterials
- Highlight institutional “partners”
 - Helps address filling 24/7 gap in some States
 - Addresses comments regarding MPOs’ role (i.e., no change to existing relationships with State)



Not in the Rule

- No requirement for dissemination to general public, use of specific technologies or specific applications
- No method identified or discussed for measuring accuracy or other quality metrics



Final Rule with Request for Comments

- First time for FHWA
 - Rule is Final with publication, but...
 - the Rule seeks *additional* comments about costs & benefits and general information about current and planned programs.
 - Uncertain what will be done with comments.
- Five questions with responses to be sent to the Docket
 1. Costs & benefits of individual provisions
 2. Total impacts on States & metro areas
 3. Alternate methods for calculating benefits
 4. Technologies used to gather & disseminate information
 5. Alternate ways to identify applicable metro areas than population

Rule Summary

- Program requirement is for establishing information & not delivery of information
 - Not technology-specific; observations can satisfy most of Program requirements (except travel times)
- Highlight potential of privately-provided data in meeting requirements
- Extend times for compliance by 2 years
- “Self-certification” for information quality
 - States obtain FHWA [Division] concurrence in proposed methods/plans for checking quality & availability against parameters, allowing States flexibility in choice of technologies, approaches, etc.
- Travel times in metro areas for *Other Routes of Significance* (beyond Interstates) will only be required on limited-access roadways
 - Premature to require arterial data collection/use

Agency Questions and Updates

Contract Issues

Kathy Frankle

- DUA updates
- Expansion updates

DUA Status

Core States	
DE DOT	9-May-2008
MD SHA	12-Jun-2008
NC DOT	15-Aug-2008
NJ DOT	19-Jun-2008
PA DOT	----
VDOT	26-Jun-2008

Other Coalition Members	
Baltimore MPO	17-May-2010
Delaware Valley Reg. Planning Comm.	22-Jul-2010
District of Col	22-Oct-2009
FHWA	3-Sep-2008
Florida DOT	7-Jun-2010
MdTA	12-Dec-2008
MTA Bridges	23-Jul-2008
MWCOG	08-Jun-2009
New Hampshire DOT	03-Feb-2010
New Jersey Transit	In Process
North Jersey TPA	Inquired
NJ Turnpike	12-Jan-2009
NY State DOT	25-May-2008
Philadelphia Police	15-Jul-2010
Port Authority NJ/NY	22-Oct-2009
PRTC	26-Nov-2008
Richmond, VA MPO	21-Sep-2010
Rutgers Univ. (for NJDOT)	30-Nov-2010
SC DOT	22-Jan-2009

Expansion Status

Coalition Members	DUA Status	Expansion
Core States		
Delaware DOT	9-May-2008	----
Maryland SHA	12-Jun-2008	Contract in process
MdTA	12-Dec-2008	
North Carolina DOT	15-Aug-2008	16-Apr-2010 (Mod)
New Jersey DOT	19-Jun-2008	8-Jul-2008
Penn DOT	----	----
VDOT	26-Jun-2008	going thru PBS& J contract
Other Coalition Members		
Florida DOT	7-Jun-2010	7-Jun-2010
New Jersey Turnpike	12-Jan-2009	covered by NJDOT
South Carolina DOT	22-Jan-2009	14-July-2010 (Mod)

Participation in Meetings/Conferences

Karen Jehanian

Participation in Meetings/Conferences

- Upcoming Meetings

- TRB Annual Meeting, Washington DC – January 23-27, 2011
- ITE Meetings – submitted three abstracts
 - (2011 Technical Conference & Exhibit, April 3–6, 2011, Lake Buena Vista, FL)
 - (2011 Annual Meeting & Exhibit, August 13-16, 2011, St. Louis, MO)
- TRB – 4th International Transportation Systems Performance Measurement Conference - May 18-20, 2011
- 2011 ITS World Congress, Orlando, FL – October 16-20, 2011
 - coordinate a session for I-95 CC Performance Measures Activities

Review of Action Items from this Webcast

Selection of Date for Next Project Team Meeting

Thursday, January 20, 2011

10:00 AM

(proposed)

All

Questions?

- Bill Stoeckert at 774-207-0367 or wstoeckert@yahoo.com
- Stan Young at 301-403-4593 or seyoung@umd.edu
- Rick Schuman at 407-298-4346 or rick@inrix.com
- For contract expansion issues Kathy Frankle at 410-414-2925 or kfrankle@umd.edu

Thank You



**I-95 CORRIDOR
COALITION**