I-95 CC – Volume & Turning Movement Project
Steering Committee Meeting #3
January 26, 2017

Agenda:

#	Topic	Speaker
1	Introductions and Welcome	Denise Markow, I-95 Corridor Coalition
2	Project Overview	
3	Survey Results	
3	Analysis of Maryland Data	Stan Young, National Renewable Energy Laboratory (NREL)
4	New Project one-pager	Denise Markow
5	Steering Committee Input	All
6	Next meeting/webinar	Denise Markow

==**Next Steering Committee Meeting: Thursday, April 13, 2017 (10:30am - 12:00pm (EDT)**==
==**Please note the time change**==

Meeting Notes:
- Project Overview
  - o The goal, hypothesis and objectives were briefly reiterated at the onset of the meeting.
  - o Project benefits and uses were discussed for both Operations and Planning work.
  - o The approach being taken as well as the tasks to accomplish the objectives were reviewed including defining a framework, creating a testbed (for calibration and validation), and determining the resources to maintain/operate a national testbed.
- Survey Results
  - o Denise Markow (I-95 CC) presented the findings from the recent survey conducted. The results are based on 14 completed surveys (11 member agencies, 3 outside agencies). Additional partially completed surveys were also reviewed.
  - o The survey focused on the need for data, as well as accuracy and format of the data.
  - o An overview of the results was discussed for both volume and turning movement data. Denise noted that for volume data, the needed level of accuracy for flow data is within 10% of the roadway capacity. For turning movements, real-time data would be helpful for detours and evacuations.
  - o The Survey Results report will be sent to the Steering Committee members.

- Analysis of Maryland Data: Statewide Traffic Volume Estimation using GPS Traces: Machine Learning Approach
  - Stan Young (NREL) began by acknowledging the work of Przemyslaw Sekula and Nikola Marković for their work.
  - Stan presented the processes and findings of the study to the Steering Committee members which focused on – Can GPS traces be used to estimate hourly volumes? Can machine learning process use GPS traces and ATR data to learn the relations and then estimate volumes throughout the network? How accurate would these estimates be?
  - A discussion by member agencies regarding the presentation material/results followed.
    - Steve Brown (PANYNJ) asked if the data was less reliable at lower volume-to-capacity ratios. Stan affirmed that estimates at lower volumes were less accurate than at high volumes. However, if the error is taken with respect to the overall roadway capacity, (rather than absolute volume) the errors are similar.
    - Mike Fontaine (VDOT) asked about the accuracy by time of day and recommended that the overnight hours be separated from the daytime. He noted that nighttime data is easier to understand as the changes are caused by events not congestion. Mike wants to make sure that the R^2 values are not being skewed by the nighttime data. Stan noted that the base penetration varies by time of day. He asked Nikola and Przemyslaw to look at the data by time of day.
    - Mike Fontaine asked if the data could be separated by roadway type. Shawn Turner (TTI) and Stan discussed the possibility of using Factor Groups (grouping ATR stations by like type). Stan will follow up with Shawn.
    - Shawn Turner asked how the team plans to put their work into practice beyond the research phase. Stan explained that it is a cooperative effort and that it is not really viable for states to manipulate their own data sets. If technically feasible, the plan is to create volume APIs in cooperation with the vendors.
    - Shawn Turner asked about ongoing calibration as the sample size increases. Stan noted that vendors would need access to the ground truth data (such as the Maryland data from ATRs) for ongoing calibration.
    - VDOT began a discussion on the infrastructure that would be needed for each state agencies. Mena Lockwood (VDOT) noted that she was looking at this as a potential reduction in infrastructure for agencies. Mike Fontaine noted that an agency may need only one calibration site.
    - Since state volume data and probe data are on different Linear Referencing Systems (LRS), Mena Lockwood noted that an additional benefit of getting volume from probe data is that we can eliminate the need to conflate the two systems, which is a time consuming, tedious process especially since both systems are updated regularly and regular re-conflation is needed.
    - Denise asked the members for their feedback on the effort to date and the response was cautiously optimistic. Specifically, Mike Fontaine stated "I'm happy, the data looks promising" and Mena Lockwood noted that "the data looks very promising" and she is "interested in progress moving forward."

- Project One-pager
    - o Denise Markow presented the new project one-pager and explained that this project brief includes information on the value of the project in addition to the basics facts.
    - o It is currently available on the Coalition's website – VTM Project One-pager and will be sent out to the Steering Committee members.
    - o Jimmy Chu (FHWA) noted that the one-pager seems to emphasize the operational benefits. He recommended that it be modified to include the value for planning.
- Steering Committee Input
    - o Joe Guthrie (HERE) asked if the Steering Committee was interested in arterials. It was noted that they are interested in arterials but want to first do the proof of concept on freeways.
    - o The Project Team will be looking for more testbeds once they have finalized agreements with the participating vendors for test data.
    - o The Steering Committee was asked to contact Stan Young and/or Kaveh Farokhi (UMD CATT) with any questions and to provide additional input.

- Next Steering Committee Meeting:
    - o **Thursday, April 13, 2017 - 1:30p.m. - 3:00p.m. (EDT)**
    - o Topics:
        - ▪ Specifications & validation/calibration methodology – an appropriate ground truth needs to be identified for turning movement data.
        - ▪ First look at other data sets - the data sets will be expanded to other vendors.

Action Items:
- Coalition – Distribute the survey results and one-pager to the Steering Committee members.
- Nikola and Przemyslaw – Separate the data by time of day and compare the results to the findings for the 24-hour period.
- Stan - Follow up with Shawn Turner (TTI) on the possibility of using Factor Groups to separate the data.
- Kaveh – Explore the feasibility of the Coalition providing conflation support to members in the near term given that nationally required performance measures require both volume and delay from a segment. Granted, if this project successfully demonstrates the ability to capture volume data and speed data from probe data, the conflation issue will eliminate because they will be on the same LRS. The question is to identify if there is some interim support the Coalition could provide to its members.

Participants:

Project Team:
Denise Markow, Marygrace Parker, I-95 Corridor Coalition Stan Young, NREL Kaveh Sadabadi, Nikola Marković, UMD CATT

Steering Committee:	
Erik Sabina	Colorado DOT
Keisan Gittens	DVRPC
Tianjia Tang, Ed Strocko, Jimmy Chu	FHWA
Tom McQueen	Georgia DOT
Susan Klasen	New Hampshire DOT
Jerry Einolf	Maryland SHA
Daivamani Sivasailam	MWCOG
Sutapa Bhattacharjee	NJTPA
Scott Benedict	Pennsylvania DOT
Steve Brown	Port Authority of NY & NJ
Michael Dennis	South Carolina DOT
Mike Fontaine, Mena Lockwood	Virginia DOT
Shawn Turner	Texas A&M Transportation Institute
Joe Guthridge, Terri Johnson	HERE
Amy Lopez	INRIX
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