

2016 Executive Committee

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**ITS Technical Committee
Meeting Minutes
Tuesday, October 4th, 2016**

Name	Agency
Derek Nieveen	Alliant Engineering
Mike Kronzer	MnDOT
Don Van Gorp	Mobo Trex
Ray Starr	MnDOT
Tina Roelofs	Athey Creek
Todd Foster	Ver-Mac
Dan McCormick	Carver County
Chad Braun	Carver County
Rashmi Brewer	MnDOT
Dan Rowe	MnDOT
Brian Scott	SRF
Michael Janson	SRF
Matt Gjersvik	WSB
Sue Zarling	MnDOT
Cory Johnson	MnDOT
Todd Olson	Alliant Engineering

Meeting Location: MnDOT Waters Edge, Conference Room A
Meeting Topic: Increased Safety Risks of In-Vehicle Signing
Meeting Presenter: Nichole Morris, University of Minnesota

1. Introductions / Sign-up sheet
2. Approve Minutes of Tuesday, August 2nd, 2016
3. Review Agenda of Tuesday, October 4th, 2016
4. Discussion Topic – Increased Safety Risks of In-Vehicle Signing.
Presented by Nichole Morris, University of Minnesota, Human FIRST Lab.
 - In-vehicle signing (IVS) originated as part of the Mileage Based User Fee (MBUF) project.
 - Human FIRST Lab expanded IVS testing until resources were no longer available. MnDOT provided extra funding to analyze the test data.
 - The study looked at human behavior in 4 zones:
 - Speed zones, school zones, work zones, and curves.

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- Performance measures included distraction, subjective usability and workload.
- Speed data was collected by looking at two groups as they drove a simulated 24 mile test route (based on roadways near Jordan/Belle Plaine):
 - Baseline: External signing only
 - Group 1: IVS with external signing
 - Group 2: IVS with no external signing
- Results showed that Group 1 was close to baseline, while Group 2 showed higher speeds.
 - The conclusion of these results is that drivers do not comply with IVS as much as external signing.
- An IVS risk evaluation looked at the probability of a fatality by crash type, based on the speed data that was collected, for each of the test groups.
 - Concluded that IVS + External signing had a positive effect for front impact crashes only.
 - Concluded that IVS – External signing had no positive effects for front and side impacts. The risk evaluation showed that front and side impacts appeared to increase the probability of a fatality.
- In real world application, IVS can be pushed into vehicles via Bluetooth Low Energy (BLE).
- Work zone and school zone signage can be added.
- Mental workload of driver is higher when external signing is removed.
- Conclusions from the study:
 - IVS system in absence of external signs resulted in less compliance with the change in speed zones.
 - Increased speed resulted in decreased levels of safety for various crash types.
 - Increased mental workload and decreased satisfaction.
 - Using IVS information in the absence of external signs would presumably save money, but it is NOT recommended that the current IVS system be utilized in the absence of external signs.
 - Should further explore the potential of using IVS information in conjunction with external signs.
- Limitations and next steps:
 - Drivers in the simulation were note penalized for exceeding

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posted speeds.

- The IVS presented speed information through visual presentation only, did not include auditory redundancy.
- The work has potential to be expanded to examine:
 - Role of compliance and distraction to emerging IVS systems, which may communicate connected vehicles information to reduce vehicle speeds at intersections or work zones.
 - How drivers respond to IVS systems like those that could assist emergency vehicles in creating a cleared path or encouraging drivers to comply with “move over” laws. Understanding how drivers respond could provide insight into how such systems could enhance safety.

5. Round Robin:

- Ray Starr noted that there is an Automated Vehicle Regulations Conference on October 25th/26th in Detroit. NHTSA and DPS will provide guidance on automated vehicles.
- Tina Roelofs noted Athey Creek will be presenting on Wrong Way Countermeasures and Vehicle to Infrastructure at the ITS Fall Forum.
- Todd Foster noted that currently the most popular ITS work zone technologies include queue warning systems, and renewed interest in the zipper merge. Detection covers 3.5-7 miles.
- Dan McCormick noted that Carver County is looking to install RICWS at 2 locations on 212. The county is working with SRF.
- Rashmi Brewer provided a reminder that the ITS Design Manual training will take place on November 29th/30th. More info will be sent out in the near future.
- Brian Scott noted that the National Science Foundation is deploying a camera at 66th street in Richfield to collect and analyze traffic data for traffic approaching a roundabout.
- Brian Scott noted that SRF is working with Audi to broadcast signal phase & timing (SPAT) information from signal controllers to Audi vehicles.
- Brian Scott noted that SRF is working on an IRIS deployment with Nebraska DOT.
- Cory Johnson provided an update on the Connected Vehicle proposal: MnDOT has not heard back yet, legislative deadline to hear back is December 4th, 2016. Plan B will be to participate in SPAT Challenge to come up with plan to broadcast signal data.
- Cory Johnson noted that MnDOT is developing ATC specifications; MnDOT has received feedback on spec and is currently making revisions.

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- Cory Johnson noted that Columbus, Ohio won the SMART City grant. Todd Foster added that they had received about \$40 million in private funding match.
- Mike Kronzer noted that the MnDOT remote monitoring project hopes to install equipment in the coming weeks. Test site will be a RICWS in District 6.
- Rashmi Brewer noted that the systems engineering has just begun for the Video Switch upgrade project.
- Dan Rowe provided an update on the Commercial Truck Parking project. The project involves a 7 state consortium. MnDOT will utilize puck detection technology at 6-10 rest stop sites on I-94 heading into the Twin Cities.

6. Other:

- Next meeting will be held on Tuesday, December 6th, 2016, 1:00pm-to-3:00pm at Waters Edge Conference Room A.
 - Meeting Topic: New Design for the RICWS Sign, by Nichole Morris, UMN.