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

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<tr>
<th>Name</th>
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<tr>
<td>Derek Nieveen</td>
<td>Alliant Engineering</td>
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<td>Mike Kronzer</td>
<td>MnDOT</td>
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<td>Don Van Gorp</td>
<td>Mobo Trex</td>
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<td>Ray Starr</td>
<td>MnDOT</td>
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<td>Tina Roelofs</td>
<td>Athey Creek</td>
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<td>Todd Foster</td>
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<td>Dan McCormick</td>
<td>Carver County</td>
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<td>Chad Braun</td>
<td>Carver County</td>
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<td>Rashmi Brewer</td>
<td>MnDOT</td>
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<td>Dan Rowe</td>
<td>MnDOT</td>
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<td>Brian Scott</td>
<td>SRF</td>
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<td>Michael Janson</td>
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<td>Matt Gjersvik</td>
<td>WSB</td>
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<td>Sue Zarling</td>
<td>MnDOT</td>
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<td>Cory Johnson</td>
<td>MnDOT</td>
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<td>Todd Olson</td>
<td>Alliant Engineering</td>
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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
   - 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:
     o Speed zones, school zones, work zones, and curves.
2016 Executive Committee

Joe Gustafson, P.E., PTOE
President
Washington County
11660 Myeron Road N
Stillwater, MN 55082
joe.gustafson@co.washington.mn.us

Mike Martinez, P.E.
Vice President
HDR, Inc.
701 Xenia Avenue S, Suite 600
Minneapolis, MN 55416
michael.martinez@hdrinc.com

Scott Poska, P.E., PTOE
Secretary
SRF Consulting Group Inc.
1 Carlson Parkway N, Suite 150
Minneapolis, MN 55447
sposka@srfconsulting.com

Jeff Preston, P.E.
Treasurer
Stantec
2335 W Hwy. 36
St. Paul, MN 55113
Jeff.preston@stantec.com

Jacob Folkeringa, P.E.
Director
SRF Consulting Group Inc.
1 Carlson Parkway N, Suite 150
Minneapolis, MN 55447
jfolkeringa@srfconsulting.com

Ken Levin, P.E.
Director
Hennepin County
1600 Prairie Drive
Medina, MN 55340
Kenneth.levin@hennepin.us

Max Moreland, P.E.
Directors
Traffic Data Inc.
5708 West 36th St.
St. Louis Park, MN 55416
mmoreland@trafficdatainc.com

Katie Schmidt, P.E.
Past President
HDR, Inc.
701 Xenia Avenue S, Suite 600
Minneapolis, MN 55416
Katherine.schmidt@hdrinc.com

- 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
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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SRF Consulting Group Inc.
1 Carlson Parkway N, Suite 150
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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.
     o Meeting Topic: New Design for the RICWS Sign, by Nichole Morris, UMN.