States, counties and local communities preparing new comprehensive and project plans are increasingly interested in understanding how introducing autonomous vehicles (AV) will shape those plans. In addition to the vehicle technology, a continuing move to purchased mobility (think Uber and Car2Go) the landscape of travel demand is changing. Many researchers believe by 2040 driver-controlled vehicles will be a relic. Vehicles with some automation (Level 1 in NHTSA nomenclature) are already commercially available, and fully self-driving vehicles (Level 4) are being tested.

Those responsible for looking into the future to forecast travel demand will need to be ready to respond to questions on the effects of connected/autonomous transportation systems. Are we up to the task? How can we best inform policymakers and system designers?
EXECUTIVE COMMITTEE

President  Joe Gustafson, Washington County  651.430.4351  joe.gustafson@co.washington.mn.us
Vice President  Mike Martinez, HDR  763.591.5542  michael.martinez@hdrinc.com
Secretary  Scott Poska, SRF Consulting Group  763.452.4823  sposka@srfconsulting.com
Treasurer  Jeff Preston, Stantec  651.604.4816  Jeff.Preston@stantec.com
Past President  Katie Schmidt, HDR  763.591.5542  katherine.schmidt@hdrinc.com

TECHNICAL COMMITTEES

Geometric Design  Kelly Besser, Stonebrooke Engineering  952.402.9202  kbesse@stonebrookeengineering.com
Intersection Traffic Control  Mark Wagner, SEH  651.785.2929  mwagner@sehinc.com
ITS  Derek Nieveen, Alliant Engineering  612.767.9328  dnieveen@alliant-inc.com
Pedestrian and Traffic Safety  Natalie Lindsoe, HDR Engineering  763.591.5524  natalie.lindsoe@hdrinc.com
Planning Methods and Applications  Steve Wilson, SRF Consulting Group  763.249.6760  swilson@srfconsulting.com
Traffic Operation and Maintenance Discussion Group  Adam Bruening, Washington County  651.430.4398  adam.bruening@co.washington.mn.us
Simulation and Capacity Analysis  Ben Hao, AECOM  612.373.6459  ben.hao@aecom.com

STANDING COMMITTEES

Young Member Committee  Nicklaus Ollrich, Metro Transit  612.373.5350  nicklaus.ollrich@metrotransit.org

Professional Development  Nik Costello, Washington County  651.430.4370  nik.costello@co.washington.mn.us

Student Activities and Career Guidance  Abby Tutewohl, Alliant Engineering  612.767.9325  atutewohl@alliant-inc.com

Communications  Jacob Folkeringa, SRF Consulting Group  763.452.4730  jfolkeringa@srfconsulting.com

Website  Jonah Finkelstein, Spack Consulting  888.233.1012  jfinkelstein@spackconsulting.com

Newsletter  Cortney Falero, SRF Consulting Group  763.452.4806  cfalero@srfconsulting.com

Membership  Nicklaus Ollrich, Metro Transit  612.373.5350  nicklaus.ollrich@metrotransit.org

Technology  Joseph Devore, SRF Consulting Group  763.452.4740  jdevore@srfconsulting.com

STUDENT CHAPTERS

University of Minnesota  Ellie Lee, President  leex7678@umn.edu
North Dakota State University  Jennifer Vanderheiden, President  jennifer.vanderheiden@ndsu.edu

MIDWESTERN ITE

Midwestern ITE District International Director  John A. Davis, Ayers Associates  262.522.4905  davisj@ayresassociates.com
Midwestern ITE District International NCITE Officer  Mike Bittner, KLJ  701.271.4879  mike.bittner@kljeng.com

www.nc-ite.org
Greetings, NCITE members!

While it certainly seems like an especially busy year for our profession and for the NCITE Board, I hope that all of you have been able to break away from our hard work of improving transportation and spend some time enjoying this unusually pleasant summer!

While NCITE activities become less frequent during the summer, our June NCITE scholarship fundraiser and our July Summer Social were both a great time for those who were able to attend. My thanks especially to the firms that donated raffle prizes for the scholarship fundraiser, to Jake Folkeringa for doing the legwork to keep our raffle in compliance with our state's rules, and for Jeff Preston for helping to secure the venue at Fulton Brewery. Our summer social at Brit's Pub was well-attended and blessed with pleasant weather for hours of lawn bowling on the rooftop!

With the end of summer being upon us, I encourage you to begin thinking about running for a position on the 2017 NCITE Board. As always, we will have three director positions open, in addition to secretary and treasurer. Even if you have served on the board in the past, I encourage you to consider serving again! Director positions and treasurer are only one-year commitments, and are essential to putting together our section meetings, social events, and helping to set the vision and priorities for our section. If running for the board just isn't in the cards for you, help with recruiting candidates is always appreciated as well.

In addition to the executive board, NCITE always needs volunteers to chair our numerous technical and standing committees, and presenters and participants as well. If you have worked on a unique project or research effort and want to help others learn from your experience, please contact the appropriate committee chair. Our technical committees are a great way to help get young members involved in NCITE, and attendance at them is highly dependent on the potential for learning and sharing knowledge and insights.

Lastly, NCITE, in partnership with our Midwestern District of ITE, is in the running to be the host location for the 2018 ITE international meeting! While we are awaiting a formal decision from ITE international, all indications thus far have been very positive. Many thanks to all who have been helping in this effort thus far. Stay tuned!

Cheers and enjoy the waning days of summer!

Joe Gustafson, PE, PTOE
2016 NCITE President
UPCOMING EVENTS

2016 CTS Research Conference
November 3rd, 2016
The Commons Hotel - Minneapolis, MN

2017 Minnesota Transportation Conference
March 1-2, 2017
St Paul River Centre - St. Paul, MN

2017 ITE Annual Meeting
July 30 - August 2, 2017
Toronto, Ontario Canada
More information to come.

For professional development opportunities:
http://nc-ite.org/content.php?page=Professional_Development_Meetings

NCITE Calendar:
http://nc-ite.org/calendar.php
The NCITE Summer Social was held on July 27th, 2016 once again at Brit’s Pub in Minneapolis. It was a perfect night to be up on the roof!
The Interdisciplinary Transportation Student Organization (ITSO) participated in the Institute of Transportation Engineers (ITE) Midwest Region Traffic Bowl in Chicago on June 26-29, 2016. University of Minnesota ITSO members Ellie (Meekyung) Lee, Benjamin Nault-Maurer, and Jackie Nowak competed under the guidance of member Miguel Andrews against 5 other schools to secure a first place finish. As a result they be traveling to Anaheim, California to compete at the ITE International Conference in August. The Traffic Bowl is a jeopardy style game with questions pertaining to different transportation related standards and practices.

Congratulations!!
The capabilities of the planning models have grown over time, often driven by federal funding mandates. First came the Federal Aid Highway Act of 1962 and its comprehensive planning requirement, which spurred the development of standard practices and the UTPS computer package that made models with large-scale computations possible. In the 1970s and 1980s, transit investment questions led to advances in the transit mode choice modeling components of the model. The policy guidance from each subsequent federal funding act (ISTEA (1991) TEA-21 (1998), SAFETEA-LU (2005), MAP-21 (2012) and FAST (2015)) has provided a new vision, and travel modeling has helped provide insights to those visions.

In the 1990s, the USDOT’s initiative to develop a new approach to modeling, TRANSIMS, led (directly or indirectly) to activity based models and microsimulation tools that have greatly expanded our ability to realistically test policy and behavioral changes at a much finer level. These advanced models will be important in answering many of the AV and other questions.

Land use patterns are likely to change. AV could increase suburbanization as the stress of driving is replaced by the ability to do other things during a driving commute. On the other hand, more vehicle sharing could increase the marginal cost per trip and encourage shorter trips. Urban densification could increase as less resources are devoted to car parking and car ownership.

One of the greatest potential changes attributable to AV is the ability of mobility-impaired people to make trips independently. Automated vehicles will allow those with most disabilities to make trips they would otherwise forgo. For example, senior drivers who would otherwise need to stop driving will be able to travel safely without reducing their trip-making.

The characteristics of travel are also likely to change. Technology will allow more efficient chaining of trips selection of routes. With increased use of purchased (per-trip) mobility, travel may become more time and distance sensitive.

The impact of AV on transit as a mode choice is less clear. Shared vehicle services such as Uber are already being used to provide “first mile/last mile” access to transit systems (rail and bus) or supplement transit in low density areas. On the other hand, purchased services may also compete with transit. However, autonomous buses would significantly reduce labor/operator costs and allow for lower fares and/or increased transit service levels, which would result in more transit users.
Roadway capacity and traffic flow are considered to be the areas of first and highest impact of AV. Autonomous vehicles will have a positive effect on roadway capacity and reliability, greatly reducing crashes and incident-related delay and permitting closer vehicle headways. The cost of congestion and the need for additional capacity should be reduced. Travel/traffic models are capable of assessing these effects on travel demand and traffic flow for a given set of assumptions.

The uncertainty of the timing of autonomous vehicle adoption, and the significant unknowns about traveler response to AV and shared vehicles/purchased mobility. The prudent course at this time includes increasing the use of sensitivity tests, scenario planning and risk analysis. Assumptions about timing and effects of AV will need to be clearly spelled out in our analyses. Decision-makers will need to understand the impacts of over- or under-estimating the effects or timing of AV adoption on land use and transportation decisions. This article scratches the surface of the issue of autonomous vehicles and travel demand. There are many other factors that will influence our travel behavior in the future. A thought-provoking resource discussing this subject was recently prepared for the Minnesota Department of Transportation: “The Transportation Futures Project: Planning for Technology Change”, (David Levinson, Adam Boies, Jason Cao, Yingling Fan, 2016), available at http://www.dot.state.mn.us/research/TS/2016/201602.pdf.
Geometric Design Technical Committee
Committee Chair: Kelly Besser - kbesser@stonebrookeengineering.com
Recent Agenda Items: Meeting topic brainstorming session.
Future Agenda Items: Presentation by Jim Rosenow: Topic TBD
Next Meeting: October 13, 2016, 8:30am to 10:00am at Stantec.

Intersection Traffic Control Technical Committee
Committee Chair: Mark Wagner - mwagner@sehinc.com
Recent Agenda Items: Blue Line 7th Street Operation and Rail Crossings at roundabouts.
Future Agenda Items: Meeting topics brainstorming session.
Next Meeting: September 7, 2016, 8:00am to 10:00am at HDR Engineering, Inc.

ITS Technical Committee
Committee Chair: Derek Nieveen - dnieveen@alliant-inc.com
Recent Agenda Items: Technology in the Squad Car. Presentation by Col. Matt Langer, Minnesota State Patrol.
Future Agenda Items: ITS Equipment Maintenance. Presentation by Kevin Albertson and Brian Scharles, TAPCO.
Next Meeting: TBD, MnDOT Waters Edge

Pedestrian and Traffic Safety Technical Committee
Committee Chair: Natalie Lindsoe - natalie.lindsoe@hdrinc.com
Recent Agenda Items: Cedar Avenue Sidewalk Project.
Future Agenda Items: MnDOT Pedestrian and Bike Counting Project presented by Michael Petesch and Greg Lindsey.
Next Meeting: September 14, 2016, 1:00pm to 2:30pm at the University of Minnesota – Twin Cities Campus.

Planning Methods and Applications Technical Committee
Committee Chair: Steve Wilson - swilson@srfconsulting.com
Recent Agenda Items: Have not met since Fall 2015 INCITER.
Future Agenda Items: TBD
Next Meeting: TBD (meetings are typically held on the last Wednesday of every other month)

Traffic Operation and Maintenance Discussion Group
Committee Chair: Adam Bruening - adam.bruening@co.washington.mn.us
Recent Agenda Items: Uses of Omni Base, Slip Base and Telespar. Discussion on Road, Stock and Signal Inventory
Future Agenda Items: Round Table Discussion
Next Meeting: TBD (meetings are typically held on the first Wednesday of each month 11:30am—1pm)

Simulation and Capacity Analysis Technical Committee
Committee Chair: Ben Hao - ben.hao@aecom.com
Future Agenda Items: TBD.
Next Meeting: September 20, 2016, 1:00pm to 3:00pm, MnDOT Waters Edge.
At their August meeting, the Executive Board unanimously voted to create a Younger Member Committee (YMC) of NCITE. The primary purpose of this new committee is to connect young professionals in the diverse field of transportation. The YMC will foster career growth by providing opportunities for members to build relationships through social and educational events. The YMC will interface with existing NCITE committees to promote: engagement in the mentorship program, interaction with university students, involvement in the NCITE technical committees, and broadened NCITE membership. The term “younger member” will be defined as an individual that is 35 years old or younger, similar to the guidelines for the NCITE Young Transportation Professional Award. However, this policy will be loosely enforced at YMC events as the goal is to connect younger NCITE members with other transportation professionals.

The YMC was proposed to the Executive Board by several younger NCITE members including: Nicklaus Ollrich of Metro Transit, Philip Kulis of SRF Consulting, Jeremy Melquist of Bolton and Menk, and Morgan Hoxsie of Kimley-Horn. This group will comprise the leadership of this new committee and has started planning some of the early YMC events. If you would like to get involved, please feel free to contact either Nicklaus Ollrich or Philip Kulis. In the coming weeks, watch for an email to join the YMC communications list to learn about upcoming events.

ITE LOL

I’m telling you! The more information we store up there, the cloudier it’ll get.

Source: CloudTweaks.com
Applying Systems Engineering for ITS Implementation in Minnesota

Ben Hao, AECOM

In each issue, the INCITER features articles coordinated by one of NCITE’s sponsors. This article is a contribution from AECOM.

23 CFR 940 provides policies and procedures for implementing section 5206(e) of the Transportation Equity Act for the 21st Century (TEA-21) pertaining to conformance with the National Intelligent Transportation Systems (ITS) Architecture and Standards. The purpose of this regulation is to foster integration of the deployment of regional ITS systems. Under the guidance of the Federal Highway Administration (FHWA) Minnesota Division, the Minnesota Department of Transportation (MnDOT) with the assistance from AECOM has developed a programmatic process to guide and improve the implementation of 23 CFR 940 in Minnesota.

The purpose of the programmatic process for ITS implementation is to promote the consistent use of systems engineering to help resolving particular project implementation and system integration issues. This programmatic process utilizes the foundation that has already existed for ITS project development and is enhanced with clear guidance as well as straightforward tools to streamline the process. It effectively raises the awareness of the systems engineering requirements and benefits. It also promotes the proper application of systems engineering analysis throughout the life cycle of ITS projects and projects that include ITS components, from initial identification of needs and concept exploration to implementation, operations and maintenance.

In the past three years, MnDOT ITS staff have been diligent and aggressive in improving the use of the ITS architecture and systems engineering tools to better bring the planning, design, testing and evaluation of the ITS implementation projects into conformance with the regulation. MnDOT’s key efforts included: developing and updating Statewide Regional ITS Architecture, developing programmatic systems engineering documentation for commonly deployed systems, and preparing technical references and tools to support the consistent use of systems engineering for ITS projects. Commonly deployed systems in the programmatic systems engineering efforts include traffic signals, road weather information systems, weigh-in-motion systems, railroad-highway grade crossing systems, and arterial and freeway traffic management systems, such as detection, dynamic message signs, CCTV cameras, communications, etc. The programmatic systems engineering process establishes a foreshortened approach to those commonly deployed systems. It streamlines the planning, design and implementation of those systems, ensuring consistency across jurisdictions and regions, providing cost-savings, supporting integration and future expansion, and validating regulation conformity with supporting documentation.

In order to fulfill the requirements of 23 CFR 940, MnDOT worked closely with the FHWA Division Office to develop a Highway Project Development Process (HPDP) for ITS Systems Engineering Requirements. This HPDP provides guidance on implementing 23 CFR 940 and using systems engineering process for ITS projects and projects with ITS components.
In addition to the HPDP for ITS, AECOM supported MnDOT with creating a series of tools to facilitate the implementation of the programmatic process. The references and tools created include: a list of technical resources and reference documents; an ITS implementation process guide; enhanced project scoping worksheets to assist in early identification and proper resource allocation for ITS projects; a decision tree to guide identification of systems engineering analysis needs; a set of ITS systems engineering checklists to ensure 23 CFR 940 conformity; training materials; and an ITS systems engineering website to house the references, tools, and other relevant information and resources.
Through the collaboration among MnDOT, FHWA Minnesota Division and AECOM, an enhanced programmatic process was developed to ensure compliance of ITS Architecture and Standards for ITS projects. The Minnesota ITS Implementation Process provides a systematic approach to ensure aspects of integration, interoperability, operations and management of ITS systems are properly considered in an iterative manner with the various stages of planning, design, testing evaluation of the implementation. With the implementation of these improved tools and guidance, FHWA would consider MnDOT and all its sub-recipients in conformance with the national and regional ITS architecture along with the systems engineering requirements.
Let’s get home safe...

Building a Better World for All of Us®

Engineers | Architects | Planners | Scientists
800.325.2055 • sehinc.com

Flashing Yellow Arrow Signal Prioritization

Engineers | Planners | Designers
srfconsulting.com

Designs that take you to new destinations

Design with community in mind • stantec.com

Transportation Design + Planning / Environmental
Bridge / Structural + Construction Services
Traffic Engineering + Land Surveying

TKDA
800.247.1714
tkda.com

10435 Argonne Woods Drive, Woodridge, IL 60517
603.543-1300

Traffic Control Corporation
New Members

Cortney Falero – SRF Consulting
Derek Leuer – MnDOT
Todd Olson – Alliant Engineering
Denver Tolliver – NDSU

Moves

Jonah Finkelstein – Spack Consulting, formerly with Alliant Engineering

If you or a friend has changed jobs or moved, we would like to stay in touch. Members, please update your information by visiting http://www.ite.org/membership/index.asp. To access this area, you will need to know your membership number. Your “username” is your membership number, and your “password” is the first 6 letters of your last name (e.g. Johnson=Johnso). Non-members please contact Nicklaus Ollrich via phone (612.373.5350) or email (nicklaus.ollrich@metrotransit.org) for assistance. Please provide you name, title, employer, complete street address (including mailstop, if applicable), telephone number, fax number, and email address.