2024 Midyear Meeting
Highway Capacity and Quality of Service (ACP40)
Traffic Simulation (ACP80)
North Carolina State University / Raleigh, NC
August 6-8, 2024

The midyear meeting of the TRB Standing Committees on Highway Capacity and Quality of Service (ACP40) and Traffic Simulation (ACP80) will be held August 6-8, 2024 in Raleigh, NC.[1] The host is North Carolina State University. Co-hosts are NCSITE (the North Carolina chapter of the Institute of Transportation Engineers, https://ncsite.org) and ITS Carolinas (https://itscarolinas.org). The goal of the meeting is to find synergistic ground for traffic analysis and modeling using the Highway Capacity Manual (HCM) and Simulation. Attendees will help the committees identify ways in which then HCM and Simulation methods, tools, and research can be more tightly connected and integrated for practical applications to solve today's transportation problems and prepare us for the challenges of tomorrow.

The first day of the meeting (Tuesday) will have conference sessions on this theme including presentations, posters, and keynote address. Days two and three (Wednesday and Thursday) will involve subcommittee and committee meetings – in most cases jointly held – to focus on making plans for future research based on dialogue generated from the first day, and the takeaways.

The overall schedule for the three days is shown below:

TUESDAY, 6-AUG-2024

Time	Day 1 - Partner with NCSITE		
8:00a - 9:00a	Breakfast*		
9:00a - 10:15a	**Panel Session:** Creasey, Hadi, Lahiri, List, Rouphail, Schroeder		
10:15a - 10:30a	Break*		
10:30a - 11:45a	**Synergy-1:** Bill Cisco / David Stanek / Rei Tamaru	**Data:** Scott Smith / Sarah Wicklund / George List	Vendor Showcase
11:45a - 1:30p	Lunch* with Keynote		
1:30p - 2:45p	**Synergy-2:** Brian Park / Wuping Xin / Tom Creasey	**Simulation Based:** Taylor Li / Monty Abbas / Zhitong Huang	
2:45p - 3:00p	Break*		
3:00p - 4:15p	**Synergy-3:** Soheil Sajjadi / Fahmida Rahman / Xuesong Zhou / Rahmi Akçelik	**Equation Based:** Erik Ruehr / Zilin Bian / Nagui Rouphail	
4:30p - 5:30p	Networking		

WEDNESDAY, 7-AUG-2024

Time	Day 2 - ACP40 & ACP80 Joint Sessions	Coordinators/ Facilitators
8:00a - 9:00a	Breakfast*	
9:00a - 10:15a	HCM / Simulation collaboration ACP40 Applications subcommittee and ACP80 TSSM/Applications task group	John Engle (ACP40) Loren Bloomberg (ACP80)
10:15a - 10:30a	Break*	
10:30a - 11:30a	Research Workshop - State DOT perspective on needs and priorities	Cathy Liu (ACP40) George List (ACP80)
11:30a - 12:30p	Boxed Lunch*	
12:30p - 2:00p	Analysis Scoping, Data, and Validation/ Calibration/ Verification	Bob Aghdashi (ACP40) Monty Abbas (ACP80) Vicki Haskel (ACP80)
2:00p - 2:30p	Break*	
2:30p - 3:45p	Emerging Concepts in Eq- and Sim-Based Performance Assessment A Roadmap for Future Research	Dan Cook (ACP40) Jim Sturrock (ACP80) Andy Berthaume (ACP80)
4:00p - 5:30p	Technical Tour: Raleigh Area TMC Attendees MUST provide their names. The TMC is within the JFHQ	
6:30p - 8:00p	Dinner* at Fitts-Woolard Hall	

THURSDAY, 8-AUG-2024

Time	Day 3		Coordinators/Facilitators
8:00a - 9:00a	Breakfast*		
9:00a - 10:15a	ACP40 Full Committee Meeting (includes research subcommittee)	ACP80 Full Committee Meeting	Bastian Schroeder / Alexandra Kondyli (ACP40) Sanhita Lahiri/ Mohammed Hadi (ACP80)
10:15a - 10:30a	Break*		
10:30a - 11:30a	ACP40 Full Committee Meeting Continued	ACP80 Full Committee Meeting Continued	Bastian Schroeder / Alexandra Kondyli (ACP40) Sanhita Lahiri/ Mohammed Hadi (ACP80)
11:30a - 12:30p	Boxed Lunch*		
12:30p - 1:45p	Innovation in Tools & Software. New methods, software tools and capabilities (Including vendor presentations) - Facilitated by SimSub and ACP40 Cross-Cutting Issues Subcommittee		Dave Stanek (ACP40) Chris Melson (ACP80) John Shaw (ACP80) On-Site SimSub Rep
1:45p - 2:00p	Break*		
2:00p - 3:15p	Innovation in Tools & Software New methods, software tools and capabilities Continued		Dave Stanek (ACP40) Chris Melson (ACP80) John Shaw (ACP80) On-Site SimSub Rep
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[1] There is also a by-invitation workshop for state DOT representatives being hosted by FHWA on Monday.

Tuesday Workshop (Duke Energy Hall):

Joint Traffic Analysis and Modeling Workshop and Mid-Year Meeting in Partnership with NCSITE	

Tuesday, August 6 2024	Registration: https://ncsite.org/meetinginfo.php?id=163

8:00a - 9:00a	Breakfast	
9:00a - 10:15a	**Opening Panel Session:** Tom Creasey, National Traffic Practice Lead, Alliance Transportation Group Mohammed Hadi, Professor and Director, Lehman Center for Transportation Research, Florida International University Sanhita Lahiri, Data and System Analysis Manager AND Acting District Traffic Engineer, Virginia DOT George List, Professor and Former Head, Civil, Construction, and Environmental Engineering, NC State University Nagui Rouphail, Distinguished University Professor Emeritus, NC State University, Bastian Schroeder, Chief Information and Technology Officer, Kittelson & Associates, Inc.	
10:15a - 10:30a	Break	
10:30a - 11:45a	**Synergy-1 (Parallel Session):** Interconnected Traffic Analysis: From ATMS to HCM to Simulation (and Back Again) - Bill Cisco A comparison of deterministic and simulation methods for multi-period freeway capacity analysis - David Stanek CrossTraffic: A Unified Framework for Advanced Highway Capacity Manual Development and Traffic Analysis - Rei Tamaru	**Data (Parallel Session):** A Specification for Sharing Routable Multi-Resolution and Multi-Modal Networks - Scott Smith I-5715 Advanced Volume Development and Microsimulation - Sarah Wicklund, Peter Trencansky The Value of Probes in Monitoring Arterial Performance - George List
11:45a - 1:30p	**Lunch with Key Note Speaker** **Joe Hummer, State Traffic Management Engineer, Mobility and Safety Division, North Carolina DOT**	
1:30p - 2:45p	**Synergy-2 (Parallel Session):** Analytically Quantifying the HCM Delay Equation Variability vs Simulation-based-Optimization, What Works Better and Why? - Brian Park X-in-the-Loop Microsimulation for Digital Twins of Traffic Signal Controllers - Wuping Xin Case Study of a Cluster Analysis to Support Interchange Access Justification Report (IAJR) in Texas - Tom Creasey	**Simulation Based (Parallel Session):** Automated Traffic Signal Performance Measures (ATSPMs) in the Loop Simulation: A Digital Twin Approach to Advanced Traffic Signal Design and Planning - Taylor Li A Methodology for Safety-Oriented Calibration of Driver Aggression Parameters in Microscopic Simulation Tools - Monty Abbas Enhancing Analysis, Modeling, and Simulation (AMS) Tools for Evaluating the Impacts of Advanced Driver Assistance Systems (ADAS) on Mixed Traffic Environments - Zhitong Huang
2:45p - 3:00p	Break	
3:00p - 4:40p	**Synergy-3 (Parallel Session):** Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis of the Modeling Guidelines in the United States - Soheil Sajjadi Evaluating the Potential of Connected and Autonomous Vehicles on Freeway Work Zone Capacity: A Case Study - Fahmida Rahman S3, PAQ, and CBI: A Set of Traffic Flow Theoretic Tools for Integrating Highway Capacity Manual and Simulation Approaches for Multi-Scale Data-Driven Traffic Modeling - Xuesong Zhou Traffic modeling: micro-analytical meets micro-simulation - Rahmi Akçelik	**Equation Based (Parallel Session):** Traffic Simulation Guidance in the Highway Capacity Manual - Erik Ruehr Digital Twin-based Advanced Traffic Event Analysis and Management Platform for Transportation Decision Support - Zilin Bian Back to basics: Enhancing the HCM7 Planning Method for Signals - Nagui Rouphail
4:45p - 5:45p	Networking	

The detailed schedule is as follows:

Tuesday (Duke Energy Hall):

8:00-9:00 Breakfast
9:00-10:15 *Panel Session: Future and Past Interlacing of HCM and Simulation-Based Analyses*
    Thomas Creasy, Mohammed Hadi, Sanhita Lahiri, George List, Nagui Rouphail, and Bastian Schroder
10:15-10:30 Break
10:30-11:45 Parallel Sessions
    Synergy 1
        Bill Cisco, Interconnected Traffic Analysis: From ATMS to HCM to Simulation (and Back Again)
        David Stanek, A comparison of deterministic and simulation methods for multi-period freeway capacity analysis
        Rei Tamaru, CrossTraffic: A Unified Framework for Advanced Highway Capacity Manual Development and Traffic Analysis
    Data
        Scott Smith, A Specification for Sharing Routable Multi-Resolution and Multi-Modal Networks
        Sarah Wicklund, Peter Trencansky, I-5715 Advanced Volume Development and Microsimulation
        George List, The Value of Probes in Monitoring Arterial Performance
11:45-12:45 Lunch
12:45-1:30 Keynote, *Joseph Hummer*, NCDOT
1:30-2:45 Parallel Sessions
    Synergy-2
        Brian Park, Analytically Quantifying the HCM Dely Equation Variability vs Simulation-based Optimization. What Works Better and Why?
        Wuping Xin, X-in-the-Loop Microsimulation for Digital Twins of Traffic Signal Controllers
        Tom Creasey, Case Study of a Cluster Analysis to Support Interchange Access Justification Report (IAJR) in Texas
    Sim-Based
        Taylor Li, Automated Traffic Signal Performance Measures (ATSPMs) in the Loop Simulation: A Digital Twin Approach to Advanced Traffic Signal Design and Planning
        Monty Abbas, A Methodology for Safety-Oriented Calibration of Driver Aggression Parameters in Microscopic Simulation Tools
        Zhitong Huang, Enhancing Analysis, Modeling and Simulation (AMS) Tools for Evaluating the Impacts of Advanced Driver Assistance Systems (ADAS) on Mixed Traffic Environments
2:45-3:00 Break
3:00-4:40 Parallel Sessions
    Synergy-3
        Soheil Sajjadi, Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis of the Modeling Guidelines in the United States
        Fahmida Rahman, Evaluating the Potential of Connected and Autonomous Vehicles on Freeway Work Zone Capacity: A Case Study
        Xuesong (Simon) Zhou, S3, PAQ, and CBI: A Set of Traffic Flow Theoretic Tools for Integrating Highway Capacity Manual and Simulation Approaches for Multi-Scale Data-Driven Traffic Modeling
        Rahmi Akçelik, Traffic modeling: micro-analytical meets micro-simulation
    HCM-Based
        Erik Ruehr, Traffic Simulation Guidance in the Highway Capacity Manual
        Zilin Bian, Digital Twin-based Advanced Traffic Event Analysis and Management Platform for Transportation Decision Support
        Nagui Rouphail, Back to basics: Enhancing the HCM7 Planning Method for Signals
4:45-5:45 Networking

Wednesday (Duke Energy Hall unless otherwise noted):

8:00-9:00 Breakfast

9:00-10:15 *Workshop*
    Focus: HCM W/ Simulation collaboration
    Facilitators: *John Engle* (ACP40) and *Loren Bloomberg* (ACP80)
10:15-10:30 *Break*
10:30-11:30 *Workshop*
    Focus: State DOT Perspectives on Needs and Priorities
    Facilitators: *Cathy Liu* (ACP40) and *George List* (ACP80)
11:30-12:30 *Informal Lunch / Fitts Woolard Hall Plaza*
12:30-2:00 *Workshop*
    Focus: Analysis Scoping, Data, and Validation/Calibration/Verification
    Facilitators: *Bob Aghdashi* (ACP40), Monty Abbas (ACP80), and Vicki Haskell (ACP80)
2:00-2:30 *Break*
2:30-4:00 *Workshop*
    Focus: Emerging Concepts in HCM- and Sim-Based Performance Assessment - A Roadmap for Future Research
    Facilitators: Dan Cook (ACP40), Jim Sturrock (ACP80), and Andy Bertome (ACP80)
4:00-6:00 *Technical Tour*
    Location: Raleigh Area TMC
    Host: NCDOT
    NOTE: Attendees MUST provide their names to George List (gflist@ncsu.edu) in advance of the tour and carry IDs with them on the tour. The TMC is within the JFHQ[2]
6:00-8:00 *Dinner / Fitts Woolard Hall*

Thursday (Duke Energy Hall unless otherwise noted):

8:00-9:00 Breakfast
9:00-11:30 Committee Meetings
    ACP40 (includes research subcommittee) / Bastian Schroeder /Alexandra
    ACP80 Sanhita Lahiri /Mohammed Hadi
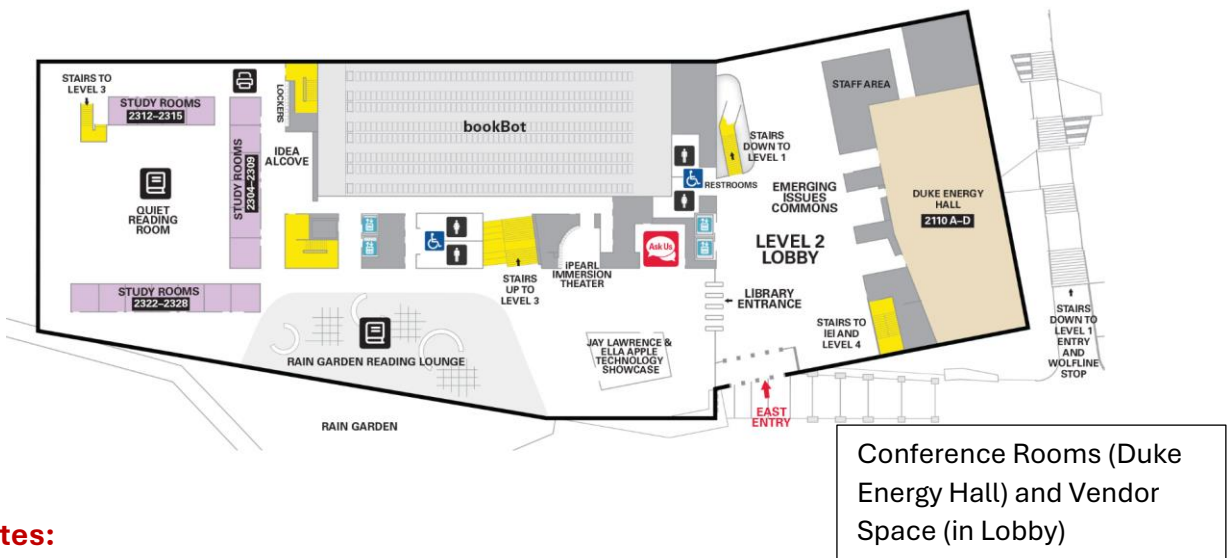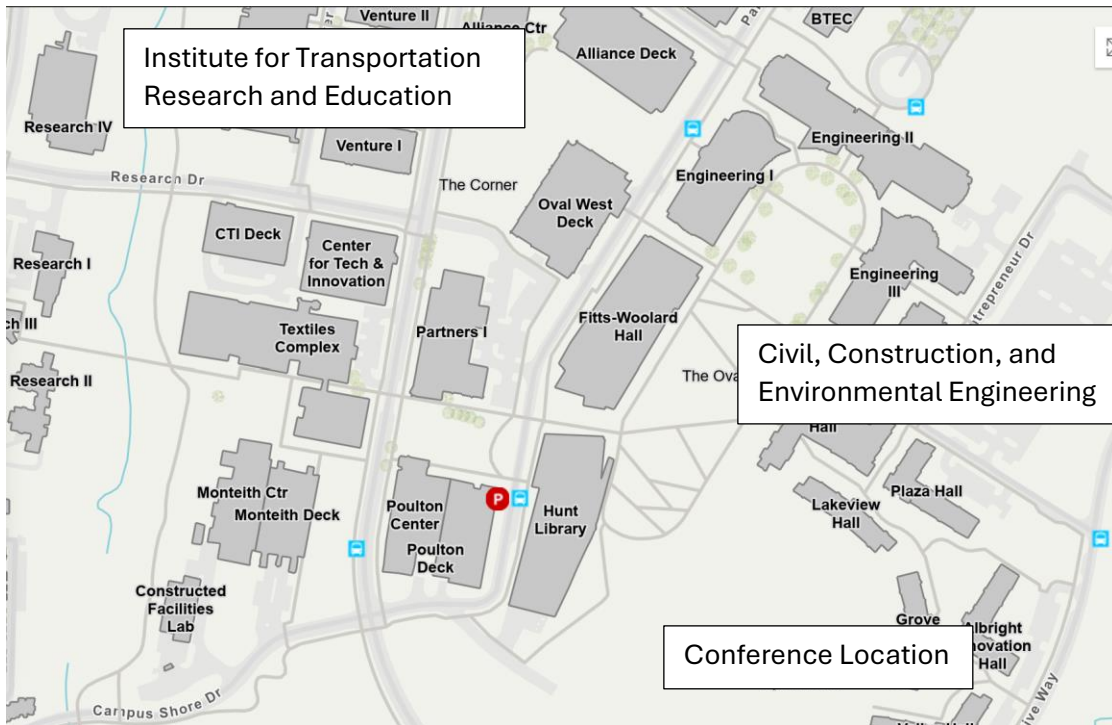11:30-12:30 *Informal Lunch / Fitts Woolard Hall Plaza*
12:30-3:30 Workshop
    Focus: Innovation in Tools and Software / New Methods, Software Tools and Capabilities
    Facilitators: Dave Stanek (ACP40), Chris Melson (ACP80), John Shaw (ACP80)

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[2] https://ng.nc.gov/

Maps:

Institute for Transportation Research and Education

Civil, Construction, and Environmental Engineering

Conference Location

Conference Rooms (Duke Energy Hall) and Vendor Space (in Lobby)

Notes:

1) Buses to and from the hotels will be provided on all three days; in the morning and at the end of the sessions.
2) Buses will be used to take participants to and from the JTOC for the TMC tour
3) Special dietary needs will be accommodated. Please let the conference organizers know. An email can be sent to Eva Stancil (ezstanci@ncsu.edu) or George List (gflist@ncsu.edu)
4) Vendor space and space for posters will be available immediately outside the conference rooms. See the map of Hunt Library second floor above.