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EDUCATION

Ph.D., The Ohio State University, Columbus, Ohio, 1981
M.S., The Ohio State University, Columbus, Ohio, 1977
B.S., Civil Engineering, Cairo University, Egypt, 1972

PROFESSIONAL EXPERIENCE

Jan. 2002 - Present Director, Institute for Transportation Research and Education, North Carolina State University at Raleigh, North Carolina.

Sept. 2013-Present Associate Director, National Transportation Center, University of Maryland

Jul. 2001- Dec. 2001 Interim Director, Institute for Transportation Research and Education, North Carolina State University at Raleigh, North Carolina.

Mar. 2001- Jun. 2001 Visiting Faculty, Danish Road Directorate, Copenhagen, Denmark.

Jan. 1994- Present Professor of Transportation Engineering, Civil Engineering Department, North Carolina State University at Raleigh, North Carolina.

Jan. 1991- Jun. 1991 Visiting Research Scientist, Australian Road Research Board, Victoria, Australia, Transport Efficiency Program.

Sept. 1987- Dec. 1993 Associate Professor of Transportation Engineering, Department of Civil Engineering, Mechanics and Metallurgy (CEMM), University of Illinois at Chicago (UIC).

Sept. 1981- Aug. 1987 Assistant Professor of Transportation Engineering, Department of Civil Engineering, Mechanics and Metallurgy (CEMM), University of Illinois at Chicago

Jul. 1981-Dec. 1993 Faculty Associate, Urban Transportation Center, University of Illinois at Chicago

HONORS AND AWARDS

The National Academies of Sciences, Transportation Research Board, 2015 Roundabouts Committee Best Paper Award, "A Simplified Method for Comparing Emissions at Roundabouts and Signalized Intersections," Washington, D.C., January 2015.

The National Academies of Sciences, Transportation Research Board, 2015 Geometric Design Committee Best Graduate Student Poster Award (Shannon Warchol), "Geometric and Signal Timing Strategies to Improve Corridor Operations in the Vicinity of Diverging Diamond Interchanges," Washington, D.C., January 2015.

The National Academies of Sciences, 2015 Highway Capacity and Quality of Service Committee Best Paper Award, "Lane Utilization at Two-lane Arterial Approaches to Double Crossover Diamond Interchanges," Washington, D.C., January 2015.

The National Academies of Sciences, 2013 Highway Capacity and Quality of Service Committee Best Paper Award, "Methodology for Developing an HCM-Based Oversaturated Speed Flow A Context Sensitive Sol," Washington, D.C., January 2013.

The National Academies of Sciences, Transportation Research Board, 2013 Roundabouts Committee Best Paper Award, "Event-Based Modeling of Driver Yielding Behavior to Pedestrian and Two-Lane Roundabout Approaches," Washington, D.C., January 2013.

The National Academies of Sciences, Transportation Research Board, 2012 Highway Capacity and Quality of Service Committee Best Paper Award, "Implementing Auxiliary Through Lanes (ATLs) in a Highway Capacity Analysis Context," Washington, D.C., January 2012.

American Society of Civil Engineers Journal of Transportation Engineering, Best Paper Award, "Event -Based Modeling of Driver Yielding Behavior at Unsignalized Crosswalks," 2012.

Institute for Transportation Engineers, Inc. (ITE), Traffic Engineering Council Best Paper Award, "Level of Service Analysis for Complete Streets," at the ITE Annual Conference, St. Louis, M.O., August 2011.

The National Academies of Sciences, Transportation Research Board, 2010 D. Grant Mickle Best Paper Award in the Field of Operations, Safety and Maintenance, "Mixed-Priority Pedestrian Delay Models at Single-Lane Roundabouts," at the 90th Annual Transportation Research Board Conference, Washington D.C., January 2011.

The National Academies of Sciences, Transportation Research Board, Committee on Work Zone Traffic Control, 2010 Best Paper Award, "Estimating the Operational Impacts of Freeway Work Zones on Extended Facilities," at the 90th Annual Transportation Research Board Conference, Washington, D.C., January 2011.

The National Academies of Sciences, Transportation Research Board, Committee on Operational Effects of Geometrics, 2004 Best Paper Award, "Lane Utilization Prediction Models for Lane-Drop Intersections," at the 84th Annual Transportation Research Board Conference, Washington, D.C., January 2005.

12th International Scientific Symposium, Transport and Air Pollution, Best Poster Award, "A Methodology for Modeling and Measuring Traffic and Emission Performance for Speed Control Traffic Signals," Avignon, France, June 2003.

The National Academies of Sciences, Transportation Research Board, Committee on Highway Capacity and Quality of Service, 2000 Best Paper Award, "Validation Results for Four Models of Oversaturated Freeway Facilities," at the 79th Annual Transportation Research Board Conference, Washington, D.C., January 2001.

Institute for Transportation Engineers Inc. (ITE), Southern District, Outstanding Non-Sponsored Technical Paper Award, "Is Level of Service Worse with the 1997 Highway Capacity Manual (HCM) Compared to the 1994 Highway Capacity Manual (HCM)?" at the Southern District ITE, Greenville, S.C., April 2000.

The National Academies of Sciences, Transportation Research Board, Committee on Highway Capacity and Quality of Service, 1996 Best Paper Award, "An Overflow Delay Model for Signalized Arterials," at the 75th Annual Transportation Research Record Conference, Washington, D.C., January 1997.

CURRICULUM DEVELOPMENT

At the University of Illinois at Chicago: Developed undergraduate and graduate courses in the CEMM Department. Involved in the formation and instruction at the off-campus M.S. program in Transportation Engineering at the Illinois Department of Transportation.

At North Carolina State University: Developed and taught three new courses on Multimodal Transportation Studies (UG), Advanced Traffic Control (G) and Intelligent Transportation Systems (G). Headed the department undergraduate curriculum committee, and successfully initiated a major curriculum revision for ABET accreditation purposes.

At National Technical University (NTU): Served on a National Panel to develop a satellite based, video instructional program leading to an MS in Transportation Engineering. Taught an ITS course through the video-based engineering program.

COURSES INTRODUCED OR TAUGHT

Intelligent Transportation Systems
Traffic Operations
Advanced Traffic Control
Introduction to Transportation Engineering
Civil Engineering Systems
Microcomputer Applications in Transportation
Design of Highway Traffic Facilities
Theory of Traffic Flow
Senior Design Project
Construction Management

RESEARCH INTERESTS

Urban Traffic Control with emphasis on signalized intersections and systems control, roundabouts, analysis of oversaturated systems, and freeway facility analyses

Highway Capacity with emphasis on signalized intersections, delay models and freeway systems

Mobile emissions modeling and measurements

Capacity analysis of pedestrian and bicycle facilities, and blind pedestrian access issues

Intelligent Transportation Systems with emphasis on advanced traffic management and traveler information services, and impacts on vehicle emissions and air quality

Modeling and simulation of V2V and V2I communications impact on transportation networks

Theory of Traffic Flow with emphasis on the theory of oversaturation, bottleneck analysis and analysis of closely spaced intersections.

Freeway work zone analysis, including capacity and free flow speed estimation, smart work zones and speed enforcement.

High resolution in vehicle data collection and processing. Developing driver profiles and associating infrastructure features with other driver actions.

GRANTS AND CONTRACTS AWARDED BY THEMATIC AREA

Intelligent Transportation Systems

Vehicle Trajectory Tool: Application Pilot for AMS Test Bed, National Transportation Center University of Maryland, College Park, 04/01/2014-12/31/2015; Award: \$93,233.

Sketch Planning Methods to Support Planning for Operations - Task Order 5002, FHWA and Kittelson & Associates, 11/01/2014 -10/31/2016; Award: \$189,230.

IMAP-Assessment of Benefits/Costs, Route Selection and Prioritization, North Carolina Department of Transportation, 08/16/2013-12/31/2015; Award: \$202,216.

Dynamic Traffic Control Interventions for Enhanced Mobility and Economic Competitiveness, STRIDE, University of Florida and US Department of Transportation, 10/01/2013-09/30/2014; Award: \$82,500.

SmartLink-Baseline for Measurement of Benefits, North Carolina Department of Transportation, 08/16/2012-08/15/2014; Award: \$193,657.

Task T-13001: Impacts of Assessment of Dynamic Speed Harmonization with Queue Warning, Kittelson and Associates and Federal Highway Administration, 06/17/2013-06/30/2014; Award: \$19,517.

Phase I AMS Testbed Selection—IDIQ with Kittelson and Associates, Booz Allen Hamilton, Inc., 09/05/2013-06/30/2014; Award: \$30,000.

An Open-Source Dynamic Traffic Assignment Tool for Assessing the Effects of Roadway Pricing and Crash Reduction Strategies on Recurring and Non-Recurring Congestion, Kittelson and Associates, Inc., the Federal Highway Administration and the US Department of Transportation, 03/01/2011-05/31/2013; Award: \$105,968.

Mobility and Reliability Performance Measurement, North Carolina Department of Transportation, 08/16/2010-08/15/2012; Award: \$264,998.

Establishing Monitoring Programs for Travel Time Reliability (SHRP L02), Transportation Research Board, 03/18/2009-03/17/2012; Award: \$1,800,000.

Assessing Operational, Pricing and Intelligent Transportation System Strategies for the I-40 Corridor using DYNASMART- p, Sponsored by North Carolina Department of Transportation, 8/16/2008-8/15/2010; Award: \$207,257.

Ubiquitous Transportation Network Modeling and Simulation (Phases II and III), Sponsored by Seoul National University, Seoul National University, South Korea, 10/01/08-08/31/2009; Award \$74,000.

Ubiquitous Transportation Network Modeling and Simulation, (Phase I), Sponsored by Seoul National University, Seoul National University, South Korea, 11/01/2007-08/31/2008; Award \$30,000.

Effectiveness of Traveler Information Tools, FHWA/NC/2005/0x, Sponsored by North Carolina Department of Transportation (Billy Williams, PI) 7/1/05-6/30/07; Award: \$169,995.

I-40 Reversal Operational Traffic Analysis, FHWA/NC/2004-16 Sponsored by North Carolina Department of Transportation, (Billy Williams, PI), 7/01/03-06/30/05; Award: \$156,580.

Incident Management and Assistance Patrols: Assessment of Investment Benefits and Costs, FHWA/NC/2003-06, (PI), Sponsored by N.C. Department of Transportation, 07/01/02-12/31/03; Award: \$99,766.

Using Advanced Vehicle Monitoring Systems to Extend System Capacity Along North Carolina Freeway, (PI). Sponsored by the North Carolina Department of Transportation (NCDOT), 7/1/95-6/30/96; Award: \$69,213.

A Plan for the Deployment of Advanced Transportation Systems in the Research Triangle Region, (PI). Sponsored by the FHWA and NCDOT, 7/1/94-9/30/95; Award: \$236,411.

Design of an Advanced Driver and Vehicle Advisory Navigation Concept (ADVANCE), (Co-PI, David E. Boyce, PI). Sponsored by FHWA and the Illinois Department of Transportation, (IDOT), Phase I: 7/25/91-9/30/92; Award: \$130,000.

Design of an Advanced Driver and Vehicle Advisory Navigation Concept (ADVANCE), (Co-PI, David E. Boyce, PI). Sponsored by FHWA and the Illinois Department of Transportation, Phase II: 7/1/92-9/30/93; Award: \$126,000.

Travel Time Estimation based on Closed-Loop System Detector Output, (PI). Sponsored by FHWA and the National Highway Institute, 9/92-9/93; Award \$14,058.

Urban Traffic Control and Operations

Planning and Preliminary Engineering Applications Guide for the HCM (NCHRP-7-22), 2013-2015, Kittelson & Associates, Inc.

Work Zone Monitoring and Assessment for TIP I-5311/I-5338, NC Department of Transportation, 01/01/2013-08/15/2016, Award: \$249,893.

NCHRP 03-115 Major Update to the 2010 Highway Capacity Manual, Kittelson and Associates and National Academies of Sciences, 09/20/2013-12/19/2015; Award: \$435,775.

Guidance for Alternative Intersections, Saxton Transportation Operations Lab, Federal Highway Administration, 04/16/2013-10/03/2015; Award: \$117,712.

Field Evaluation of Double Crossover Diamond Interchanges, Federal Highway Administration and US Department of Transportation, 10/10/2010-11/30/2014; Award: \$839,627.

Work Zone Capacity Methods for Highway Capacity Manual, Kittelson and Associates and National Academies of Sciences, 05/17/2012-11/16/2014; Award: \$175,655.

Delay and User Cost Estimation for Work Zones on Urban Arterials, NC Department of Transportation, 8/16/2012-08/15/2014; Award: \$199,768.

Incorporating Truck Analysis into the Highway Capacity Manual, Dowling and Associates, Inc., National Cooperative Freight Research Program, 03/30/2012-03/30/2014; Award: \$140,000.

Guidance for Alternative Intersections, Federal Highway Administration, 03/08/2013–03/07/2015; Award: \$117,712.

Accelerating Roundabout Implementation in the United States: Evaluation to Address Key Issues, TOPR #34, Virginia Tech and the Federal Highway Administration, 08/18/2011-02/17/2014; Award: \$409,771.

Work Zone Traffic Analysis & Impact Assessment, NC Department of Transportation, 02/01/2012-08/15/2013; Award: \$152,642.

Development of Real Time Performance Measurements for Closed-Loop Signal Systems Using Existing Loop Detectors, North Carolina Department of Transportation, 8/16/2011-7/30/2013; Award: \$206,062.

Incorporation of Travel Time Reliability into the Highway Capacity Manual, Strategic Highway Research Program-L08, Kittelson and Associates, Inc., 2/17/2011-05/31/2013; Award: \$300,000.

NCFRP 41, Incorporating Truck Analysis into the Highway Capacity Manual, Kittelson and Associates, 03/30/2012-03/30/2014; Award: \$140,081.

Reliability Implementation—SHRP L-55, Cambridge Systematics and National Academy of Sciences, 03/19/2013, Award: \$11,714.

Evaluating the Performance of Corridors with Roundabouts, Kittelson and Associates, Inc. and the National Cooperative Highway Research Program 03-100, Sponsored by the National Academies of Science, Transportation Research Board, 4/1/2011-11/30/2012; Award: \$79,000.

Analysis of Managed Lanes for Freeway Facilities, Sponsored by National Academy of Sciences, NCHRP 3-96, 4/27/09-4/26/11; Award: \$70,000.

Understanding the Contributions of Operations, Technology, and Design to Meeting Highway Capacity Needs, Sponsored by Kittelson and Associates, Strategic Highway Research Program-C05 Project, 1/07/2008-1/06/2010; Award: \$335,346.

Guidelines for the Use of Auxiliary Through Lanes at Signalized Intersections, Sponsored by Kittelson and Associates, NCHRP 3-98, 3/01/09-2/28/2011; Award: \$190,575.

Eisenhower Graduate Fellowship (Bastian Schroeder, Fellow), (PI), U.S. Department of Transportation, 9/1/2006-9/1/2007; Award: \$11,500.

Hillsborough Street Roundabout Modeling and Simulation, (PI), Kimley-Horn and Associates, 8/15/2006-3/15/2007; Phase I; Award: \$13,660.

Testing the Feasibility of a Video-Image Processing System for Tracking Signalized Arterial Traffic, (PI), University of Idaho NIATT, 2/1/06-10/31/06; Award: \$25,500.

Low-Cost Improvements for Recurring Freeway Bottlenecks, (PI), Sponsored by Dowling and Associates (NCHRP 3-83), 12/1/05-1/1/07; Award: \$52,568.

Multimodal Arterial Level of Service, (PI), Sponsored by Dowling & Associates, Inc., 3/01/03-6/30/07; Award: \$43,387.

North Carolina Level of Service (LOS) Program, FHWA/NC/2003-12, (Co-PI), Sponsored by North Carolina Department of Transportation, 07/01/02-6/30/05; Award: \$153,743.

False Capacity for Lane Drops, FHWA/NC/2003-07, (Co-PI), Sponsored by North Carolina Department of Transportation, 7/01/02-6/30/04. Award: \$103,000. Eisenhower Graduate Fellowship, (PI), Tori Rhoulac, Sponsored by FHWA, 9/01-8/04 ; Award \$83,400.

Statistical Framework for the Evaluation of Complex Computer Models (SFCME), National Science Foundation through National Institute for Statistical Sciences, 8/01/00-6/30/03, Senior Investigator; Award \$60,000.

Variability Sensitive Measures of Effectiveness, (PI), Sponsored by Bureau of Transportation Statistics, USDOT, 5/24/01 -6/30/02; Award \$94,536.

Traffic Signal Evaluation Study, (PI), Sponsored by the National Science Foundation through the National Institute for Statistical Sciences, 7/1/97-10/30/00; Award \$128,000, includes Full-Time Post-Doctoral Fellow Support and one Graduate Student Support.

Field Evaluation of the Performance of Computer-Based Signal Timing Models in North Carolina, (PI). Sponsored by NCDOT, 7/1/96-6/30/98; Award: \$84,998.

Capacity Analysis of Freeway Systems, (PI), Subcontract from Science Application International Corporation (SAIC). Sponsored by FHWA and Oak Ridge National Laboratory, 8/14/97-1/21/00; Award: \$83,000.

Revisions to Chapters 9 and 11 of the *Highway Capacity Manual*, (PI). Subcontract from the Texas Transportation Institute, Texas A&M University. Sponsored by FHWA, 10/1/92- 6/30/95; Award: \$91,417.

Calibration and Validation of Capacity Analysis Procedures for Left Turn Lanes in Illinois, (PI). Sponsored by IDOT, 7/90-12/92; Award \$151,574.

A Traffic Model for Paired Intersections, (Co-PI; Rahmi Akcelik, PI). Sponsored by the Australian Road Research Board, 1/91-6/91; Award \$10,000.

Incorporating Intersection Design Elements into Subregional Traffic Assignment Models, (Co-PI; David Boyce, PI), Sponsored by IDOT, 7/89-6/90; Award \$64,088.

Validation of the 1985 HCM Procedure for Capacity and Level of Service of Left-Turn Lanes in Illinois, (PI). Sponsored by IDOT, 7/89-6/90; Award \$50,000.

Application of Link Impedance Functions to Subregional Route Choice Models, (PI). Sponsored by IDOT, 7/88-6/89; Award: \$26,780.

Development of Link Impedance Functions for Urban Street Networks, (PI). Sponsored by IDOT, 3/87-2/88; Award: \$22,177.

Design and Operation of Signalized Intersections in Illinois, (Co-PI; Paul Jovanis, PI). Sponsored by IDOT, 4/86-3/87; Award: \$41,776.

Microcomputer Applications to Weaving Interim Procedures and Evaluation of Weaving Analysis Interim Procedures, (PI). Sponsored by the National Highway Institute, 7/84-6/85; Award: \$18,000. Freeway Work Zones

Corridor-Based Forecasts of Work Zone Impacts from Freeway and Multilane Highways, Sponsored by North Carolina Department of Transportation, 8/16/09-12/31 / 10; Award: \$78,671.

Analysis Tools for Operational Effects of Level I and II of Work Zones in North Carolina, (PI), Sponsored by the Work Zone and Traffic Control Unit of the North Carolina Department of Transportation, 10/1/08-10/31/08; Award: \$9,731.

Identification of Traffic Control Devices for Mobile and Short Duration Work Operations, (PI), Sponsored by City College of New York, 1-01-04-12/31/04; Award: \$15,000.

Freeway Work Zones in Illinois: A Follow-up Study, (PI). Sponsored by IDOT, 2/88-6/89; Award: \$27,418.

Freeway Construction Zones: An Investigation of Accidents and Accident Reporting Systems in Illinois (PI). Sponsored by IDOT, 1/86-4/87; Award: \$44,715.

A Methodology for Optimizing Traffic Control Procedures at Highway Work Zones, (Co-PI; Farhad Azadivar, PI), Sponsored by the National Science Foundation, 12/85-12/88; Award: \$200,800.

Driver Characteristics Impacts on Freeway Lane Closure Traffic Operations, (PI). Sponsored by the University of Illinois Campus Research Board, 3/83-9/83; Award: \$5,000.

Capacity Analysis at Freeway Construction Lane Closures, (PI). Sponsored by the National Science Foundation, 9/82-2/85; Award: \$47,912.

Vehicle Energy and Emissions

Characterizing the Determinants of Vehicle Traffic Emissions Exposure: Measurement and Modeling of Land-Use, Traffic, Emissions, Transformation and Transport, Health Effects Institute, EPA, 07/01/2014-06/30/2016, Award: \$93,230.

Development and Calibration of High Resolution Integrated Emissions and Mesoscopic Traffic Model for Korean Condition, Korea Institute of Civil Engineering and Building Technology, 01/01/2015-12/31/2015, Award: \$69,000.

On-Board-Diagnostics (OBD) Data Integration into Traffic Micro-Simulation for Vehicle-Specific Fuel Use and Emissions Modeling and In-Vehicle App Testing, University of Florida and US Department of Transportation,

10/01/2013-09/30/2014; Award: \$82,500.

Framework for Context-Sensitive Spatially and Temporally-Resolved On Road Mobile Source Emission Inventories, US Environmental Protection Agency, 05/15/2010-09/30/2014; Award: \$500,000.

Development and Evaluation of Methodological Framework for Real-World Vehicle Energy and Emissions Estimation at Multiple Temporal and Vehicular Scales, National Science Foundation, 05/16/2008-09/30/2014; Award: \$326,627.

Emissions Modeling and Integration into Traffic Micro-Simulation, Southeast Transportation Research, Innovation Development and Education (STRIDE), 7/1/2012-12/31/2014; Award: \$150,000.

Regional Development, Population Trend and Technology Change Impacts on Future Air Pollution Emissions, Sponsored by UNC-Chapel Hill and the U.S. Environmental Protection Agency, 11/04-11/09; Award: \$238,690

In-Vehicle Energy and Emissions Information Systems, (Co-PI), National Science Foundation Grant # CMS 0230506, 1/23/03-12/31/08; Award: \$336,928.

Regional Development, Population Trend and Technology Change Impacts on Future Air Pollution Emissions; EPA STARS Grant R831835 (NCSU-PI), 11/15/2004-11/14/2007; Award: \$142,730.

Operational Evaluation of Emissions and Fuel Use of B20 Versus Diesel Vehicles, FHWA/NC/2004-08, (Co-PI), Sponsored by North Carolina Department of Transportation, 10/01/03-12/31/04; Award: \$84,050.

Emissions Reduction through Better Traffic Management, FHWA/NC/1999-08, (Co-PI with C. Frey), Sponsored by Center for Transportation and the Environment (CTE), 4/1/99-6/30/01; Award \$159,557.

Development and Integration of Empirical Models of Vehicle Emissions within Advanced Traffic Management Systems, (PI). National Institute for Statistical Sciences, Center for Transportation and the Environment (CTE) and North Carolina State University, 8/15/97-8/14/98; Award: \$81,000.

Pedestrian/Bicycles

Pedestrian Counting System Evaluation, Migma Systems, Inc., 07/01/2012-04/17/2014; Award: \$24,999.

Empirically-Based Performance Assessment and Simulation of Pedestrian Behavior at Un-Signalized Crossings, Southeast Transportation Research, Innovation, Development and Education (STRIDE), 7/1/2012-12/31/2013; Award: \$119,976.

Blind Pedestrians Access to Complex Intersections, Phase II, Sponsored by Western Michigan University, National Institutes of Health Grant #R01EY12894-03, 06/01/07-06/30/2013, Award: \$502,000.

Pedestrian and Bicycle Accommodations on Superstreets, NC Department of Transportation, 08/16/2011-08/15/2013; Award: \$200,000.

Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities NCHRP 3-78, Sponsored by the National Academy of Sciences, 01/04/0-012/03/09; Award: \$730,000.

Pedestrian Safety Enhancement on Hillsborough Street Roundabout Corridor Project, Sponsored by U.S. Dept. of Transportation, Southeastern Transportation Center-University of Tennessee, 06/01/2007-04/30/2008; Award: \$23,980.

Blind Pedestrians' Access to Complex Intersections, Phase I, Sponsored by Western Michigan University and National Eye Institute, Grant 3R24 EY012894-05S2, 7/1/05-5/31/07; Award: \$169,707.

Pedestrian Modeling Capabilities Using Computer Simulation, (PI), UNC-Chapel Hill, National Institutes of Health, 01/01/03-05/31/06; Award: \$131,603.

Evaluation of Safety, Design and Operation of Shared-Use Paths, (Co-PI; J. Hummer, PI), sponsored by the FHWA, 10/00-9/03; Award: \$418,097.

Capacity Analysis of Pedestrian and Bicycle Facilities, (PI). Subcontract from Highway Safety Research Center, UNC-CH. Sponsored by FHWA, 4/1/95-2/28/98; Award: \$262,924.

Other Areas

University Transportation Centers Program National (UTC Initiative), University of Maryland and US Department of Transportation, 09/30/2013-09/30/2017; Award: \$1,299,100.

Certificate Program for Abu Dhabi Municipality (ADM), Abu Dhabi Municipality, UAE, 04/01/2015-06/30/2016; Award: \$522,000.

Eisenhower Graduate Fellowship for Zachary Bugg, Federal Highway Administration, 09/01/2011-09/01/2012; Award: \$5,000.

Feasibility of Applying TRANSIMS Model in North Carolina, FHWA/NC/2000-05, (Co-PI). Sponsored by the North Carolina Department of Transportation, 7/1/99-6/30/00; Award: \$59,765.

Using GPS as Decision Support for School Bus Routing and Scheduling (PI), Sponsored by the Department of Public Instruction, State of North Carolina, 7/1/99-3/31/00; Award: \$10,000.

Models for Evacuation Planning and Network Analysis Systems, (PI). Sponsored by the Oak Ridge National Laboratory, 5/16/96 - 5/15/99.; Award: \$40,000.

A Decision Support System for Highway Construction Considering Environmental Impacts, (PI), Sponsored by the Center For Transportation and the Environment (CTE), 8/16/95-12/31/98; Award: \$13,150.

Innovations in Data Visualization Using the Research Data Exchange (RDE) and the Weather Data Environment (WXDE), FHWA and Kittelson & Associates, 10/01/2015-03/31/2017; Award: \$95,925.

Traveler Response Architecture using Novel Signaling for Network Efficiency in Transportation, University of Maryland, College Park (Prime—US Dept. of Energy (DOE)), 10/01/2015-11/22/2017; Award: 649,977.

Developing a Systematic Approach to Improving Bottleneck Analysis in North Carolina, UNC - UNC Charlotte (Prime—US Dept. of Transportation (DOT)), 08/01/2015-07/31/2016; Award: \$50,000.

Transportation System Simulation Manual - Task Order 5001, Kittelson & Associates, Inc. (Prime—Federal Highway Administration (FHWA)), 08/28/2014-03/03/2016; Awarded: \$45,351.

STRIDE - University of Florida Consortium, (Prime—US Dept. of Transportation (DOT)), 01/01/2012-01/31/2017; Award: \$758,921.

PUBLICATIONS

Chapter in Book

Schroeder, B., and N. Rouphail, "*Freeway Facilities Supplemental*," Highway Capacity Manual 2010, Volume 4, Chapter 22, Transportation Research Board, Washington, D.C., 2010.

Rouphail, N., "Traffic Control Management Strategies," in Handbook of Environmentally Conscious Transportation, John Wiley and Sons, 2008.

Torres E., P. Nelson, N. Rouphail and J. Raj, "Estimating Link Delays for Arterial Streets," in "Urban and Regional Transportation Modeling," Essays in Honor of David Boyce, D.H. Lee, Editor, Edward Elgar, Northampton, M.A., 2004.

Rouphail, N., A. Tarko and C. Li "Signalized Intersections," Chapter 9 of Traffic Flow Theory Monograph, January 1996.

Nemeth, Z., A. Rathi and N. Rouphail, "Traffic Control at Freeway Work Sites," in Civil Engineering Practice, Technomic Publishing, N.J., 1988, pp. 211-231.

Referred Journal Publications (published or in press)

Torrao, G., T. Fontes, M. Coelho, N. Rouphail (2016), "Integrated Indicator to Evaluate Vehicle Performance across: Safety, Fuel Efficiency and Green Domains," Accident Analysis & Prevention, Publisher: Elsevier, Volume 92, pp. 153-167.

- Kim, S., A. Hajbabaie, B. Williams and N. Roupail (2016), "Dynamic Bandwidth Analysis for Coordinated Arterial Streets," *Journal of Intelligent Transportation Systems* Vol 20(3), pp. 294-310.
- Kim, S., T. Song, N. Roupail, S. Aghdashi, A. Amaro and G. Gonçalves (2016). "Exploring the Association of Rear-End Crash Propensity and Micro-Scale Driver Behavior," *Safety Science*, Volume 89, November 2016, pp. 45-54.
- Li, M., X. Zhou and N. Roupail (2016). "Quantifying Travel Time Variability at a Single Bottleneck based on Stochastic Capacity and Demand Distributions," Published online in the *Journal of Intelligent Transportation Systems: Technology, Planning, and Operations*, March 2016.
- Hajbabaie, A., S. Aghdashi, N. Roupail, (2016). "Enhanced Decision-Making Framework Using Reliability Concepts for Freeway Facilities," *Journal of Transportation Engineering*, Volume 142, Issue 4, 2016, Content ID 04016008.
- Fernandes, P., J. Bandeira, T. Fontes, S.R. Pereira, B. Schroeder, N. Roupail and M. Coelho (2016). "Traffic Restriction Policies in an Urban Avenue: A Methodological Overview for a Trade-Off Analysis of Traffic and Emission Impacts using Microsimulation," *International Journal of Sustainable Transportation*, Volume 10, Issue 3, pp. 201-215.
- Hajbabaie, A., S. Aghdashi and N. Roupail (2016). "Enhanced Decision-Making Framework Using Reliability Concepts for Freeway Facilities," *Journal of Transportation Engineering*, Volume 142, Issue 4, April 2016.
- Bandeira, J., D. Carvalho, A. Khattak, N. Roupail, T. Fontes, P. Fernandes, S. Pereira, M. Coelho, (2016) "Empirical assessment of route choice impact on emissions over different road types, traffic demands, and driving scenarios," *International Journal of Sustainable Transportation*, Volume 10, Issue 3, 2016, pp 271-283.
- Hajbabaie, A., N. Roupail, B. Schroeder and R. Dowling (2015). "A Planning Level Methodology for Freeway Facilities," *Transportation Research Record: Journal of the Transportation Research Board*, Volume 2483, pp. 47-56.
- Yeom, C., J. Hummer, B. Schroeder, C. Cunningham, C. Vaughan and N. Roupail (2015). "Empirical Before-After Comparison of the Operational Performance of Diverging and Conventional Interchanges," *Journal of Transportation of the Institute of Transportation Engineers*, Volume 7(1), pp. 35-55.
- Taylor, J., X. Zhou, N. Roupail, and R. Porter (2015). "A Method for Investigating Intradriver Heterogeneity using Vehicle Trajectory Data: A Dynamic Time Warping Approach," *Transportation Research Part B: Methodological*, Volume 73, pp. 59-80.
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- Williams, B., N. Rouphail and A. Khattak, (2008), Effectiveness of Traveler Demand Information Tools, Final Report, North Carolina Department of Transportation, January 2008.
- Lee, J., J. Hummer and N. Rouphail, (2005), False Capacity for Lane Drops, Final Report, Prepared for the North Carolina Department of Transportation, February 2005.
- Khattak, A. and N. Rouphail, (2005), Incident Management Assistance Patrols: Assessment of Investment Benefits and Cost, Final Report Prepared for the North Carolina Department of Transportation, January 2005.
- Rouphail, N. and K. Chae, Dynamic Modeling and Visualization of Proposed System of Roundabouts on Hillsborough Street, (2002), Report Submitted to the Office of the Vice Chancellor for Extension and Engagement, North Carolina State University and The North Carolina Department of Transportation, September 2002, 17pp.
- Hughes R., N. Rouphail, K. Chae and D. Harkey, (2002), Evaluation and Application of Pedestrian Modeling Capabilities Using Computer Simulation, Report Prepared for Western Michigan University, July 2002, 50pp.
- Frey, H.C., N. Rouphail, A. Unal and J. Colyar, (2001), Emissions Reduction Through Better Traffic Management: An Empirical Evaluation Based Upon On-Road Measurements, FHWA/NC/2002-001, Prepared by Department of Civil Engineering, NC State University for North Carolina Department of Transportation, Raleigh, N.C., December 2001.
- Rouphail, N., H.C. Frey, A. Unal and R. Dalton, (2000), ITS Integration of Real-Time Emissions and Traffic Management Systems, IDEA Project No. ITS-44, Prepared by NC State University for the IDEA Program, Transportation Research Board, NRC, Washington, D.C., May 2000.
- New IDEA's for ITS, (1999), Annual Progress Report, ITS-44, ITS Integration of Real-Time Emissions and Traffic Management Systems, pp. 28-29.
- Rouphail, N. and J. Sacks, (1999), Evaluation of Traffic Models, Symposium on the Use of Statistical Approaches for the Evaluation of Computer Models, Santa Fe, N.M., December 1999.
- Click, A. and N. Rouphail, (1998), Field Evaluation of the Performance of Computer-Based Signal Timing Models in North Carolina, Draft Final Report, September 1998.
- Rouphail, N., et al., (1997), Literature Synthesis for Chapter 13: Pedestrians, for the Highway Capacity Manual, Draft Final Report Submitted to the Highway Safety Research Center, The University of North Carolina at Chapel Hill and the Federal Highway Administration, July 1997.
- Rouphail, N., et al., (1997), Recommended Procedures for Chapter 9: Signalized Intersections, for the Highway Capacity Manual, Draft Final Report Submitted to the Highway Safety Research Center, The University of North Carolina at Chapel Hill and the Federal Highway Administration, May 1997.
- Click, S. and N. Rouphail, (1997), Using Advanced Vehicle Monitoring Systems to Extend System Capacity on North Carolina Freeways, Final Report Submitted to the North Carolina Department of Transportation, March 1997.
- Rouphail, N. and S. Click, (1997), Field Assessment of the Performance of Computer-Based Signal Timing Methods at Individual Intersections in North Carolina, Working Paper 2: Field Data Collection Workplan, Submitted to the North Carolina Department of Transportation, March 1997.
- Rouphail, N. and W. El Dessouki, (1997), Models for Evacuation Planning and Network Analysis Systems, Draft Interim Report Submitted to Lockheed Martin, ORNL, March 1997.
- Rouphail, N. and S. Click, (1997), Field Assessment of the Performance of Computer-Based Signal Timing Methods at Individual Intersections in North Carolina, Working Paper 1: Initial Model Review and Evaluation, Submitted to the North Carolina Department of Transportation, February 1997.
- Rouphail, N., et al., (1997), Recommended Procedures for Chapter 14: Bicycles of the Highway Capacity Manual, Final Report Submitted to the Highway Safety Research Center, The University of North Carolina at Chapel Hill and the Federal Highway Administration, February 1997.
- Rouphail, N., et al., (1997), Bicycle Operations and Level of Service Literature Synthesis, Report Submitted to the Highway Safety Research Center, The University of North Carolina at Chapel Hill and the Federal Highway Administration, January 1997.
- Fambro, D., N. Rouphail, P. Sloup, J. Daniel and J. Li, (1996), Highway Capacity Manual Revisions of Chapters 9 and 11, Final Report Submitted to the Federal Highway Administration, January 1996.
- Rouphail, N., et al., (1995), A Plan for the Deployment of Advanced Transportation Systems in the Research Triangle Region, Final Report Submitted to North Carolina Department of Transportation and the Federal Highway

Administration, Volume I: Executive Summary, Volume II: Final Report, and Volume III: Appendices, December 1995.

Rouphail, N., et al., (1994), A Plan for the Deployment of Advanced Transportation Systems in the Research Triangle Region: Working Paper #1: Transportation Needs and Preliminary Options, North Carolina State University, October 1994.

Rouphail, N., Bamford, R. and J. Raj, (1993), Calibration and Validation of Capacity Analysis Procedures for Left Turn Lanes in Illinois, Phase II Final Report, August 1993.

Rouphail, N., A. Tarko and V. Sisiopiku, (1993), Proposed Data Fusion for ADVANCE Release 1.5 Urban Transportation Center, University of Illinois at Chicago, ADVANCE Working Paper Series No. 30, September 1993.

Rouphail, N. and V. Sisiopiku, (1993), Travel Time Loop Detector Output Analysis on Dundee Road Closed Loop Signal System, Urban Transportation Center, University of Illinois at Chicago, ADVANCE Working Paper Series No. 24, June 1993.

Rouphail, N., A. Tarko, P. Nelson and P. Palacharla, (1993), Travel Time Data Fusion in ADVANCE: A Preliminary Design Concept, Urban Transportation Center, University of Illinois at Chicago, ADVANCE Working Paper Series No. 21, January 1993.

Rouphail, N., N. Thomas, R. Bamford, J. Raj and O. Al-Jayoussi, (1992), Calibration and Validation of Capacity Analysis Procedures for Left Turn Lanes in Illinois, Phase I Final Report, July 1992.

Rouphail, N. and N. Thomas, (1992), Review of Incident Detection Algorithms and Identification of Alternative Approaches to Incident Detection, Urban Transportation Center, University of Illinois at Chicago, ADVANCE Working Paper Series No. 13, June 1992.

Recent Workshops

Rouphail, N., "2015 UTC Conference for the Southeastern Region," Birmingham, AL, *March 26-27, 2015*.

Rouphail, N., Speaker, FIU Institute for Transportation Engineers, *December 2014*.

Rouphail, N., Speaker, Arizona State University, Tempe, Arizona, *November 2014*.

Rouphail, N., Speaker, Drive Sense Workshop, Old Dominion University, *October 2014*.

Rouphail, N. "TRB Highway Capacity and Quality of Service Committee Mid-Year Meeting," Lexington, KY, *June 11-14, 2014*.

Rouphail, N., Invited Speaker, University of Aveiro, Portugal, *April 2014*.

Rouphail, N., "STRIDE—UTC Conference for the Southeastern Region," Georgia Institute of Technology Atlanta, GA, *March 24-25, 2014*.

Rouphail, N., "Transportation, Planning Land Use and Air Quality Conference," Charlotte, NC, *March 3-4, 2014*.

Rouphail, N., "Travel Time Reliability for Transportation Facilities," University of Tennessee, Knoxville, TN, *November 2013*.

Rouphail, N., "ITRE and its Research Capabilities," University of Tennessee, Knoxville, TN, *November 2013*.

Rouphail, N., Reliability as a Means for Integrating Mobility and Safety Considerations in Strategy Selection, 16th Annual EURO Working Group on Transportation, Porto, Portugal, *September 2013*.

Rouphail, N., Arterial Traffic Management, Abu Dhabi Municipality, United Arab Emirates, *August 25-29, 2013*.

Rouphail, N., NCFRP 41 Panel Meeting, ITRE, *July 2013*.

Rouphail, N., Traffic Engineering Fundamentals, Abu Dhabi Municipality, United Arab Emirates, *May 25-May 29, 2013*.

Rouphail, N., L-38 Presenter, Pilot Testing of SHRP 2 Reliability Analytical Products, Washington, D.C., *March 20, 2013*.

Rouphail, N., Forging an Understanding of Travel Time Reliability for Freeway and Arterial Networks, 5th International Symposium on Transportation Network, Hong Kong, China, *December 18-19, 2012*.

Rouphail, N., Freeway Reliability in the Context of the U.S. Highway Capacity Manual, 5th International Symposium on Transportation Network, Hong Kong, China, *December 18-19, 2012*.

Rouphail, N., R & D Collaboration on I2D (Intelligence to Drive) with IDMEC and ITDS, Lisbon, Portugal, *December 2012*.

Rouphail, N. Incorporating Travel Time Reliability in the Highway Capacity Manual, Workshop Presenter, Joint meeting of Highway Capacity and Traffic Flow Theory Committees, Fort Lauderdale, FL, *June 19-22, 2012*.

Schroeder, B. and N. Rouphail, FREEVAL Workshop, Presentation at the Royal Institute of Technology, Stockholm, Sweden, *June 27, 2011*.

Rouphail, N., The 2010 US Highway Capacity Manual and Beyond, Presentation at Central Road Research Institute, Delhi, India, *March 9, 2011*.

Rouphail, N., The 2010 US Highway Capacity Manual and Beyond, Presentation at Indian Institute for Technology, Delhi, India, *March 7, 2011*.

Rouphail, N., Mainstreaming ITS in Transportation Decision-Making, Full Day Workshops in Stellenbosch, South Africa and Pretoria, South Africa, November 2 and 4, 2010.

Rouphail, N., Measuring and Modeling Vehicle Emissions by Incorporating Multi-Scale Vehicle Activities, Civil Engineering Department Colloquium Series, The University of Stellenbosch, South Africa, October 31, 2010.

Rouphail, N., *Traffic Congestion and Analysis in the USA*, Seminar Presented at the Transportation and Energy Course at the University of Aveiro, Portugal, *July 17, 2010*.

Torreo, G., M. Coelho and N. Rouphail, *Effect of Vehicle Characteristics on Crash Experience: The Portuguese Experience*, Presented at the 12th World Conference Transport Research, Lisbon, Portugal, *July 11-15, 2010*.

Rouphail, N., Assessing the Impact of Vehicle Communications on Traffic Performance, Presented at the 12th World Conference Transport Research, Lisbon, Portugal, *July 11-15, 2010*.

Rouphail, N., Z. Haibo, H.C. Frey and B. Graver, *Impact of Alternative Vehicle and Use Patterns on Long Term Regional On-Road Emissions*, Presented at the 12th World Conference Transport Research, Lisbon, Portugal, *July 11-15, 2010*.

Frey, H.C., N. Rouphail and H. Zhai, *Comparisons Between the Effectiveness of Improving Air Quality with Alternative Vehicle Technologies and Policies that Promote Compact Development*, Presentation at the TRB Energy and Environmental Research Conference, Raleigh, NC, *June 7, 2010*.

M. Coelho and N. Rouphail, *Assessing the Impact of V2V and V2I Communications Systems on Traffic Congestion and Emissions*, Presentation at the European Conference on Human Centered Design for Intelligent Transportation Systems, Berlin, Germany, *April 29-30, 2010*.

Rouphail, N., Assessing the Utility of a Ubiquitous Transportation (u-T) Network Using Computer Simulation, Presentation at Tsinghua University, Beijing, China, *April 22, 2010*.

Rouphail, N., *Assessing Impacts of Operations, Technology and Land Use on Emissions*, Seminar Presentation at Beijing Forestry University, Beijing, China, *April 20, 2010*.

Rouphail, N., Graduate Studies at NC State University, Presented at the College of Environmental Science and Engineering, Beijing, China, *April 19, 2010*.

Dowling, R., A. Flannery, T. Petrisch, B. Landis, P. Ryus and N. Rouphail, *Level of Service Analysis for Complete Streets*, Presented at the ITE 2010 Technical Conference and Exhibit, Savannah, GA, *March 14-17, 2010*.

Rouphail, N. and H.C. Frey, *Emission Measurement and Modeling: Transportation Planning and Operational Applications*, Presentation at the Triangle Clean Cities, Stakeholders Meeting, Research Triangle Park, N.C., *January 28, 2010*.

Rouphail, N., *Measuring and Modeling Vehicle Emissions: Methodology and Applications*, Distinguished Lecturer Series, University of Florida Center for Multimodal Congestion Mitigation, Gainesville, FL, *December 3, 2009*.

Rouphail, N., et al., *Measurement and Evaluation of Real World Vehicle Fuel Consumption and Emissions Using Portable Emissions Measurement Systems*, Invited Poster Presentation at the State Energy Advisory Board Meeting (STEAB), NC State University, Raleigh, NC, *November 10, 2009*.

Rouphail, N., *Pedestrian Accessibility: Issues, Framework and Treatments*, Invited Presentation at the Korea Transport Institute (KOTI), Seoul, Korea, December 10, 2009.

Rouphail, N., *Pedestrian Accessibility: Issues, Framework and Treatments*, Invited Presentation at the Korea Transport Institute (KOTI), Seoul, Korea, December 10, 2009.

Rouphail, N., *Assessing the Utility of a Ubiquitous Transportation (u-T) Network Using Computer Simulation-Year 1*, Invited Presentation at the Korean Rail Research Institute (KRRRI), Seoul, Korea, December 11, 2009.

Rouphail, N., *Highway Stochastic Breakdown: Characterization & Application to Value of Travel Time Information* Invited Graduate Seminar, Seoul National University, Seoul, Korea, December 14, 2009.

Traffic Congestion Management in the U.S., Webinar, University of Aveiro, Portugal, November 21, 2008.

Rouphail, N., *Assessing the Utility of a Ubiquitous Transportation Network Using Mesoscopic Traffic Simulation*, International Symposium on Land, Transport and Marine Technology, Seoul, Korea, November 2008.

Traffic Modeling: Traffic Behavior and Simulation, Workshop Presentation, Graz University of Technology, Graz, Austria, June 2008.

Transportation Systems Impacts in the USA Centre of Mechanical Technology and Automation, University of Aveiro and Luso-American Foundation, Lisbon, Portugal, March 9, 2008.

Operational Evaluation of In-Use Emissions and Fuel Consumption of B20 Versus Diesel-Fueled Heavy Duty Vehicles, 14th CRC On-Road Vehicle Emissions Workshop, San Diego, C.A., March 2005.

Freeway Facility Methodology in the HCM 2000, Freeway Planning Roundtable, Orlando, F.L., February 2003.

Evaluating the Impact of Traffic Flow and Control on Emissions, University of Central Florida, Orlando, F.L., October 2002.

HCM 2000 Uninterrupted and Interrupted Flow Facilities Workshops, ITRE, July/August 2001.

HCM 2000 Overview and Application to Freeway, 2-Lane and Signalized Intersection Facilities, Danish Road Directorate, Copenhagen, Denmark, June 6, 2001.

HCM 2000 and Driver Behavior Modeling Short Course at Royal Technical University, Stockholm, Sweden, April 3-5, May 29, 2001.

HCM 2000 Overview, Workshop at the IX Pan-American Congress in Traffic and Transportation Engineering, Gramado, Brazil, November 2000.

Uninterrupted Flow Facility in the HCM 2000, Workshop at the 2000 Annual Meeting of ITE, Nashville, T.N., August 5, 2000

NATIONAL AND INTERNATIONAL PROFESSIONAL ACTIVITIES

- Invited PhD Dissertation External Examiner, Joseph Guzman, Royal Melbourne Institute of Technology, Melbourne, Australia, March 2015.
- Interviewed Article in the Planning and Policy, Korea Research Institute of Human Settlement, July 2014.
- Competition Judge Committee Member of American Council on Engineering Company for Excellence Award, 2014.
- N.C. State University, Transportation Research Board Representative, 2002-Present.
- Executive Committee Member, N.C. State University, Transportation Founder's Fund, 2001-Present.
- Member of Signalized Intersection Subcommittee, Highway Capacity and Quality of Service Committee, 1992-Present.
- Committee Member, Street and Highway Operations Committee, American Society of Civil Engineers, 1990—Present.
- Invited Speaker, University of Aveiro, Portugal, April 2014.
- Invited PhD Opponent, Jorge Banderia, University of Aveiro, Portugal, December 2013.
- Invited Keynote Speaker, "Reliability as a Means for Integrating Mobility & Safety Considerations in Strategy Selection," 16th Annual EURO Working Group on Transportation, Porto, Portugal, September 6, 2013.

- Invited Instructor, "Arterial Traffic Management," Abu Dhabi Municipality, United Arab Emirates, August 2013.
- Invited Instructor, "Traffic Engineering Fundamentals," Abu Dhabi Municipality, United Arab Emirates, May 23-June 1, 2013.
- Invited Presenter for L-38, "Pilot Testing of SHRP 2 Reliability Analytical Products," Washington D.C., March 20, 2013.
- N.C. State University Principal Investigator on University of Maryland National Center Proposal on Economic Competitiveness, 2013.
- Chair, N.C. State University Solar Center Review Committee, 2012-2013.
- Co-Author, "Forging an Understanding of Travel Time Reliability for Freeway and Arterial Networks," 5th International Symposium on Transportation Network, Hong Kong, China, December 18-19, 2012.
- Presenter, "Freeway Reliability in the Context of the U.S. Highway Capacity Manual," 5th International Symposium on Transportation Network, Hong Kong, China, December 18-19, 2012.
- Committee Member, N.C. State University Reappointment, Promotion and Tenure Committee, 2011-2013.
- Invited, Mid-Year Meeting and Symposium on Innovations in Traffic Flow Theory and Highway Capacity and Quality of Service Presenter, Ft. Lauderdale, FL, June 2012.
- NC State University Office of Research, Innovation and Economic Development Award for Excellence Nominee, Raleigh, NC, April 2012.
- Invited L08 Presenter, "Level of Service Concepts for Travel Time Reliability," Kittelson & Associates, Inc., Baltimore, MD, April 2012.
- Keynote Speaker, NCSITE Meeting, NC State University, Raleigh, NC, March 2012.
- Invited Presenter, BAA Webinar, Federal Highway Administration, March 2012.
- Invited Presenter, Carolina Transportation Speaker Program Series, Chapel Hill, NC, November 2011.
- Best Paper Award Recipient, Institute of Transportation Engineers (ITE) Traffic Engineering Council Best Paper Award, St. Louis, MO, August 2011.
- Invited Presenter, University of Aveiro, Portugal, July 2011.
- Invited Presenter, ADTM Workshop, Washington, DC, July 2011.
- Invited FREEVAL Workshop Instructor, Royal Institute of Technology, Stockholm, Sweden, June 27, 2011.
- Invited Lecturer, Central Road Research Institute, Delhi, India, March 9, 2011.
- Invited Lecturer, Indian Institute for Technology, Delhi, India, March 7, 2011.
- Invited ITS Assessment Workshop Instructor, Stellenbosch and Pretoria. South Africa, November 2-4, 2010.
- Invited Lecturer, the Transportation and Energy Course at the University of Aveiro, Portugal, July 17, 2010.
- Invited Lecturer, Lisbon, Portugal, July 11-15, 2010, 12th World Conference Transport Research
- Invited Lecturer, Tsinghua University, China, April 2010
- Invited Lecturer, Beijing Forestry University, China, April 2010
- Distinguished Lecturer Seminar Speaker, University of Florida Center for Congestion Management Solutions, December 2009
- Founding Member of the Luso American Transportation Impact Study Group, Portugal, March, 2008 - present
- Member of the Ubiquitous Transportation System Research Group, Seoul, Korea, January, 2008-present
- Member of the Scientific Review Board, Great Cities Universities, UAB Birmingham, Alabama, 2003-present
- Founding Member of the North Carolina Transportation Consortium, 2002 to present
- Coordinator, Uninterrupted Flow Group, Transportation Research Board Committee A3A10, Highway Capacity and Quality of Service, March 2000-2003
- Member of Signalized Intersection Subcommittee Highway Capacity and Quality of Service Committee, 1992-present
- Founding Member of the Luso American Transportation Impact Study
- Group, LATIS-G, March, 2008 to present
- Member of the Advisory Board for the ITS/Egypt Program
- Coordinator, Modelers Group, Next Generation Simulation (NGSIM)
- STC Research Advisory Board Committee Member, 2008
- Member of Advisory Committee, Workshop on Traffic Modeling: Traffic Behavior and Simulation, University

of Technology, Graz, Austria, June 2008

- Member of the Ubiquitous Transportation System Research Group, Korea
- Keynote Speaker, Pre XV Congreso Argentio De Vialidad y Transito, "Update on Recent Highway Capacity Research in the U.S.A.," Buenos Aires, Argentina, August, 2007
- Modeler Stakeholders Group Chair, Next Generation Simulation (NGSIM) program, FHWA and Cambridge Systematics, August 2005
- Served as PhD Opponent for Mr. Azhar al-Mudaffar, PhD candidate at the Royal Technical University, Stockholm, Sweden, January, 2007
- Served on PhD Evaluation Committee for Mrs. Karin Arronsson, PhD candidate at the Royal Technical University, Stockholm, Sweden, January, 2007
- Keynote Speaker, NORDKAP, Nordic Seminar on Level of Service, Copenhagen, Denmark, Sept. 4-5, 2006.
- Topic: US and HCM reflections on traffic flow quality and level of service, recent work in this area
- Invited by the Instituto Superior Technico, Lisbon, Portugal, May 2002, July 2003, July 2004, and July 2005
- Member, Steering Committee for ASCE Specialty Conference: Traffic Congestion and Safety in the 21st Century, Chicago, IL, June 1997
- Member, Transportation Research Board Committee A3A1 1, Traffic Flow Theory and Characteristics, March 1987-March 1998
- Member, Transportation Research Board Committee A3A10, Highway Capacity and Quality of Service, March 1989-present

Membership on NCHRP Panels

- NCHRP 3-75 Panel Member, July 2003-present
- NCHRP 3-55, 3-55(6), Development and Delivery of the Year 2000 HCM
- NCHRP 3-55(3), Capacity of Two-Lane Highways
- NCHRP 3-55(4), Performance Measures for Quality of Service
- NCHRP 3-48, Capacity Analysis of Vehicle-Actuated Intersections (panel retired)
- NCHRP 3-37, Capacity and Quality of Service for Ramp Junctions (panel retired)
- Member of ASCE Committee on Traffic Operations, Urban Transportation Division, January 1997-present, Chairman: 1992-1995.

Current and Past Editorships and Journal Review Assignments

- ITS Journal, Associate Editor
- Transportation Science, Associate Editor
- Transportation Research Board, reviewer
- ASCE Journal of Transportation Engineering, Member of Editorial Board
- Transportation Research A, Member of Editorial Board
- Journal of Advanced Transportation, reviewer
- National Science Foundation, CAREER award panelist
- Australian Research Council, Research Grant Committee, reviewer

GRADUATE STUDENT ADVISING: COMMITTEE CHAIR / EXTERNAL EXAMINER

1. Paulo Fernandes, Ph.D., in progress (co-chair with M. Coelho)
2. Shams Tanvir, Ph.D., in progress
3. Kwanpyo Ko, Ph.D., in progress
4. Bing Mei, Ph.D., in progress
5. Ishtiaq Ahmed, M.S., in progress
6. Joseph Guzman, Ph.D., 2016, RMIT, Melbourne, Australia (External Examiner)
7. Joseph Trask, Ph.D., 2016 (co-chair with J. Baugh)

8. Tai Jin Song, Ph.D., 2016 (co-chair with B. M. Williams)
9. Kihyun Pyo, 2016 M.S.
10. Chun Ho Yeom, Ph.D., 2015
11. Sangkey Kim, Ph.D., 2015 (co-chair with B. M. Williams)
12. Shannon Warchol, M.S., 2014
13. Elizabeth Hunter, M.S., 2014
14. Jorge Bandeira, Ph.D., 2013, (external examiner)
15. Guillermina Torrao, Ph.D., 2013 (co-chair with M. Coelho)
16. Yulin Xu, M.S., 2013, (co-chair with B. M. Williams)
17. Abseen Anya, M.S., 2013
18. Soheil Sajjadi, Ph.D., 2013
19. Seyedbehzad Aghdashi, Ph.D., 2013
20. Anxi Jia, Ph.D., 2013
21. Katy Salamati, Ph.D., 2012
22. Zach Bugg, Ph.D., 2012
23. Thomas Chase, M.S., 2012
24. Leta Huntsinger, Ph.D., 2012
25. Hassan Swidan, M.S., 2011
26. William Reynolds, M.S., 2010
27. Hyejung Hu, Ph.D., 2009
28. Zhai Haibo, Ph.D., 2008 (co-chair with H.C. Frey)
29. Bastian Schroeder, Ph.D., 2008
30. Zachary Clark, M.S., 2007
31. Azhar Al-Mudhaffar, Ph.D., KTH, Sweden (2007; External Examiner)
32. Sravya Suryadevara, MCE, 2006
33. Kosok Chae, Ph.D., 2005
34. Bastian Schroeder, MCE, 2005
35. Chad Lanford, MCE, 2005
36. Jae Joon Lee, Ph.D., 2005
37. Margarida Coelho, Ph.D., 2005 (Co-Chair/Dr. Tiago Farias, Tech. University of Lisbon)
38. Jiong Lin, M.S., 2005
39. Baohong Wan, Ph.D., 2005
40. Jason Havel, M.S., 2004
41. Nasir Siddiqi, M.S., 2003
42. Tori Rhoulac, Ph.D., 2003
43. Eugene Merritt, Ph.D., KTH, Sweden (2003; External Examiner)
44. Baohong Wan, M.S., 2003
45. Alper Unal, Ph.D., 2002 (Co-Chair with H.C. Frey)
46. Steven Click, Ph.D., 2001
47. Hironiri Suzuki, Ph.D., AIT, Thailand (External Examiner), 2001
48. James Colyar, M.S. 2001
49. Marco Navarro, M.S., 2001
50. Brandon Nevers, M.S., 2000
51. Tori Rhoulac, M.S., 2000
52. Miranda Blogg, PhD, QUT, Australia (External Examiner), 1999
53. Jeffrey Hohanadel, M.S., 1999
54. Russell Dalton, M.S., 1999
55. Brian Eads, M.S., 1998
56. Wael El-Dessouki, PhD, 1998
57. Madalena Beja, M.S., 1997
58. Steven M. Click, MCE, 1996
59. Joseph Milazzo, M.S., 1996
60. Amy Breese, MCE, 1996
61. Paul Sloup, M.S., 1995

62. Jin Li, Ph.D., 1994
63. Andrzej Tarko, Ph.D., 1994
64. Natacha Thomas, Ph.D., 1994
65. Virginia Sisiopiku, Ph.D., 1993
66. Joseph Raj, M.S., 1993
67. Robert Bamford, M.S., 1993
68. Kawkab Said, Ph.D., 1992 (Co-Chair with David Boyce)
69. Yuji Nagao, MCE, 1992
70. Zaher Kathib, Ph.D., 1991
71. Ranga Telikicheria, M.S., 1991
72. Joseph Fazio, Ph.D., 1990
73. Michael Magnuson, M.S., 1990
74. Virginia Sisiopiku, M.S., 1990
75. Ragab Mousa, Ph.D., 1989
76. Thomas Hanley, M.S., 1986
77. Joseph Fazio, M.S., 1985
78. Raj Tejwany, M.S., 1984

STUDENT HONORS AND AWARDS

- Shams Tanvir, Don Blackburn Memorial Scholarship, NCSITE, June 2015.
- Shams Tanvir, 2015 Ramey Kemp Graduate Award, CCEE, North Carolina State University, April 2015.
- Shannon Warchol, Engineering Graduate Student Scholarship, the Carolina Triangle Section of the American Society of Highway Engineers, June 2014.
- Shannon Warchol, Jack E. Leisch Memorial National Graduate Fellowship, American Society of Civil Engineers, June 2014.
- Elizabeth Hunter, Briana Phillips, and Shannon Warchol, Southern District Institute of Transportation Engineers (SDITE) Traffic Bowl, placed 2nd, April 2014
- Andy Wagner, C.E. "Ed" Vick, Jr. Transportation Founders Fund Graduate Scholarship Recipient, 2014
- Andy Wagner, Mulkey/General Hugh Shelton Leadership Award, November 2013.
- Elizabeth Hunter, C.E. "Ed" Vick, Jr. Transportation Founders Fund Graduate Scholarship Recipient, 2013
- Shannon Warchol, C.E. "Ed" Vick, Jr. Transportation Founders Fund Graduate Scholarship Recipient, 2013
- Katy Salamati, Soheil Sajjadi, Zach Bugg, Thomas Chase, Tyler Fowler, Abseen Anya, Southern District Institute of Transportation Engineers (SDITE) Traffic Bowl Winners, April 2012
- Zach Bugg, Eno Leadership Conference Fellow, 2012
- David W. Craft, C.E. "Ed" Vick, Jr. Transportation Founders Fund Graduate Scholarship Recipient, 2012
- Elizabeth Hunter, C.E. "Ed" Vick, Jr. Transportation Founders Fund Graduate Scholarship Recipient, 2012
- Zach Bugg, Outstanding Student Award for the Southeastern Transportation Center, TRB, 2012
- Katy Salamati, Outstanding Student Award for the Center for Transportation and Environment, TRB, 2012
- Zach Bugg, Dwight D. Eisenhower Fellowship Recipient, TRB, 2012
- R. Thomas Chase, Transportation Founders Funder Scholarship, 2011
- Katy Salamati, Soheil Sajjadi, and Zachary Bugg, Southern District Institute of Transportation Engineers (SDITE) Traffic Bowl Winners, April 2011
- Hassan Swidan, Second Place Best Research Poster, "Simulation-Based Methodology for Assessing Environmental Impacts of V2V Communication," The Southeastern Transportation Center, January 2011
- Bastian Schroeder, Eisenhower Graduate Fellow, 2006-2007
- Bastian Schroeder, TFF Fellow, 2006-2007
- Bastian Schroeder, Eno Leadership Conference Fellow, 2006
- Bastian Schroeder, CUTC, Student of the Year Award, 2005
- Jae Joon Lee, "Lane Utilization Prediction Models for Lane-Drop Intersections," Best Paper Award for the TRB Committee on Operational Effects of Geometrics, 2005.
- Brandon Nevers, Southeast University Transportation Center (STC) Student of the Year Award, 2002
- Tori Rhoulac, Eisenhower Graduate Fellowship Award, FHWA, 2001-2004

- Tori Rhoulac, Eno Foundation Fellow, 1999
- Paul Sloup, National Recipient of the Milton Pikarsky Award for outstanding M.S. Thesis, "Evaluation of Signal Timing and Performance Models for Traffic Actuated Controllers," Council for University Transportation Centers (CUTC), 1997
- Jin Li, Andrzej Tarko, Best Paper Award, TRB Committee on Highway Capacity and Quality of Service, "An Overflow Delay Model for Signalized Arterials," 1996
- Steven Click, Eno Foundation Fellow, 1996
- Kawkab Said and Milton Pikarsky, Award for Outstanding Ph.D. Dissertation, "Optimization of Intersection Signal Parameters within Equilibrium Route Choice Models," Council for University Transp. Centers (CUTC), 1995.
- Natacha Thomas, Local Recipient of the Helen Overly Award, Women Transportation Seminar, 1992
- Virginia Sisiopiku, Outstanding Student Paper Award, International ITE, "Capacity Analysis Models for Exclusive Left Turn Lanes," 1991
- Kawkab Said, National and Local Recipient of the Helen Overly Award, Women Transportation Seminar, 1989
- Joseph Fazio, Recipient of the University of Illinois John Corbally Award, 1989

PROFESSIONAL CONSULTING ACTIVITIES

- Transpo Group, Seattle, Washington
- ITDS, Lisbon, Portugal
- Municipality of Lisbon, Portugal
- Cambridge Systematics
- Kittelson and Associates
- Florida Department of Transportation
- Clean Air Technologies, Inc.
- Savell, Bird and Axon, London, England
- National Institute for Statistical Sciences
- The University of Idaho
- Vigen Corporation
- IVHS Laboratory, The University of Illinois at Chicago
- Institute for Transportation Research and Education
- Illinois Institute of Technology
- Danish Road Directorate, Copenhagen, Denmark
- Royal Technical University, Stockholm, Sweden

UNIVERSITY AND COMMUNITY SERVICE

- Transportation Founder's Fund Speaker Series Sponsor, Keynote Speaker, Dr. Karl Wunderlich, April 2015, NC State University, Raleigh, NC.
- Transportation Founder's Fund Lecture Sponsor, US Department of Transportation Secretary Anthony M. Foxx, February 2015, NC State University, Raleigh, NC.
- TRB Subcommittee, Freeways and Multi-Lane Highways Committee Member, 2014 – present
- NC State University Reappointment, Promotion and Tenure Committee (URPTC), Committee Member, 2011-2013
- NC State University CCEE Award Committee Member, 2011-2012
- NC State University MESH Wi-Fi Centennial Campus Committee Member, 2011-2012
- The ITS/Egypt Program, Advisory Board Member, NC State University, 2010 - present
- The Middle East and North Africa Advisory Group, Committee Member, NC State University, 2010 to present
- Chairman, Search Committee, CCEE SEM Faculty, 2010

- STC Research Advisory Board Committee Member, 2008— present
- N.C. State University Energy Council Member, 2007-present
- N.C. State Energy for Transportation Working Group, 2007-present
- Institute of Emerging Issues, Transportation Subcommittee, 2007-present
- Member of the Advanced Vehicle Research Center Group, 2004-present
- NC State University TRB Representative, 2002—present
- Transportation Founder’s Fund Committee Member, 2001—present
- Signalized Intersection Subcommittee, Highway Capacity and Quality of Service Committee Member, 1992—present
- ASCE Committee on Traffic Operations, 1990 - present
- Chairman, Search Committee, WRI Director, 2008-2009
- NC State Study Abroad Scholarship Committee, member
- UNC-CH HSRC Director Search Committee, member
- Civil Engineering Dept. Coastal Engineering position Search Committee, chairman
- N.C. Solar Center Review Committee
- Member of the Advanced Vehicle Research Center Advisory Board
- Disaster Studies Institute, Steering Committee, UNC, President's Office
- School Transportation Group Advisory Board
- Center for Transportation Policy Studies Advisory Board
- Highway Safety Research Center Advisory Board
- Hybrid Bus Advisory Board, Advanced Energy Systems
- NC State Civil Engineering Department Head Search Committee
- NCSU, Civil Engineering, Chairman of Undergraduate Committee
- Capital Area Soccer League, Raleigh, NC
- UIC, Department of Civil Engineering, ABET Coordinator
- UIC, Faculty Senate
- UIC, College of Engineering Executive Committee

PERSONAL

Birth Date: January 14, 1950, Cairo, Egypt

Marital Status: Married (Maria), two sons (Robert 1985; Paul 1987) Citizenship: U.S. (Naturalized, 1981)

Languages: Arabic, French.

REFERENCES

Available upon request