ITRE DIRECTIONS
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SPECIAL ISSUE: ITRE at TRB 89th ANNUAL MEETING, JANUARY 2010

From the Director

It is my pleasure to introduce the inaugural issue of ITRE Directions, a quarterly e-newsletter that will highlight our student and staff accomplishments, and tell our friends about the exciting things going on at ITRE. It is fitting that this first issue focuses on ITRE’s activities at the 89th TRB Annual meeting held in January of this year, which documents the success stories in terms of the magnitude and quality of the work that ITRE presented at that meeting.

In this issue you will find stories about a best paper award from the Roundabout Task Force, a best poster award by the Southeastern Transportation Center for one of our undergraduate student interns, and a graduate CUTC student of the year nominated by the Center of Transportation and Environment. Directions will only highlight activities and recognitions. I urge you to visit our website for more details on all the TRB papers and presentations involving ITRE students and staff. See you next quarter!

Nagui M. Rouphail, Director rouphail@ncsu.edu

ITRE Authors Win Best Paper Award

The Transportation Research Board (TRB) 89th Annual Meeting was held January 10 -14, 2010, in Washington, D.C. The information-packed program attracted more than 10,000 transportation professionals from around the world to our nation’s capital.

Thirteen ITRE staff and students participated in 17 poster and paper presentations. Six papers are also slated for publication by TRB.

A research paper written and submitted by research associate Dr. Bastian J. Schroeder and ITRE director Dr. Nagui M. Rouphail was recognized by TRB’s Task Force on Roundabouts with the award for Best Paper. Mixed-Priority Pedestrian Delay Models at Single-Lane Roundabouts breaks new ground by analyzing pedestrian operations and predicting delays at modern roundabouts. It outlines how crosswalk operations are characterized by a mixed-priority scheme, with some drivers yielding the right-of-way to pedestrians and while other pedestrians cross in gaps between moving vehicles.

The significance of this research is that for the first time there is a model that can predict delay for any pedestrian population (sighted, blind, elderly, children), as long as their attributes of yield and gap utilization are specified. This approach should help with the different pedestrian populations, an issue the US Access Board is wrestling with. In addition, most of the literature has assumed that drivers either all yield to pedestrians, or pedestrians always wait for gaps. The reality is a combination of both, as the award winning paper described it. For further details, email Bastian Schroeder at bjschroe@ncsu.edu.

Raleigh’s Art-On-The-Move program creates fresh canvas for transit marketing community

Ann Hartell, (amhartel@ncsu.edu) research associate with the Center for Transportation and the Environment, presented her paper, Raleigh’s Art-On-The-Move Program: Leveraging and Existing Program, Building Inter-agency Partnerships and Coping with Local Regulatory Constraints at the 2010 TRB meeting.

Ms. Hartell’s case study of Raleigh, North Carolina’s, public art-in-transit program, showcases the work of local artists on literal moving canvases by way of vinyl wrap applied to city buses. Art-On-The-Move is of particular interest to the transit management community because it demonstrates how an art-in-transit program can be implemented even for agencies that do not control fixed guideway transit corridors, and have limited physical infrastructure for graphic display at bus stops or transfer stations.

“This is an outstanding example of an effective partnership between a city arts commission and a city transit system,” says Ms. Hartell. Both agencies expressed their appreciation for the close working relationship that underlies the success of the program.

TRB committees that sponsored the session were: Intermodal Transfer Facilities, Transportation Issues in Major U.S. Cities, Transit and Intermodal Transportation Law, and Public Transportation Marketing and Fare Policy.
ITRE is pleased to announce the appointment this year of Ms. Leigh Lane as Chair of the Social, Economic and Cultural Issues Section by the Transportation Research Board. Leigh is a Senior Research Associate with the Center for Transportation and the Environment (CTE), our university transportation research center here at ITRE and NC State University. Since 1997 Leigh has served on several TRB committees including Chair of the Community Impact Assessment Subcommittee and a member of the CSS Task Force. Her steady involvement and contributions to TRB committees and activities led to her appointment as a Section Chair. The Social, Economic, and Cultural Issues Section (AD00) is one of four sections under the Planning and Environment Group. Her section includes five committees: Social and Economic Factors of Transportation, Environmental Justice, Transportation and Sustainability, Transportation and Land Development, and Transportation and Economic Development. Regarding her appointment to this TRB position she stated, "I am honored to be asked to serve in this role for TRB and look forward to working with all five committees to facilitate dialog to identify cross-cutting research ideas to advance the state of the practice in all areas represented by these committees. This is a most exciting time to be so intimately involved with these committees as they represent the cornerstone of the current transportation policy focus related to developing livability and sustainability communities through transportation investment". Please join us in congratulating Leigh on this commendable professional accomplishment.

The Southeastern Transportation Center (STC)'s award for “Best Research Poster” went to NC State University Civil Engineering and ITRE supported senior Mike Alston for the study, Simulation-Based Support for Design and Evaluation of Auxiliary Through Lanes at Signalized Intersections. The poster work is in a field of both undergraduate and graduate students from the entire region. Mr. Alston, who also gave the podium presentation for the paper, teamed with Dr. Joseph Hummer and ITRE's Dr. Nagui Rouphail and Dr. Bastian Schroeder.

The study hypothesis was that perceived travel time savings is the primary motivating factor for Auxiliary Through Lanes (ATL) use. The VISSIM microsimulation model was used for testing the sensitivity of ATL lane choice on delay and for assessing the impacts of geometrics and driver behavior. The study is part of the ongoing NCHRP 3-98 research with Kittelson and Associates as the prime and ITRE as the sole subcontractor.

The major conclusions from the simulation study show that:

♦ ATL utilization rates in the range of 10-35% of all through traffic produced the lowest delays for ATL users only
♦ In the ATL utilization range of 35-50%, overall delay to all through traffic is minimized
♦ ATL utilization is more attractive at higher demands or v/c ratios.

For the next two years, Alston will be teaching math to underprivileged middle school and high school students in Oakland, California, through AmeriCorps’ “Teach For America” program. We at ITRE wish Mike the best!

ITRE graduate research assistant William Reynolds was named CTE Student of the Year for 2009. He is working towards his master's degree in civil engineering.

Reynolds has worked with Dr. Nagui Rouphail on the SHRP2 project C-05: Understanding the Contribution of Operations, Technology, and Design to Meeting Highway Capacity Needs. While investigating various ways of improving the mesoscopic model DYNASMART-P used for testing network capacity enhancement strategies for the project, he identified a need for estimating sustained service rates at signalized intersection with short left turn pockets, a research topic that has become the subject of his thesis.

In addition to traffic operations research, Mr. Reynolds is also very interested in transportation planning, and has worked with the Triangle Transit Authority in analyzing potential ways of estimating trip activity around planned light rail transit stops in the Triangle region.

Reynolds earned a B.S. in Environmental Science from Duke University (2005), and plans to graduate with an M.S. from NC State University in May 2010.