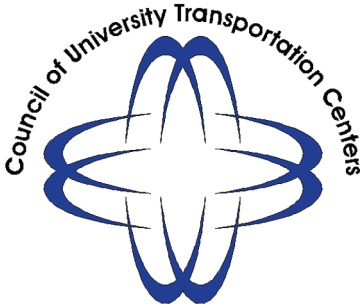


Council of University Transportation Centers

13th Anniversary
CUTC Awards Banquet
January 9, 2010

Omni Shoreham Hotel
Washington, D.C.

Council of University Transportation Centers
13th Anniversary Awards Banquet
Saturday, January 9, 2010

Welcome
Stephen Albert, CUTC Vice-President
Western Transportation Institute Montana State University

Dinner Program
Bob Plymale, CUTC President
Rahall Transportation Institute

Presentation of CUTC Award for Distinguished Contribution to University Transportation Education & Research

Recipient Remarks
Michael Kyte, National Institute for Advanced Transportation Technology at the University of Idaho

Presentation of CUTC Award for Lifetime Achievement in Transportation Research & Education
The Honorable Nick J. Rahall, II
Vice Chairman of the House
Transportation & Infrastructure Committee

Presentation of CUTC-ARTBA New Faculty Award
Dominique Lord, Ph.D., Texas A&M University

Recognition of CUTC Past President
Presentation by Bob Plymale to
Dr. Randy B. Machemehl,
Center for the Transportation Research University of Texas at Austin

CUTC Student Award Program
Stephen Albert, CUTC Vice-President
Western Transportation Institute Montana State University

Presentation of CUTC Student Awards
Neville A. Parker, City University of New York
Chair, CUTC Awards Committee

Milton Pikarsky Award—Science & Technology
Dr. Neville A. Parker, Director
CUNY Institute for Transportation Systems
City University of New York
Ph.D.—Yingyan Lou, University of Alabama
M.S.—Dimitra Michalaka, University of Florida

Charley V. Wootan Award—Policy & Planning
Neville A. Parker
Ph.D.—Patrick Qiang, University of Massachusetts
M.S.—Bharath Rajagopalan, University of Texas, Austin

Neville Parker Non-Thesis Masters Degree Awards
Neville A. Parker
Policy & Planning—Daren Grilley, Mineta Transportation Institute
Science & Technology—Kemba Walcott, The City College,
City University of New York

University Transportation Centers Program
Outstanding Student of the Year Awards
Stephen Albert

Remarks by Administrator Peter H. Appel
Research & Innovative Technology Administration,
U.S. Department of Transportation

Introduction of the UTC Students of the Year
Genevieve Giuliano

Closing Comments & Adjournment
Steve Albert

CUTC AWARD FOR DISTINGUISHED CONTRIBUTION TO UNIVERSITY TRANSPORTATION EDUCATION & RESEARCH

Michael Kyte
National Institute for Advanced Transportation Technology
University of Idaho

Michael Kyte is currently a professor of Civil Engineering at the University of Idaho, where he has taught for the past 24 years.

Until last June, he served as director of the university's National Institute for Advanced Transportation Technology, a position that he held for 15 years.

His professional interests include: traffic signal systems, arterial traffic operations, highway capacity, and transportation education.

Before coming to the University of Idaho, he worked for the public transit system in Portland, Ore., for nearly 10 years. His degrees are from University of Iowa, University of California (Berkeley), and UCLA. He is a licensed professional engineer in the state of Idaho.

The Honorable Nick J. Rahall, II
Vice Chairman, House Transportation & Infrastructure Committee

Congressman Nick Rahall of Beckley represents the Third Congressional District of West Virginia. First elected in 1976, he is currently serving his 17th term and is the dean of the West Virginia delegation to the U.S. House of Representatives. Rahall serves as the chairman of the Committee on Natural Resources and vice chairman of the Committee on Transportation and Infrastructure.

Recognized for his dedicated efforts to promote the diversification of the economic base of southern West Virginia through his "three Ts" agenda (transportation, technology and tourism), Rahall remains steadfast in his belief that a more secure America begins at home, by properly investing in our police departments, our fire departments, our communities' infrastructures, and by launching economic initiatives that will improve the overall strength and stability of southern West Virginia.

Rahall was a key architect in the formulation of the Transportation Equity Act for the 21st Century (known as TEA 21). In that bill, he established the Rahall Transportation Institute (RTI), a consortium of five Southern West Virginia colleges, housed at Marshall University. Soon after, Rahall helped RTI win designation as a National Maritime Enhancement Institute, enabling the school to compete for federal grants related to a great number of maritime activities. This is one of only seven so-named universities in the nation, further advancing RTI's mission of "Building Jobs through Transportation" for West Virginia.

A 33rd degree Mason, Rahall is a life member of the National Rifle Association, Elks, Moose, and the NAACP, and was made an honorary member of the United Mine Workers of America in 2003. Before his election to the Congress, Rahall served as a staff assistant to U.S. Senator Robert C. Byrd, and as a businessman. Congressman Rahall has three children: Rebecca, Nick Joe, III and Suzanne Nicole, married to Machinist Mate Second Class (MM2), Chris Brown, and one granddaughter, Madison Kaylee. Congressman Rahall is married to the former Melinda Ross of Ashland, Kentucky.

Dr. Dominique Lord
Texas A&M University

Dr. Dominique Lord is an assistant professor in the Zachry Department of Civil Engineering. Prior to joining Texas A&M University in September 2004, he was an associate research scientist with the Center for Transportation Safety at the Texas Transportation Institute (TTI), and a research assistant at Ryerson University. He holds a B.Eng. (1992) in Civil Engineering from McGill University, and an M.A.Sc. (1994) and Ph.D. (2000) from the University of Toronto.

Over the last fifteen years, Lord has conducted numerous research studies in highway safety, design and operations. Recently, he successfully completed, as a principal investigator, the following projects:

- Developing a Methodology for Predicting the Safety Performance of Rural Multilane Highways (NCHRP 17-29)
- Reducing Older Driver Injuries at Intersections using more Accommodating Design Practices (CDC funded project)
- Traffic Safety Diagnostic and Application of Countermeasures for Rural Roads in Burkina Faso (CIDA funded project)

His primary interests are conducting fundamental research on accident analysis methodology, new and innovative statistical methods for modeling motor vehicle collisions (including Bayesian statistics), and before/after evaluation techniques. His other research interests include problems associated with the crash data collection process, safety audits, human factors related to older drivers and pedestrians, and traffic flow theory. He has had more than 70 papers published in peer-reviewed journals and international conferences.

Lord, who is the two-time recipient of the Transportation Research Board D. Grant Mickle Award, the winner of the 2000 Canadian Association of Road Safety Professional Best Paper Award as well as the 2009 Truman R. Jones Excellence in Graduate Teaching, and has received the Center for Disease Control and Prevention (CDC) New Investigator Research Award, is a registered Professional Engineer in both the Provinces of Ontario and Quebec.

Dr. Yingyan Lou
University of Alabama

Title: A Hierarchical Framework for Congestion Pricing of Transportation Networks

To further advance road pricing to be a more pragmatic and efficient tool for congestion mitigation, this research proposes a hierarchical congestion pricing framework for urban transportation networks. Within the framework, toll determination is decomposed into two levels: network and facility, due to travelers' different response abilities.

At the network level, a robust static or time-of-day pricing approach is proposed to avoid complex toll structures while ensuring the network to perform robustly against a variety of uncertainties. This research investigates one of the uncertainties resulting from travelers' boundedly rational route-choice behaviors. Under such behavior, users do not necessarily choose a shortest or cheapest route, when doing so does not reduce their travel time by a significant amount. Because alternative boundedly rational user equilibrium (BRUE) flow distributions exist, the network-level congestion pricing models seek a toll scheme that minimizes the system travel time of the worsecase tolled BRUE flow distribution.

At some critical facilities, the toll scheme determined at the network level may be further adjusted in response to real-time traffic conditions. This research develops a proactive dynamic self-learning pricing approach for managed toll lanes. The selflearning approach recursively learns travelers' willingness-to-pay, recovers full image of traffic condition along the facility and predicts short-term future demand by mining the traffic measurements from limited sensors. In determination of the tolls, a detailed modeling of drivers' lane-choice behavior and traffic dynamics is adopted to explicitly consider their impacts on the performance of the facility. Numerical and simulation studies demonstrate that the proposed hierarchical framework is practical and promising for congestion mitigation.

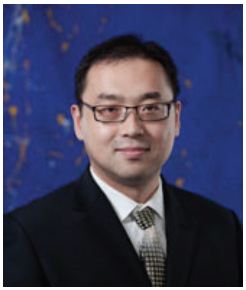
Dimitra Michalaka
University of Florida

Title: Proactive & Robust Dynamic Pricing Strategies for High Occupancy/Toll Lanes

Congestion pricing is to reduce congestion in transportation infrastructure by charging motorists a certain amount of money—known as a toll—for the use of the roads. Congestion pricing has been promoted by economists and transportation researchers as one of the most efficient means to mitigate traffic congestion because it employs the price mechanism with almost all the advantages of efficiency, universality and clarity. When tolls implemented on highway lanes vary by the time of day, with higher values charged during peak traffic periods, it is called as dynamic tolling. The tolled lanes are High Occupancy/ Toll Lanes (HOT) if the high occupancy vehicles are allowed to use the lanes toll-free.

As the literature review indicates, many studies have been conducted to determine optimal dynamic tolls than can be implemented to roads with high congestion levels. However, most of these studies take into consideration idealized and hypothetical situations in order to derive solutions. For instance, the travel demand is assumed to be known as well as motorists' willingness to pay, i.e., how much money they are likely to pay for using the managed facility. In addition, there is not any model that takes into consideration uncertainty of demand or capacity for the determination of the toll values. Therefore, this thesis develops a more robust and proactive approach to determine time-varying tolls for HOT lanes in response to real-time traffic conditions. The toll rates are optimized to provide free-flow conditions to managed lanes while maximizing freeway's throughput. The approach consists of several key components, including demand learning and scenario-based robust toll optimization. Simulation experiments are conducted to validate and demonstrate the proposed approach.

Dr. Patrick Qiang
University of Massachusetts



Title: Network Efficiency/Performance Measurement with Vulnerability and Robustness Analysis with Application to Critical Infrastructure

The recent theories of scale-free and small-world networks have significantly enhanced our understanding of the behavior as well as the vulnerability of many real-world networks. However, the majority of network vulnerability studies focus solely on the topological characteristics.

Latora and Marchiori proposed a network efficiency measure that is shown to have advantages over several existing network measures. Nevertheless, their measure only considers geodesic information and, therefore, ignores important factors such as flows, costs, and behaviors.

The first objective of this dissertation is to construct a network efficiency/performance measure that extends the Latora-Marchiori measure to incorporate such important network factors as flows, costs, and behaviors in order to assess the importance of network components. It is shown that the new network measure has advantages over several existing network measures. Furthermore, the measure is able to handle both fixed and elastic demands as well as static and dynamic networks, with the latter of particular relevance to the Internet. Moreover, it enables a ranking of the importance of network components.

In addition, instead of looking at the situation where a network component is completely disrupted, network robustness, another important aspect of the network vulnerability, investigates cases in which network resources are reduced in stressful environments. The second goal of this dissertation is to study transportation network robustness based on the new network efficiency/performance measure in order to investigate the network functionality when the links are partially degraded. I also evaluate transportation network robustness under different user behaviors and with environmental concerns.

Furthermore, based on the recent results regarding the supernetwork equivalence between transportation networks and other critical infrastructure networks, I apply the new network measure to study multitiered financial networks with intermediation. I also propose a novel supply chain model with disruption risks and uncertain demands and define a weighted supply chain network performance measure.

Bharath Rajagopalan
University of Texas, Austin

Title: A Comprehensive Analysis of Workers' Non-Work Activity Time-Use and Timing Behavior

This study contributes to the literature on activity time-use and activity timing analysis by developing a comprehensive, high resolution, out-of-home non-work activity generation model that considers daily activity time-use behavior and activity timing preferences in a unified random utility framework.

The empirical analysis is undertaken using data from the 2000 Bay Area Travel Survey. Several important household and commuter demographics, commute characteristics, and activity-travel environment attributes are found to be significant determinants of workers' non-work activity time-use and timing behavior. The comprehensive model developed in this thesis can serve as an activity generation module in an activity-based travel demand microsimulation framework.

Daren Grilley
Mineta Transportation Institute

Title: Local Transportation Agency Cost Estimating Practices—A Case for Improvement

Transportation infrastructure projects represent a significant expenditure of taxpayer dollars. Recognizing that the accuracy of cost estimates for these projects can have far-reaching consequences in terms of project management, budgeting, and public confidence, this paper explores the estimating practices for local government transportation projects and presents recommendations for improving accuracy.

The reliability of cost estimates has been an issue of concern for officials and the public for generations, and is highlighted by a few notorious examples that received national and worldwide attention. There has also been much interest in the problem recently from professional organizations, university researchers, and Congress. In response, several state highway agencies have begun implementing changes to their estimating practices aimed at improving accuracy and building public trust.

Prior studies have focused primarily on estimating by federal agencies, states, or large regional transportation districts. This paper looks at cost estimating at the local level with the objective of developing an understanding of how small to medium-sized transportation project estimates are prepared and the levels of accuracy experienced. Relevant literature, previous research, and experiences are reviewed, with particular attention given to the factors most often cited as contributing to inaccuracy. Based on those previous efforts, and a survey of several cities and counties in California, Oregon, and Washington, this paper presents recommended strategies for improving cost estimating accuracy.

Kemba Walcott
The City College, City University of New York

Title: An Examination of Current QA/QC Programs Regulating Utility Cut Restorations in New York City—Mitigating the Effects of Utility Cuts on Streets in Highly Urbanized Environments

Utility cuts adversely affect pavement performance on New York City streets by reducing pavement lifespan and creating hazardous riding conditions. Inadequately restored utility cuts further compromise the structural integrity of the pavement by inducing premature pavement failures. Studies over the past decade point to the city's inconsistent quality assurance/quality control (QA/QC) programs as the common denominator for improperly restored utility cut restorations.

A literature review was conducted to determine ways of mitigating the effects of utility cuts in New York City and other urban environments. The report identified essential QA/QC measures of the three main utility cut restoration processes (cut and excavation; backfilling and compaction, and pavement reinstatement); examined the current QA/QC methods guiding utility cut restorations in New York City; explored past reasons for utility cut failures and innovative solutions of comparable cities; and recommended measures for improving QA/QC of utility cut restorations in New York City.

Research revealed the use of varying specifications and enforcement measures on the part of contractors and inspectors contribute greatly to utility cut quality inconsistencies. The study also discovered a decade long use of "best practice" restoration methods such as flowable fill and micro-tunneling which are not reflected in current standard specifications.

The results of this investigation substantiate the need for a comprehensive New York City standard specification for utility cut restoration, establishment of one quality assurance program for utility cut quality enforcement, and incorporation of innovative technologies such as keyhole restorations, intelligent compaction (IC), and ground penetrating imaging radar (GPIR) for improving utility cut restoration performance and reducing damage caused to New York City streets.

ABOUT THE AWARDS

•**Distinguished Contribution to University Transportation Education & Research:** Given annually since 1998 to honor individuals who have had a long history of outstanding contributions to university transportation education and research.

•**Lifetime Achievement in Transportation Research & Education:** Instituted in 2004 to honor those individuals who have contributed immensely throughout their professional lives to transportation research and education. The award honors individuals who have served primarily in government, business or non-governmental organizations and have supported transportation research and education.

•**CUTC-ARTBA New Faculty Award:** Recognizes outstanding teaching and research contributions to the transportation field by a new tenure-track faculty member in transportation.

•**Milton Pikarsky Memorial Awards**: Given annually for the best Ph.D. dissertation and M.S. thesis in the field of science and technology in transportation studies.

•**Charley V. Wootan Memorial Awards**: Given annually for the best Ph.D. dissertation and M.S. thesis in the field of policy and planning in transportation studies.

•**Neville A. Parker Awards**: Presented each year to two transportation studies graduate students for outstanding non-thesis papers in the fields of science and technology, and policy and planning.

ABOUT CUTC

The Council of University Transportation Centers (CUTC) was established in 1979 by the major transportation research centers and institutes in the United States. CUTC promotes continued dialogue among its member institutions and provides a forum for the centers to interact collectively with government and industry.

CUTC's membership includes over 80 of the nation's leading university-based transportation research and education programs. Collectively, CUTC members have advanced the state-of-the-art in all modes and disciplines of transportation.

For more information, please consult CUTC's website: **http://cutc.tamu.edu/**. Or call 202-289-4434.

Council of University Transportation Centers
The ARTBA Building
1219 28th Street, N.W.
Washington, D.C. 20007

WOOTAN, PIKARSKY & PARKER AWARDS COMMITTEE

Dr. Neville A. Parker, Chair
Director
CUNY Institute for Transportation Systems
City University of New York

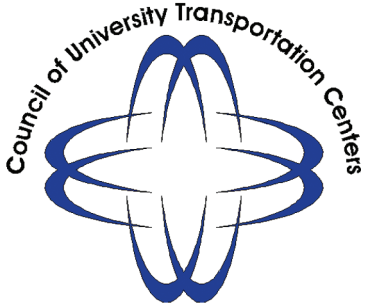
Mr. Jack Buffington
Research Professor
University of Arkansas

Dr. Peter J. Haas
Education Director
Mineta Transportation Institute
San Jose State University

CUTC thanks the Members of the Awards Committee and the volunteer readers for the success of the 2009 student awards program.

CUTC members are encouraged to nominate outstanding students who complete PhD. dissertations, M.S. theses and non-thesis M.S. papers or projects in transportation during the 2009-10 academic year for the 2010 Wootan, Pikarsky, and Parker Awards.

DINNER MENU



Seasonal Mixed Green Salad
Cherry Tomatoes, Sliced Radishes and
Carrots with Basil Vinaigrette

Chicken Medallions and Salmon
Served with a Grain Mustard Cream

Chocolate Hazelnut Dome with
Raspberry Coulis

Freshly Brewed Coffee & Tea

SPONSORS

The Council of University Transportation Centers expresses its gratitude to the following firms and organizations for sponsoring this banquet and the CUTC Awards Program:

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Nick J. Rahall, II Appalachian Transportation Institute
Verizon West Virginia
Vulcan Materials/University of Alabama

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