

Traffic Signal Systems Committee

TRB Annual Meeting – Washington, DC
Monday, January 14, 2008, Marriott Washington B1

Draft Agenda

- 1:30 PM Call to Order (Larry Head)
Self Introductions (All)
Approval of Minutes
TRB Staff Report (Rich Cunard)
NCHRP Report (Ray Derr)
- 2:00 PM FHWA and other Related Reports
Research (Raj Ghaman)
Arterial Management (Eddie Curtis)
SBIR (Dave Gibson)
- 2:30 PM Subcommittee Reports
Paper Review (Larry Head)
Best Paper Award (Paul Olson)
Committee Website (Monty Abbas)
Signal Timing (Peter Koonce)
Simulation (Brian Park)
January Workshop (Kevin Balke)
Strategic Plan (Tom Urbanik)
Controller Architecture (Larry Head)
Problem Statements (Jim Powell)
- 3:00 PM Break
- 3:30 PM US DOT VII/CICAS Update (Gene McHale, FHWA)
- 3:45 PM NCHRP 3-79 Update (Jim Bonneson, TTI)
- 4:15 PM 2008 Summer Meeting
Location: Oakland County Michigan (Gary Piotrowicz)
Refinement of Topic: Education? Other? (Champion – TBD)
Future Topics for Summer Meetings
- 5:00 PM Other Business
- 5:30 PM Adjourn

AHB25 - Traffic Signal Systems – Meetings, Paper and Poster Sessions, Workshop(s)

Paper or Conference Session (S)

460 (RCS08-031)

Accommodating Pedestrians at Signalized Intersections

Kevin N. Balke, Texas Transportation Institute, presiding

Sponsored by Committee on Traffic Signal Systems

Impacts of New Pedestrian Walk Time Research on Traffic Signal Timing (P08-1628)

Ronald G. Van Houten, Western Michigan University

Pedestrian Challenges to Traffic Engineers and How They Affect Traffic Signal Design (P08-1629)

Peter J .V. Koonce, Kittelson & Associates, Inc.

Issues Associated with Pedestrian Countdown Timers (P08-1630)

Michael J. Cynecki, City of Phoenix

Poster Session (P)s

525 (RCP08-009)

Decision Logic for Traffic Signal Operations

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Evaluation of Variable Maximum Green Time to Improve Rural Traffic Signal Operations (08-1961)

Steven M. Click, Tennessee Technological University

Aswini Rajagopalan, Tennessee Technological University

Quantitative Evaluation of Actuated Versus Nonactuated Coordinated Phases (08-0383)

Christopher M. Day, Purdue University

Edward James Smaglik, Northern Arizona University

Darcy M. Bullock, Purdue University

James R. Sturdevant, Indiana Department of Transportation

Improved Rail-Highway Interface for Preemption Trap (08-0293)

Xiaoli Sun, University of Tennessee, Knoxville

Thomas Urbanik, University of Tennessee, Knoxville

Sean Skehan, Los Angeles Department of Transportation

Matthew Ablett, Railroad Controls, Ltd.

Analysis of Stopping Behavior at Urban Signalized Intersections: An Empirical Study in Korea (08-2062)

Wonchul Kim, Hiroshima University, Japan

Junyi Zhang, Hiroshima University, Japan

Akimasa Fujiwara, Hiroshima University, Japan

Chang Nam Ryu, Chonbuk National University, South Korea

Moon Namgung, Wonkwang University, South Korea

Opportunities to Leverage Existing Infrastructure to Integrate Real-Time Pedestrian Performance Measures into Traffic Signal System Infrastructure (08-1392)

Sarah Marie Lillo Hubbard, Purdue University

Darcy M. Bullock, Purdue University

Christopher M. Day, Purdue University

Intersection Signal Controllers and Vehicle-Infrastructure Integration: Putting Safe Intersections to Practice (08-2627)

Susan R Dickey, California Partners for Advanced Transit and Highways

Benedicte Bougler, California Partners for Advanced Transit and Highways

Paul Kretz, California Partners for Advanced Transit and Highways

David A Nelson, California Partners for Advanced Transit and Highways

Jeffrey A Ko, California Partners for Advanced Transit and Highways
James A. Misener, University of California, Berkeley
Evidence of Unacceptable Video Detection Performance for Dilemma Zone Protection (08-2617)
Dan Middleton, Texas Transportation Institute

645 (RCP08-010)

Operating Systems of Traffic Signals

Stacie Leigh Phillips, Kimley-Horn & Associates, Inc., presiding
Sponsored by Committee on Traffic Signal Systems

Current Asset Management Practices as Applied to Traffic Signals (08-2667)

Michael J. Markow, Consultant

Microscopic Simulation Model of Traffic Operations at Intersections in Malfunction Flash Mode (08-1847)

Valerio Oricchio, Georgia Institute of Technology

Michael Patrick Hunter, Georgia Institute of Technology

David Mark Jared, Georgia Department of Transportation

Evaluation of Traffic Controller Performance During Time-of-Day Transition at Coordinated Actuated Signal System (08-2176)

Ilsoo Yun, University of Virginia

Matthew Best, University of Virginia

Byungkyu (Brian) Park, University of Virginia

Effectiveness of Lead-Lag Phasing on Progression Bandwidth (08-1050)

Zong Z. Tian, University of Nevada, Reno

Hongchao Liu, Texas Tech University

Robust Synchronization of Actuated Signals on Arterials (08-2897)

Lihui Zhang, University of Florida

Yafeng Yin, University of Florida

SCOOT and Coordinated Actuated Traffic Control Evaluated Through Microsimulation (08-1479)

Aleksandar Stevanovic, University of Utah

Peter T. Martin, University of Utah

Design of Transit Signal Priority at Intersections with Queue Jumper Lanes (08-2759)

Guangwei Zhou, HDR Engineering, Inc.

Albert Gan, Florida International University

Derrick Lue, HDR Engineering, Inc.

L David Shen, Florida International University

Method for Estimating Useful Life Span of Traffic Signalization Plan (08-0610)

Layali Sameer Dajani, University of Wisconsin, Milwaukee

Alan J. Horowitz, University of Wisconsin, Milwaukee

Developing Traffic- and Weather-Responsive Signal Control for Isolated Intersections (08-2262)

Niko Setälä, Helsinki University of Technology, Finland

Iisakki Kosonen, Helsinki University of Technology, Finland

Tapio Luttinen, Helsinki University of Technology, Finland

Impacts of Signal Phasing Sequence on Left-Turn Operation (08-0534)

Yi Qi, Texas Southern University

Lei Yu, Texas Southern University

Chenyan Guo, Texas Southern University

Configuration Procedure of Traffic-Responsive Plan Selection on an Arterial Network (08-2856)

Montasir M. Abbas, Virginia Polytechnic Institute and State University

Geza Pesti, Texas Transportation Institute

Nadeem A. Chaudhary, Texas Transportation Institute

Pengfei Li, Virginia Tech Transportation Institute

Overview and Performance Evaluation of ACS Lite: Low-Cost Adaptive Signal Control System (08-0334)

Steven G. Shelby, Siemens ITS

Darcy M. Bullock, Purdue University
Ziad Sabra, Sabra-Wang Associates
Raj S. Ghaman, Federal Highway Administration
Nils Soyke, Siemens AG, Germany
Douglas Gettman, Kimley-Horn & Associates, Inc.

650 (RCP08-011)

Performance-Based Traffic Signal Systems

James L. Powell, Wilbur Smith Associates, presiding
Sponsored by Committee on Traffic Signal Systems

Virtual Probe Approach for Time-Dependent Arterial Travel Time Estimation (08-2090)

Henry X. Liu, University of Minnesota, Twin Cities
Wenteng Ma, University of Minnesota, Twin Cities

Bench Implementation of Restricted-Flow Bottleneck Identification and Flow-Based Phase Termination (08-0554)

Edward James Smaglik, Northern Arizona University
Darcy M. Bullock, Purdue University
Thomas Urbanik, University of Tennessee, Knoxville

Field-Based Evaluation of Corridor Performance After Deployment of an Adaptive Signal Control System in Gresham, Oregon (08-0774)

Christopher M. Monsere, Portland State University
James Peters, DKS Associates, Inc.
Li Huan, Portland State University
Maisha Mahmud, Portland State University
Steven Boice, Portland State University

Improvements to Queue and Delay Estimation Algorithm Utilized in Video Imaging Vehicle Detection Systems (08-1123)

Marshall Cheek, Lockwood, Andrews & Newnam, Inc.
H. Gene Hawkins, Texas A&M University
James A. Bonneson, Texas Transportation Institute

What's New in the Queue: Discovering More About Queue Discharge Characteristics and Their Effect on Signal Timing Using New NGSIM Data Set (08-1350)

Michael Kyte, University of Idaho
Michael P. Dixon, University of Idaho
Ahmed Abdel-Rahim, University of Idaho
Thomas Urbanik, University of Tennessee, Knoxville
Vidyut Nayak, University of Idaho

Piecewise Optimum Delay Estimation for Improved Signal Control (08-1810)

Ping Yi, University of Akron
Chun Shao, University of Akron
Yinhai Wang, University of Washington

Analytical Modeling and Sensitivity Analysis for Travel Time Estimation on Signalized Urban Networks (08-0188)

Ashish Bhaskar, Ecole Polytechnique Federale de Lausanne, Switzerland

Illumination and Wind Effects on Video Detection Performance at Signalized Intersections (08-2866)

Juan C. Medina, University of Illinois, Urbana-Champaign
Madhav Vijaya Chitturi, University of Illinois, Urbana-Champaign
Rahim F. Benekohal, University of Illinois, Urbana-Champaign

Using Signal System Data and Buses as Probe Vehicles to Define the Congested Regime on Arterials (08-0301)

Mathew Berkow, Portland State University
Michael Wolfe, Portland State University
Christopher M. Monsere, Portland State University

Robert Lawrence Bertini, Portland State University
Real-Time Performance Measurement System for Arterial Traffic Signals (08-2503)
Henry X. Liu, University of Minnesota, Twin Cities
Wenteng Ma, University of Minnesota, Twin Cities
Arterial Performance Monitoring Using Stop Bar Sensor Data (08-2780)
Mark E. Hallenbeck, University of Washington
John M. Ishimaru, University of Washington
Katherine D. Davis, University of Washington
Jaime M. Kang, University of Washington
Performance Requirement and Evaluation Procedures for Advance Wide Area Detector (08-0356)
Anuj Sharma, Purdue University
Matthew Harding, Purdue University
Bradley C. Giles, Wavetronix LLC.
Darcy M. Bullock, Purdue University
James R. Sturdevant, Indiana Department of Transportation
Srinivas Peeta, Purdue University

Workshop (W)s

135 (RCW08-003)

Vehicle Infrastructure Integration and Cooperative Intersection Collision Avoidance Systems: Current Status and Future Research Needs

Byungkyu (Brian) Park, University of Virginia, presiding
Sponsored by Committee on Traffic Signal Systems; Committee on Intelligent Transportation Systems; Committee on Vehicle-Highway Automation

Vehicle-infrastructure integration (VII), cooperative intersection collision avoidance systems (CICAS), and more general vehicle-infrastructure cooperative (VIC) systems will enable vehicle-to-vehicle and vehicle-to-infrastructure communications with the potential for far-reaching changes to transportation operations and management. It is anticipated that these systems can improve safety and mobility. In this workshop, results from the VIC and CICAS July 2007 summer workshops will be presented.

General Overview of VII & CICAS (P08-1704)

Gene M. McHale, Federal Highway Administration

VII: The Michigan Experience (P08-1677)

Gary Piotrowicz, Road Commission for Oakland County

VII California and Intersections: Past, Present and Future (P08-1661)

James A. Misener, University of California, Berkeley

Cooperative Systems for Intersection Crash Prevention (P08-1660)

Michael Malie, DaimlerChrysler Research, Engineering and Design North America

Traffic Control Systems in a VII Environment (P08-1659)

Larry Head, University of Arizona

VII Simulation Testbed (P08-1680)

Byungkyu (Brian) Park, University of Virginia

Research Needs on VII Applications (P08-1678)

Timothy J. Gordon, University of Michigan Transportation Research Institute

Research Needs on VII/CICAS (P08-1676)

Gregory D. Krueger, Michigan Department of Transportation

Cross-Cutting VII Research Needs (P08-1679)

Steven E. Shladover, University of California, Berkeley

Published Meeting - Committee (M)s

RCM08-027

Traffic Signal Systems Committee

Larry Head, University of Arizona, presiding

Sponsored by Committee on Traffic Signal Systems

RCM08-028

Traffic Signal Timing Manual Subcommittee, AHB25(1)

Peter J .V. Koonce, Kittelson & Associates, Inc., presiding

Sponsored by Committee on Traffic Signal Systems

RCM08-029

Traffic Signal Systems Research Subcommittee, AHB25(2)

James L. Powell, Wilbur Smith Associates, presiding

Sponsored by Committee on Traffic Signal Systems

RCM08-030

Simulation of Traffic Signal Systems Subcommittee, AHB25(3)

Byungkyu (Brian) Park, University of Virginia, presiding

Sponsored by Committee on Traffic Signal Systems

RCM08-031

Traffic Signal Controller Architecture Subcommittee, AHB25(4)

Larry Head, University of Arizona, presiding

Sponsored by Committee on Traffic Signal Systems

AHB25 Cosponsored Sessions (only editable by the primary committee sponsor)

RCM08-056

Traffic Simulation Models Joint Subcommittee of AHB45, AHB40, AHB25, AHB20

Kenneth G. Courage, University of Florida, presiding

RCW08-002

Simulation Modeling and Analysis for Traffic Evacuation

John A. Halkias, Federal Highway Administration, presiding

There is substantial interest in traffic evacuation in the analysis and simulation community. Many agencies have been using simulation modeling to prepare traffic evacuation plans for a wide range of scenarios. However, there are many technical challenges for an analyst in conducting such an analysis. The purpose of this workshop will be to highlight best practices, lessons learned, innovative applications, and recent research regarding this topic.

Overview on Modeling Traffic Evacuations and Introduction (P08-1220)

John A. Halkias, Federal Highway Administration

Evacuation Management Operations Modeling Assessment (P08-1224)

Matthew Hardy, Noblis

Scales of Modeling Evacuation: Toward a Real-Time Framework (P08-1225)

Essam Radwan, University of Central Florida

Vinayak V. Dixit, University of Central Florida
History, Outcomes, and Future of Evacuation Traffic Simulation in Louisiana (P08-1226)
Brian Wolshon, Louisiana State University
Using Dynasmart-P for Evacuation Modeling in Central Texas (P08-1227)
Yi-Chang Chiu, University of Arizona
Strategies and Lessons Learned from Major Network Disruptions: Case of San Francisco Bay Area (P08-1229)
Alexander Skabardonis, University of California, Berkeley
I-40 Lane Reversal Traffic Analysis: Use of Microsimulation for Plan Evaluation (P08-1230)
Billy M. Williams, North Carolina State University
Simulation-Based Evacuation Planning Framework Applied to the City of Boston (P08-1231)
Ramachandran Balakrishna, Caliper Corporation
Arterial Signal Timing for Evacuation in Washington, D.C., Area (P08-1232)
Elise Miller-Hooks, University of Maryland, College Park
Closing Discussion and Questions (P08-1233)

RCW08-005

Doctoral Student Research in Transportation Operations and Traffic Control David A. Noyce, University of Wisconsin, Madison, presiding

This half-day workshop consists of reports of Ph.D. student research on transportation operations and traffic control. Reports of recently completed (or nearly completed) Ph.D. dissertations and research in progress are welcome.

A Real-time Performance Measurement System for Arterial Traffic Signals (P08-1719)
Wenteng Ma, University of Minnesota, Twin Cities
Examining the Application of Conway-Maxwell-Poisson Models for Analyzing Traffic Crash Data (P08-1720)
Srinivas Reddy Geedipally, Texas A& M University
Evaluation of Drivers Performance in Response to Multi-threat Scenarios at Crosswalks with and without Advance Yield Markings and Symbolic Signage (P08-1721)
Lisandra Garay-Vega, University of Massachusetts, Amherst
An Application of CODES Data Linkages for Crashworthiness Computations (P08-1722)
Heather A. Rothenberg, University of Massachusetts, Amherst
Methodology for Delay-Based Passenger Car Equivalencies for Urban Transit Buses (P08-1723)
Jarice D. Rodriguez-Seda, University of Illinois, Urbana-Champaign
Analysis of the Effect of Vehicle Characteristics in the Severity of Two Vehicle Crashes (P08-1724)
Alejandro Angel, University of Arizona
Development of an Intelligent Traffic Signal System to Accommodate Variability of Intersection Pedestrian Speed (P08-1725)
Xiaozhao (George) Lu, University of Wisconsin, Madison
Recasting Dilemma Zone Design as a Marginal Cost and Benefit Problem (P08-1726)
Anuj Sharma, Purdue University
An Highway Work Zone Design and Traffic Management Strategy Decision System (P08-1727)
Yali Chen, University of Wisconsin, Madison