

Institute of Transportation Engineers Annual Meeting and Exhibit 2007

**Pittsburgh, Pennsylvania, USA
5-8 August 2007**

Volume 1 of 2

ISBN: 978-1-62276-187-6

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2007) by the Institute of Transportation Engineers
All rights reserved.

Printed by Curran Associates, Inc. (2012)

For permission requests, please contact the Institute of Transportation Engineers
at the address below.

Institute of Transportation Engineers
1099 14th Street, Suite 300 West
Washington, DC 20005-3438

Phone: +1 202-289-0222
Fax: +1 202-289-7722

ite_staff@ite.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

VOLUME 1

Analysis of the Relationship between Aggressive Driving and Roadway Characteristics Using Linked Data.....	1
<i>Marta Benavente, Michael A. Knodler, Heather Rothenberg</i>	
A Systematic Approach Of Determining State-Wide High Crash Locations - Case Study: State Of Illinois	18
<i>Athreya Sreenivasan, Jessica Kaminsky</i>	
An Integrated Computational System for Roadway Crash Management	32
<i>Jidong Yang, William E. Oliver, Demian Miller</i>	
A Simplified Methodology for Location-Based Crash Analysis.....	43
<i>Michelle Langone, Michael A. Knodler Jr., Donald L. Fisher</i>	
Impact of Signal Mounting Configuration on Intersection Safety and Operations	59
<i>Kerrie L. Schattler, Matthew Christ</i>	
Design-Build Traffic Signals...Is It Right for You?.....	71
<i>Carlton C. Urban</i>	
Accessible Pedestrian Signals: Details Matter.....	87
<i>Janet M. Barlow</i>	
Grade-Separated Pedestrian Crossings	98
<i>Walter T. Anderson</i>	
HAWK Beacon Signals to Facilitate Pedestrian Crossings: Operational Report.....	110
<i>Richard B. Nassi, Michael J. Barton</i>	
Evaluating the Impact of Raised Median Installations.....	130
<i>Grant G. Schultz, Jeff S. Lewis, Tim Boschert</i>	
Managing Improvement-Induced Growth Interchange Area Policies in Oregon and Clark County, Washington	142
<i>Terry Cole, Evan Dust, Bob Higbie</i>	
Investigating Dynamic All-Red Extension: A Driver Simulator Study	158
<i>Montasir M. Abbas, Susan Chrysler, Alicia Williams</i>	
Measuring the Effects of Red-Light Running Countermeasures.....	168
<i>Mark R. Start</i>	
Signal Timing Policies and Practices.....	237
<i>Peter J. V. Koonce</i>	
Development and Application of Microsimulation in Congested Corridor Analysis.....	250
<i>Jim French, Millie French</i>	
Get On The Bus: Traffic Signal Priority Control And Bus Rapid Transit	266
<i>Peggy Vonsherie Allen</i>	
Bus Use of Shoulders to Bypass Congestion	284
<i>Peter C. Martin</i>	
Unlocking the Potential of Bus-on-Shoulder Operation	295
<i>Stephen Schijns, Ian Borsuk</i>	
Lessons Learned on Managed Lanes: HOV to HOT	308
<i>Chuck Fuhs</i>	
Annoucing the Release of: TRAFFIX 7.9 - Traffic Impact Analysis Software	316
<i>N/A</i>	
Updated Guidelines for the Design and Application of Speed Humps	318
<i>Margaret Parkhill, Rudolph Sooklall, Geni Bahar</i>	
Effectiveness of the 2003 MUTCD Optional Advance Speed Hump Markings (Section 3B-27)	331
<i>Eric C. Shen</i>	
Forecasting Traffic Fatalities in Virginia with Primary Enforcement Seatbelt Law	348
<i>Young-Jun Kweon</i>	
Comparison of Methods for Identifying Intersections with High Crash Risks Using Field Data	359
<i>Xiao Qin, Junhee Han</i>	
A Study on the Relationship between the Night Time Crash and Street Lighting Level.....	374
<i>Huaguo Zhou, Peter Hsu</i>	
Anatomy Of Wisconsin Work Zone Crashes.....	389
<i>Xiao Qin, Yali Chen, David A. Noyce</i>	
Urban Community Wayfinding Guide Signs—The 900-Pound Gorilla.....	410
<i>Fred Ranck</i>	

Assessing the Sensibility of Signal Timing Split Optimization In Addressing Congestion	424
<i>James E. Clark</i>	
A C S Lite: A Signal Timing Strategy For Closed Loop Systems	443
<i>Raj S. Ghaman</i>	
Evaluating the Accuracy of Pedestrian/Bicycle Counters	450
<i>Marcus A. Brewer, Ryan M. Eurek, Shawn M. Turner</i>	
Estimating Bicycle and Pedestrian Demand in San Diego.....	466
<i>Michael Jones, Lauren Buckland</i>	
Bicycle and Pedestrian Access and Mobility on College Campuses, Case Study: The College of New Jersey	482
<i>Regina E. Del Vecchio, Sheree Davis, Colleen Mitchell</i>	
Community Road Safety Planning.....	505
<i>Mavis Johnson</i>	
New Jersey's Safe Corridor Program	512
<i>Alfred W. Kotchi Jr., Kevin M. Conover</i>	
Signal Timing Optimization Methodologies and Challenges for the City of Baltimore Central Business District and Gateways	531
<i>Keith Riniker, Paul Silberman, Ziad A. Sabra</i>	
Operational Performance Comparison of Video Detection Systems	549
<i>Avery Rhodes, Edward J. Smaglik, Darcy M. Bullock, Jim Sturdevant</i>	
Accuracy of Video Detection Systems for Traffic Counting.....	589
<i>Madhav V. Chitturi, Juan C. Medina, Rahim F. Benekohal</i>	
A Volume Warrant For The Permitted Phase Of Protected-Permitted Phasing	597
<i>Jimmy Rathod, Kim Rumpsa, Mohammed Qureshi</i>	
Establishing a Metropolitan Network of HOT Lanes in the Short-Term	614
<i>Patrick Decorla-Souza</i>	
Issues, Challenges and Approaches in a Downtown Traffic Study.....	631
<i>Babu K. Veeragowda, Andrew Weeks</i>	
The Hybrid Intersection/Interchange, Developing the Arterial of the Future.....	647
<i>Joel K. Marcuson</i>	
Implementing Smart Growth Principles to Address Transportation Deficiencies: Manalapan Smart Growth Phase II.....	654
<i>Lori J. Duguid</i>	
Beating Congestion And Providing Safety: Roundabouts And Performance Enhacing Design	665
<i>Perry D. Gross</i>	
Operational Analysis of Proposed Roundabouts in Gorham, Maine	673
<i>Mark Doctor, Atlee Mousseau</i>	
Implementing Multi-Lane Roundabouts in Urban Areas	680
<i>Stephen L. Thielen</i>	
Reversible Lane Operation for Arterial Roadways – the Washington, DC Experience	696
<i>Soumya Dey, Jianming Ma</i>	
Pennsylvania Turnpike Commission Highway Program Long Range Plan	709
<i>Victor J. Maslanka, Bradley J. Heigel, Brian E. Shunk</i>	
An Integrated Approach to Transportation Analysis.....	726
<i>Scott Thompson-Graves, Michael Duross, Laura Rice</i>	
Four-Lane to Three-Lane Conversion Case Study: State Highway Through a Small Town	742
<i>Keith Knapp, Jennifer Rosales</i>	
Innovative Interchange Design	757
<i>Nichole English</i>	
Innovative Diamond Interchange Designs: How to Increase Capacity and Minimize Cost	763
<i>David Stanek</i>	
A National Surface Transportation Program For The 21st Century	780
<i>C. Kenneth Orski</i>	

VOLUME 2

The Near-Term Potential of Broad Pricing Strategies to Reduce Congestion in U.S. Metropolitan Areas	787
<i>Patrick Decorla-Souza</i>	
Application of FAIR Lanes to Help Alleviate Freeway Congestion.....	809
<i>Kevin Heaslip</i>	

Congestion Relief Using Hot Lanes	815
<i>Donald Samdahl, Shuming Yan</i>	
Safer Streets: The Measured Effectiveness of Hartford's Citywide Traffic Calming Program.....	831
<i>F. Clara Fang, Joseph H. Rimiller, Najib O. Habesch</i>	
Creation of a Downtown "Main Street" By Reducing Arterial Travel Lanes	842
<i>Lynn Edward Allsbrook</i>	
Establishing the West Loop Quiet Zone for Houston, Texas	853
<i>Gary W. Schatz</i>	
New York City School Safety Engineering Project: Planning through Implementation on a Large Scale.....	864
<i>Linda Reardon, Atma Sookram</i>	
School Zones and Radar Speed Signs : A Winning Combination When Children Are Present?	875
<i>Kevin Chang, Matthew Nolan</i>	
Managing Statewide Traffic Mobility During a Major Construction Campaign.....	882
<i>Randal B. Thomas, W. D. Baldwin, Rob Bushman</i>	
Auckland Adaptive Ramp Metering Project.....	895
<i>Andrew O'Brien, Peter McCombs</i>	
Ramp Metering for Congestion Relief	910
<i>Marion G. Waters III</i>	
Keeping Seattle Moving: Developing a Multimodal Transportation Management Process for Maintaining Mobility During Construction of the Alaskan Way Viaduct & Seawall Replacement Project.....	919
<i>Nicholas P. Roach, Elizabeth Young, Katherine Casseday</i>	
City of Phoenix Techmition Training Program.....	932
<i>Jenny L. Grote</i>	
Signal Timing – The SHA (Maryland State Highway Administration) Way	944
<i>Matthew J. A. Buckley, Woody Hood III</i>	
Development of a Web-Based Traffic Signal Design Guide and Checklist	951
<i>Gary B. Thomas, Danny Magee</i>	
Guidelines For Incentivizing Partnerships Between State Dots And Local Public And Private Partners	959
<i>Brian S. Bochner, Josias Zietsman, Juan Carlos Villa</i>	
Pennsylvania's House of Representatives Select Committee on Tolls: Public-Private Partnerships – Addressing Congestion and the Funding Gap.....	975
<i>Victor P. Poteat</i>	
Collaborative Financing.....	992
<i>Debbie Berry, Chris Bongorno</i>	
When Public Agencies Use Consultants: Getting It Right The First Time	1001
<i>Steven B. Gayle, David E. Hattan</i>	
Automated Enforcement: 10 - Year Evaluation Red Light Running Detection: Howard County, Maryland	1005
<i>George E. Frangos</i>	
Loop 101 Freeway Photo Enforcement Demonstration Program, City Of Scottsdale, AZ.....	1012
<i>Mary O'Connor, Paul S. Porell</i>	
Estimating Traffic Gaps for School Crossing Signal Warrants.....	1020
<i>Nathan Higgins, Todd M. Blake, Silpa Munukutla, Daniel Dulaski, William Lyons</i>	
Planning the Location and Design of Schools in Relation to the Transportation Network	1029
<i>Michael J. Cynecki, Russell G. Brownlee</i>	
Survey Of Practice For Signing And Markings Near Schools	1039
<i>Kay Fitzpatrick, Thomas K. Mericle, Steven J. Stuart, Allen E. Swanson, Terrence J. Rice, David G. Gerard, Shauna Hallmark, Anthony P. Voigt, Jacob Benfield, Avani Patel</i>	
Operation Bottleneck Identification and Relief.....	1054
<i>John E. Fisher</i>	
Communicating the Impact of TDM Programs to the Traffic Operations Community.....	1061
<i>Sachin Rai, Phil Winters, Nevine Labib Georggi, Liren Zhou</i>	
Trip Sharing Between Multiple Retail Developments in Retail Corridors	1086
<i>Jeffrey M. Depaolis</i>	
Safety Assessment Of Road Network Using Traffic Engineering Software (TES) - Application Of Generalized Estimating Equations And Empirical Bayes.....	1094
<i>Alireza Hadayeghi, Brian Malone, Greg Malone, Greg Szrejber, Jeffrey Reid</i>	
Tools For Improving Safety - Integration Of Data Capture, Storage, Safety Analysis, And GIS In Collision Reduction.....	1114
<i>Greg Szrejber, Alireza Hadayeghi, Brian Malone, Jeffrey Reid</i>	

Safety Evaluation of a Road Network Using Risk Analysis Method - Citrus Heights, California	1122
<i>Elizabeth Wemple</i>	
Innovations in Oregon's Work Zone Traffic Analysis Program	1136
<i>Smith Siromaskul, Irene Toews</i>	
The Dynamic Lane Availability Chart: A Tool for Managing Work-Zone Lane Closures	1145
<i>Christopher S. Kinzel</i>	
Development and Evaluation of a Speed-Activated Sign to Reduce Speeds in Work Zones	1152
<i>James H. Mattox III, Wayne A. Sarasua, Jennifer H. Ogle, Ryan T. Eckenrode, Anne Dunning</i>	
Dynamic Merge Metering Traffic Control for Work Zones: System Development and Simulation-Based Determination of Control Thresholds	1171
<i>Heng Wei, Manojkumar Pavithram, Qing-An Zeng, Qingyan Yang</i>	
Washington Street Parking Management Study	1187
<i>Kimberly Grabow</i>	
Roadside Parallel Parking Design for CBD Urban Roadway	1201
<i>Michelle H. Schofner, Jamie P. Heuer</i>	
Duquesne University Parking Garage Management and Design Modifications	1213
<i>Robert E. Goetz</i>	
Transportation Engineers: Get Involved!	1229
<i>Chris D. Kinzel</i>	
An MPO Perspective on Improving Public Policy	1237
<i>James Hassinger</i>	
Development of a Traffic Impact and Access Study Decision Matrix	1253
<i>David S. Hurwitz, Matthew J. Chase, Michael A. Knodler</i>	
City of Boston's Traffic Model Interface Tools	1261
<i>Sudhir Murthy</i>	
A Comparative Analysis of Alternative Intersection LOS Methods used for Traffic Impact Analysis	1269
<i>Bill A. Cisco</i>	
Vehicle Infrastructure Integration: More Than a Very Intriguing Idea	1279
<i>Wayne K. Tanda, Gary Piotrowicz</i>	
Where You Gonna Run To? Planning for a Nonmotorized Evacuation of Washington, DC	1284
<i>David Anspacher, Dalia Leven, Phillip Shapiro</i>	
Identification of Cost-Effective Methods to Improve Security at Transit Operating/Maintenance Facilities and Passenger Stations	1300
<i>Rajesh Chaudhary, Amber Reep, Deborah Sapper, Lisa Staes</i>	
New York City's Costal Storm Evacuation Plan: Implementation, Monitoring and Recovery	1318
<i>John M. Tipaldo</i>	
Hurricane Evacuation Traffic Operations Tools	1327
<i>Andrew J. Ballard</i>	
Public Transit Access To Major League Ballparks - Summary Of An Institute Of Transportation Engineers Informational Report	1347
<i>Daniel Boyle, Thomas F. Larwin</i>	
Planning For The New Yankee Stadium	1361
<i>Martin S. Taub</i>	
Portland's Chinatown Festival Streets	1367
<i>Ellen Vanderslice</i>	
Application Of Dynameq In Montreal: Bridging The Gap Between Regional Planning Models And Microsimulation	1380
<i>Pascal Volet, Christian Letarte, Francine Leduc</i>	
Travel Demand Modeling for the Oakland Neighborhood of the City of Pittsburgh	1395
<i>James T. Cullison, Darryle C. Phillips, Victor J. Maslanka</i>	
Lessons Learned from Large-Scale Application of Traffic Analysis and Simulation Models in Downtown Seattle, Washington	1418
<i>Stephen S. Rolle, Anthony K. Lo, Jay A. Yenerich, Carter A. Danne, Nicola Longo</i>	
River Market/CBD/Crossroads VISUM Travel Demand Model and VISSIM Simulation Model	1432
<i>Joseph Blasi</i>	
Evaluation Of Complex At-Grade Rail Crossing Designs Using A Driver Simulation	1467
<i>John Robinson, Alison Smiley, Jeff Caird, Geoff Millen, James Copeland</i>	
Improving Safety at Highway Railroad Crossings in Pima County, Arizona	1481
<i>John J. Warner, Felipe Ladron De Guevara, Paul Carsetano</i>	
Technical Strategies For Addressing Congestion - Transportation Management for Planned Special Events: Tools for Practitioners	1505
<i>Laurel J. Radow</i>	

Managing Travel for Planned Special Events	1512
<i>Walter H. Kraft</i>	
Analysis of Florida Urban Highways Crashes in Relation to Truck Lane Restriction	1518
<i>Doreen Kobelo, Renatus Mussa</i>	
A Transportation of Dangerous Goods Policy & Evaluation Protocol.....	1527
<i>Cam Nelson</i>	
Overview Of Risk Assessment	1541
<i>Ali Touran</i>	
Perspectives on Risk Assessment.....	1550
<i>Aaron C. James Sr.</i>	
Risk Assessment on Public Transit Projects: Challenges and Recommended Next Steps.....	1554
<i>Jeffrey Allen</i>	
Risk Assessment for Roadway Projects from Planning through Construction	1560
<i>Travis McGrath, William Roberds, Alan Keizur, Charles Lockhart</i>	
Author Index	