

JOURNAL OF TRANSPORTATION ENGINEERING

Vol. 137 – 2011

SPIS TREŚCI

nr 1

TECHNICAL PAPERS

PAVEMENT ENGINEERING

- 1 Strength and Deformational Characteristics of Foamed Bitumen Mixes under Suboptimal Conditions / **Alvaro Gonzalez, Misko Cubrinovski, Bryan Pidwerbesky, David Alabaster**
- 11 Identifying Large Truck Hot Spots Using Crash Counts and PDOEs / **Sravani Vadlamani, Erdong Chen, Soyoung Ahn, Simon Washington**
- 22 Recalibration of the Asphalt Layer Coefficient / **Kendra Davis, David Timm**
- 28 Effects of Layer Interfacial Bonding Conditions on the Mechanistic Responses in Asphalt Pavements / **Xiaodi Hu, Lubinda F. Walubita**
- 37 Preliminary Dynamic Modulus Criteria of HMA for Field Rutting of Asphalt Pavements: Michigan's Experience / **Shu Wei Goh, Zhanping You, R. Christopher Williams, Xinjun Li**

TRANSPORTATION SYSTEMS

- 46 Comparative Analysis of Evolutionary, Local Search, and Hybrid Approaches to O/D Traffic Estimation / **Lina Kattan, Baher Abdulhai**
- 57 Evaluation of Criteria for Setting Speed Limits on Gravel Roads / **Sunanda Dissanayake, Litao Liu**
- 64 Development and Validation of Arrival-Based Uniform Delay Models for Oversaturated Signalized Intersections / **Sang-Ock Kim, R. F. Benekohal**
- 74 Development of Accident Modification Factors for Rural Frontage Road Segments in Texas Using Generalized Additive Models / **Xiugang Li, Dominique Lord, Yunlong Zhang**

CASE STUDIES

- 84 Effects of Using Accurate Climatic Conditions for Mechanistic-Empirical Pavement Design / **Tamer M. Breakah, R. Christopher Williams, Daryl E. Herzmann, Eugene S. Takle**

TECHNICAL PAPERS

PAVEMENT ENGINEERING

- 91 Predicting Pavement Marking Retroreflectivity Using Artificial Neural Networks: Exploratory Analysis / **Vishesh Karwa, Eric T. Donnell**
- 104 Dielectric Modeling of Asphalt Mixtures and Relationship with Density / **Chieh-Min Chang, Jian-Shiuh Chen, Tz-Bin Wu**

TRANSPORTATION SYSTEMS

- 112 Sequential Modeling Framework for Optimal Sensor Placement for Multiple Intelligent Transportation System Applications / **Xuegang (Jeff) Ban, Lianyu Chu, Ryan Herring, J. D. Margulici**
- 121 Analysis and Modeling of Crossing Behavior at Urban Intersections in China / **Yongjian Xiao, Qiwu Ran, Jianguo Yang, Zhaoan Wang**
- 128 Optimal Performance Threshold Determination for Highway Asset Interventions: Analytical Framework and Application / **Muhhamad Bilal Khurshid, Muhammad Irfan, Samuel Labi**

RAIL TRANSPORTATION

- 140 Development of a Maglev Vehicle/Guideway System Interaction Model and Comparison of the Guideway Structural Analysis with Railway Bridge Structures / **Hamid Yaghoubi, Hasan Ziari**

TECHNICAL PAPERS

TRANSPORTATION SYSTEMS

- 155 Methodology to Identify Optimal Placement of Point Detectors for Travel Time Estimation / **Proveen Edara, Brian Smith, Jionhua Guo, Simona Babiceanu, Catherine McChee**
- 174 Evaluation of Usability of IntelliDrive Probe Vehicle Data for Transportation Systems Performance Analysis / **Francois Dion, Ralph Robinson, Jun-Seok Oh**
- 184 Setting Speed Limits on Rural Two-Lane Highways by Modeling the Relationship between Expert Judgment and Measurable Roadside Characteristics / **Concalo Homem de Almeida Correia, Ana Bastos Silva**

RAIL TRANSPORTATION

- 193 Uncertainty in Rail-Track Geometry Degradation: Lisbon-Oporto Line Case Study / **A. Ramos Andrade, P. Fonseca Jeixeira**
- 201 Development of Maglev Guideway Loading Model / **Hamid Yaghoubi, M. A. Rezvani**

PAVEMENT ENGINEERING

- 214 Specification of Obstacles in the Longitudinal Road Profile by Median Filtering / **Oldfich Kropac, Peter Mucka**

TECHNICAL PAPERS

RAIL TRANSPORTATION

- 227 Analysis of Dynamic Behavior for Slab Track of High-Speed Railway Based on Vehicle and Track Elements / **Xiaoyan Lei, Bin Zhang**
- 241 Greener and Leaner-Unleashing Capacity of Railroad Concrete Ties via Limit States Concept / **Sakdirat Kaewunruen, Alex M. Remennikov, Martin H. Murray**

TRANSPORTATION SYSTEMS

- 248 Cable Barriers and Traffic Safety on Rural Interstates / **Natalie M. Villwock, Nicolas Blond, Andrew P. Tarko**
- 260 Impact of Driver Compliance on the Safety and Operational Impacts of Freeway Variable Speed Limit Systems / **Bruce Hellinga, Michael Mandelzys**
- 269 Gap Acceptance at Priority-Controlled Intersections / **Rui-jun Guo, Bo-liang Lin**
- 277 Evaluation of Driver Behavior in Type II Dilemma Zones at High-Speed Signalized Intersections / **David S. Hurwitz, Michael A. Knodler Jr., Bruce Nyquist**

PAVEMENT ENGINEERING

- 287 Innovative Algorithm to Solve Axisymmetric Displacement and Stress Fields in Multilayered Pavement Systems / **Dong Wang, Jeffery R. Roesler, Da-Zhi Guo**

TECHNICAL PAPERS

PAVEMENT ENGINEERING

- 297 Mechanistic-Empirical IRI Model Accounting for Potential Bias / **Jose P. Aguiar-Moya, Jorge A. Prozzi, Andre de Fortier Smit**
- 305 Vehicle Dynamic Safety in Measured Rough Pavement / **Roberto Spinola Barbosa**
- 311 Centerline Rumble Strips: Study of External Noise / **Daniel E. Karkle, Margaret J. Rys, Eugene R. Russell**

HAIL TRANSPORTATION

- 319 Analysis and Evaluation of Double-Ended Flat-Shunted Yard Performance Employing Two Yard Crews / **Marin Marinov, Jose Viegas**
- 327 CTCS-2I: New Train Control System Suitable for Trains with Speeds up to 350 km/h / **Jun-Feng Wang**

TRANSPORTATION SYSTEMS

- 333 Safety Impacts of Design Element Trade-Offs for Multilane Rural Highways / **Nikiforos Stamatiadis, Dominique Lord, Jerry Pigman, John Sacksteder, Wendel Ruff**
- 341 Behavioral Model to Understand Household-Level Hurricane Evacuation Decision Making / **Samiul Hasan, Satish Ukkusuri, Hugh Gladwin, Pamela Murray-Tuite**
- 349 Road Barrier Repair Costs and Influencing Factors / **Hawzheen Karim, Moudud Alam, Rolf Magnusson**

CASE STUDIES

- 360 Empirical Analysis of Commuters' Nonwork Stop-Making Behavior in Beijing, China / **Jian-Chuan Xian-Yu, Zhi-Cai Juan, Lin-Jie Gao, An-Ning Ni, Wei Zhang, Bin Wu**

**Transportation, the Environment, and Sustainability / Adjo A. Amekudzi,
Chris Hendrickson**

INTRODUCTION

- 371 Special Issue on Transportation, the Environment, and Sustainability /
Adjo Amekudzi, Chris Hendrickson

TECHNICAL PAPERS

- 372 Climate Change and Sustainable Transportation: The Case of California /
Elizabeth Deakin
- 383 How Does Transport Policy Cope with Climate Challenges? Experiences
from the UK and Other European Countries / **Henrik Gudmundsson,
Mary Lawler, Maria Figueroa, Miles Tight**
- 393 Climate Change and Transportation Engineering: Preparing for a
Sustainable Future / **Michael D. Meyer, Brent Weigel**
- 404 Sustainability Enhancement Tool for State Departments of Transportation
Using Performance Measurement / **Tarn L. Ramani, Josias Zietsman,
William E. Knowles, Luca Quadrifoglio**
- 416 Spatial Allocation of Transportation Greenhouse Gas Emissions at the City
Scale / **Tim Hillman, Bruce Janson, Anu Ramaswami**
- 426 Set of Comparable Carbon Footprints for Highway Travel in Metropolitan
America / **Frank Southworth, Anthon Sonnenberg**

AWARDS

437 Best Paper Awards / **Chris Hendrickson**

TECHNICAL PAPERS

- 438 Mode of Flashing for Malfunctioning Traffic Signals / **Michael Hunter, Peter Jen/or, Justin Bansen, Michael Rodgers**
- 445 Modeling Arterial Signal Optimization with Enhanced Cell Transmission Formulations / **Zichuan Li**
- 455 Event-Based Modeling of Driver Yielding Behavior at Unsignalized Crosswalks / **Bastion J. Schroeder, Nagui M. Rouphail**
- 466 Evaluation of In Situ Pavement Material Properties and Behavior through Field Instrumentation and Load Testing / **Dimitrios G. Goulias, Haejin Kim, Charles W. Schwartz**
- 474 Identification of Risk Factors Associated with Motorcycle-Related Fatalities in Ohio / **Deogratias Eustace, Vamsi Krishna Indupuru, Peter Hovey**
- 481 Comparing Safety Performance Measures Obtained from Video Capture Data / **Giuseppe Guido, Frank Saccomanno, Alessandro Vitale, Vittorio Astarita, Demetrio Festa**
- 492 Motorcycle Characteristics for Sight Distance Investigation on Exclusive Motorcycle Lanes / **Sayed Rasoul Davoodi, Hussain Hamid, Sulistyo Arintono, Ratnasamy Muniandy**

CASE STUDIES

- 496 Empirical Method for Predicting Internal-External Truck Trips at a Major Port / **Hsing-Chung Chu**

TECHNICAL PAPERS

TRANSPORTATION SYSTEMS

- 509 Evaluation of Arterial and Freeway Interaction for Determining the Feasibility of Traffic Diversion / **Yao-Jan Wu, Mark E. Hallenbeck, Yinhai Wang, Karl Edison Watkins**
- 520 Determining Peak Hour Factors for Capacity Analysis / **Chang-Jen Lan, Sonny D. Abia**
- 527 Assessing Casualty Risk of Railroad-Grade Crossing Crashes Using Zero-Inflated Poisson Models / **Shou-Ren Hu, Chin-Shang Li, Chi-Kang Lee**
- 537 Sampling and Analysis Methods for Estimation of Average Vehicle Occupancies / **Rax Jung, Albert Gan**
- 547 Simulation of Exclusive Truck Facilities on Urban Freeways / **Hossam Abdelgawad, Baher Abdulhai, Glareh Amirjamshidi, Mohamed Wahba, Clarence Woudsma, Matthew J. Roorda**

PAVEMENT SYSTEMS

- 563 Effects of Temperature and Moisture Gradients on Slab Deformation for Jointed Plain Concrete Pavements Ranla / **E. Asbahan, Julie M. Vandenbossche**
- 571 Precision Test of Cracking Surveys with the Automated Distress Analyzer / **Kelvin C. P. Wang, Zhiqiong Hou, Stacy Williams**

PUBLIC TRANSPORTATION

- 580 Multiobjective Optimization Model for Prioritizing Transit Stops for ADA Improvements / **Wanyang Wu, Albert Gan, Fabian Cevallos, Mohammed Had**
- 589 Analytical Method for Estimating the Impact of Transit Signal Priority on Vehicle Delay Zeeslion / **R. Abdy, Bruce R. Hellinga**

TECHNICAL PAPERS

TRANSPORTATION SYSTEMS

- 601 Conditional Quantile Analysis for Crash Count Data / **Xiao Qin, Perla E. Reyes**
- 608 Data Analysis of Diversion and Dynamic Message Signs / **Jeremy L. Schroeder, Michael J. Demetsky**
- 615 Dealing with Error Recovery in Traffic Flow Prediction Using Bayesian Networks Based on License Plate Scanning Data / **S. Sanchez-Cambronero, E. Castillo, J. M. Menendez, P. Jimenez**

PAVEMENT ENGINEERING

- 630 Impact Quantification of Wide-Base Tire Loading on Secondary Road Flexible Pavements / **Hao Wang, Imad L. Al-Qadi**
- 640 Evaluation of Temperature Influence on Friction Measurements / **Alessandra Bianchini, Michael Heitzman, and Saeed Maghsoodloo**
- 648 Pavement Condition Assessment Using Fuzzy Logic Theory and Analytic Hierarchy Process / **Lu Sun, Wenjun Gu**

RAILROAD ENGINEERING

- 656 Substructure Nonlinear Effects on Sleeper Design Pressure in Heavy Haul Railway Tracks / **Morteza Esmaeili, Payman Yousefi Mojir**
- 665 Optimal Train Operation for Minimum Energy Consumption Considering Track Alignment, Speed Limit, and Schedule Adherence / **Kitae Kim, Steven I-Jy Chien**

EDITOR'S NOTE

- 675 Conference Papers and Prior Publication / **Chris Hendrickson, Sue McNeil, Gang-hen Chang, Anil Agrawal**

TECHNICAL PAPERS

TRANSPORTATION SYSTEMS

- 676 Fundamental Insight into Signal Plan Transition Methods / **Jisun Lee, Billy M. Williams**
- 687 Design Implications of Walking Speed for Pedestrian Facilities / **Rajat Rastogi, Ilango Thaniarasu, Satish Chandra**
- 697 Analysis of Freeway Travel Time Variability Using Bluetooth Detection / **Maria Martchouk, Fred Mannering, Darcy Bullock**

PAVEMENT ENGINEERING

- 705 Linear Mixed-Effects Models for Paint Pavement-Marking Retroreflectivity Data / **Joseph E. Hummer, William Rasdorf, Guanghua Zhang**
- 111 Comparative Study on Temperature Stresses in Asphalt Material Using Nonlinear Viscoelastic Approach / **Pabitra Rajbongshi**
- 723 Temperature Gradient and Curling Stresses in Concrete Pavement with and without Open-Graded Friction Course / **Mark Belshe, Michael S. Mamlouk, Kamil E. Kaloush, Maria Rodezno**

RAILWAY ENGINEERING

- 730 Category of Derailment Mechanism and Prevention for High-Speed Vehicle / **Wei Wang, Guixian Li**
- 738 Comprehensive Decision Support Framework for Strategic Railway Capacity Planning / **Yung-Cheng Lai, Christopher P. L. Barkan**

TECHNICAL PAPERS

TRANSPORTATION SYSTEMS

- 751 Secondary Coordination at Closely Spaced Actuated Traffic Signals / **Xiaoli Sun, Lee D. Han, Tom Urbanik**
- 760 Procedure for Evaluating the Impacts of Indirect Driveway Left-Turn Treatments on Traffic Operations at Signalized Intersections / **Tangyi Guo, Pan Liu, Jian John Lu, Linjun Lu, Bing Cao**
- 767 Integrating Left-Turn Lane Geometric Design with Signal Timing / **Jidong Yang, Huaguo Zhou**
- 775 Vehicle-Type Dependent Car-Following Model for Heterogeneous Traffic Conditions / **K. V. R. Ravishankar, Tom V. Mathew**
- 782 Evaluation of Adding Distance Information to Freeway-Specific Service (Logo) Signs / **Benjamin H. Cottrell Jr., Praveen Edara**
- 789 Formulation, Structure, and Analysis of a Model to Optimize Staffing Levels at Border Checkpoints / **Matt Wander, J. Jeffrey Peirce**

PAVEMENT ENGINEERING

- 796 Efficient Simulation Techniques for Reliability Analysis of Flexible Pavements Using the Mechanistic-Empirical Pavement Design Guide / **Senthilmurugan Thyagarajan, Balasingam Muhunthan, Nadarajah Sivaneshwaran, Katherine Petros**
- 805 Thermomechanical Characterization of Shape Memory Polymer-Based Self-Healing Syntactic Foam Sealant for Expansion Joints / **Guoqiang Li, Tao Xu**

RAILROAD ENGINEERING

- 815 Optimization of a Prestressed Concrete Railroad Crosstie for Heavy-Haul Applications / **Devin K. Harris, Russell H. Lutch, Theresa M. Ahlborn, Pelle Duong**
- 823 Design of Track Alignment Using Building Information Modeling / **Shih-Fang Huang, Chun-Sung Chen, Ren-Jye Dzeng**

CASE STUDIES

- 831 Case Study of Motorcycle Use and Policy Analysis in Huizhou, China / **Liang Ye, Quan Wang**

TECHNICAL NOTES

- 837 Operating Speed and Speed Differential for Highway Design Consistency / **Maria Castro, Jose F. Sanchez, Jose A. Sanchez, Luis Iglesias**

FORUM

- 841 Highway Geometric Design from the Perspective of Recent Safety Developments / **George Kanellaidis, Sophia Vardaki**

TECHNICAL PAPERS

PAVEMENT ENGINEERING

- 845 Comprehensive Evaluation of Virginia Department of Transportation's Experience with its First Performance-Based Road-Maintenance Contract / **Mehmet Egemen Ozbek, Jesus M. de la Garza**
- 855 Development of Truck Loading Groups for the Mechanistic-Empirical Pavement Design Guide / **Kelvin C. P. Wang, Qiang Li, Kevin D. Hall, Vu Nguyen, Danny X. Xiao**
- 863 Development of a Model for Asphalt Pavement Skid Resistance Based on Aggregate Characteristics and Gradation / **Arash Rezaei, Eyad Masad, and Arif Chowdhury**
- 874 Kerosene-Resistant Asphalt Binders Based on Nonconventional Modification / **Filippo Merusi, Felice Giuliani, Sara Filippi, Pietro Moggi, Giovanni Polacco**
- 882 Modeling the Behavior of Steel-Fiber Reinforced Concrete Ground Slabs. I: Development of Material Model / **W. A. Elsaigh, J. M. Robberts, E. P. Kearsley**
- 889 Modeling the Behavior of Steel-Fiber Reinforced Concrete Ground Slabs. II: Development of Slab Model / **W. A. Elsaigh, E. P. Kearsley, J. M. Robberts**
- 897 Evaluation of Laboratory, Construction, and Performance Variability by Bootstrapping and Monte Carlo Methods for Rutting Performance Prediction of Heavy Vehicle Simulator Test Sections / **Erdem Coleri, John T. Harvey**
- 907 Structural Response of Pervious Concrete Pavement Systems Using Falling Weight Deflectometer Testing and Analysis / **Muhannad T. Suleiman, Kasthurirangan Gopalakrishnan, John T. Kevern**

TRANSPORTATION SYSTEMS

- 918 Evaluating the Cost-Effectiveness of Roadside Culvert Treatments / **Francisco Daniel B. de Albuquerque, Dean L. Sicking, Ronald K. Faller, Karla A. Lechtenberg**
- 926 Noise Charges in Road Traffic: Pricing Schedule Based on the Marginal Cost Principle / **Henrik Andersson, Mikael Ogren**
- 934 Optimal Measurement Interval for Pedestrian Traffic Flow Modeling / **Ye Jianhong, Chen Xiaohong**
- 944 Locating Urban Transit Hubs: Multicriteria Model and Case Study in China / **Jie Yu, Yue Liu, Gang-Len Chang, Wanjing Ma, Xiaoguang Yang**
- 953 Public Transport Line Assignment Model to Dual-Berth Bus Stops / **Borja Alonso, Jose Luis Moura, Angel Ibeas, and Francisco Jose Ruisdnchez**
- 962 Optimization Models for the Location of Motorway Interchanges: Concessionaires' Perspective / **Hugo M. Repolho, Antonio P. Antunes, Richard L. Church**
- 971 Vertical Track Stiffness as a New Parameter Involved in Designing High-Speed Railway Infrastructure / **J. Gallego, J. Muhoz, A. Rivas, S. Sanchez-Cambronero**

CASE STUDIES

980 Modeling the Relationship between Geometric Design and Weaving Section
Flow Process of Conventional Roundabouts / **J. Md Diah, M. Y. Abdul
Rahman, M. A. Adnan, K. Hooi Ling**

987 **REVIEWERS**

Oprac. BPK