Transportation Research Record: Journal of the Transportation Research Board

Volume 2673, Issue 8

ISBN: 978-1-5108-9522-5

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.

Published by Sage Publications USA

Copyright© (2019) by Transportation Research Board of the National Academies
All rights reserved.

ISBN (Print) 978-1-5108-9522-5

Printed with permission by Curran Associates, Inc. (2019)

For permission requests, please contact sagepub.com/journals-permissions

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Volume 2673 Number 8 August 2019

TRR
JOURNAL OF THE TRANSPORTATION RESEARCH BOARD

Contents

Research Articles

Revised Method for Rapid Determination of On-SiteWater–Cement Ratio using Microwave Oven 1
Seyednavid Mardmomen, Hung-Liang (Roger) Chen, and Guadalupe Leon

Coupling Natural Hazard Estimates with Road Network Analysis to Assess Vulnerability and Risk: Case Study of Freetown (Sierra Leone) 11
Andrew Nelson, Sarah Lindbergh, Lucy Stephenson, Jeremy Halpern, Fatima Arroyo Arroyo, Xavier Espinet, and Marta C. González

Glare Screen Use in Road Design: A Synthesis of the Practice 25
Daniel T. Johnson and David R. McDonald, Jr.

Exploring Service Usage and Activity Space Evolution in a Free-Floating Carsharing Service 36
Grzegorz Wielinski, Martin Trépanier, and Catherine Morency

Allowing for Heterogeneity in the Consideration of Airport Access Modes: The Case of Bari Airport 50
Angela S. Bergantino, Mauro Capurso, Thijs Dekker, and Stephane Hess

A Framework to Operationalize a Deep and Vast Literature for Practice: Translating Land Value Uplift Literature to Estimate Economic Impacts of Multimodal Transportation System Projects 62
Kristina M. Currans, Arthur C. Nelson, and Sam Chambers

Clustering Approach toward Large Truck Crash Analysis 73
Alireza Rahimi, Ghazaleh Azimi, Hamidreza Asgari, and Xia Jin

Evaluation of Thermal Integrity Profiling and Crosshole Sonic Logging for Drilled Shafts with Concrete Defects 86
Andrew Z. Boeckmann and J. Erik Loehr

Rediscovery of the Great Architect's Bridge: Mimar Sinan Bridge, Istanbul, Turkey 99
Niyazi Özgür Bezgin

Analysis of the Risk Factors Affecting the Size of Fatal Accidents Involving Trucks Based on the Structural Equation Model 112
Yalong Yuan, Min Yang, Zuoxian Gan, Jingxian Wu, Chengcheng Xu, and Da Lei

Applications of Measurement Error Correction Approaches in Statistical Road Safety Modeling 125
Anusha Musunuru and Richard J. Porter

Clean Bus Technologies and the Cost-Effectiveness of Emissions Reductions in Latin America 136
Fiamma Pérez-Prada, Bianca Bianchi Alves, Kavita Sethi, Diego Puga Barrés, and Yin Qiu

Practical Method to Simulate Multiple Discrete-Continuous Generalized Extreme Value Model: Application to Examine Substitution Patterns of Household Transportation Expenditures 145
Jie Ma, Xin Ye, and Abdul Rawoof Pinjari

The Quest for Creative Industries: A Multilevel National Study of the Impacts of Urban Form on the Geography of Creative Industries 157
Tahereh Granpayehvaghei, Ahmad Bonakdar, Ahoura Zandiatashbar, and Shima Hamidi

Comparing Machine Learning and Deep Learning Methods for Real-Time Crash Prediction 169
Athanasios Theofilatos, Cong Chen, and Constantinos Antoniou

Current State of Practice in Transit Ridership Prediction: Results from a Survey of Canadian Transit Agencies 179
Ehab Diab, Dena Kasraian, Eric J. Miller, and Amer Shalaby

Examining Relationship between Driver Characteristics and Critical Target Identification Failures 192
Yi-Mo Ho, Jia-Hua Lin, and Karen B. Chen

Impact of Fare Policy Changes on Paratransit Travel Options: METROLift Case Study 198
Shuman Tan, Eun Sug Park, and Jinuk Hwang

Incorporating Product Choice into Transit Fare Policy Scenario Models 209
Andrew Stuntz, John Attanucci, and Frederick P. Salvucci

Snow Detection using In-Vehicle Video Camera with Texture-Based Image Features Utilizing K-Nearest Neighbor, Support Vector Machine, and Random Forest 221
Md Nasim Khan and Mohamed M. Ahmed

Video-Based Driver's Hand Tracking using Fast Normalized Cross Coefficient with Improved Computational Efficiency 233
Li Li, Clayton M. Hutmacher, Jr., and Xu Xu

YouTube as a Source of Information in Understanding Autonomous Vehicle Consumers: Natural Language Processing Study 242
Subasish Das, Anandi Dutta, Tomas Lindheimer, Mohammad Jalayer, and Zachary Elgart

Elderly Pedestrian Fatal Crash-Related Contributing Factors: Applying Empirical Bayes Geometric Mean Method 254
Subasish Das, Apoorba Bibeka, Xiaoduan Sun, Hongmin "Tracy" Zhou, and Mohammad Jalayer

Electric Transit Route Network Design Problem: Model and Application 264
Christina Iliopoulou, Ioannis Tassopoulos, Konstantinos Kepaptsoglou, and Grigorios Beligiannis

Turning Maneuver Effect on Near-Surface Airfield Pavement Responses 275
Angeli Gamez and Imad L. Al-Qadi

Full-Scale Performance Evaluations of Innovative and Manufactured Sediment Barrier Practices 284
J. Blake Whitman, Wesley C. Zech, and Wesley N. Donald

Characterizing Lane Changes via Digitized Infrastructure and Low-Cost GPS 298
Ishtiak Ahmed, Alan Karr, Nagui M. Rouphail, Gyounghoon Chun, and Shams Tanvir

Evaluation of the Long-Term Performance of Woven Geotextile Used between Base Course and Subgrade of a Paved Road 310
Saad Ullah, Burak F. Tanyu, Erol F. Guler, Edward J. Hoppe, and Emre Akmaz

Intersection Operation with Non-Traditional Dynamic Lane Scheme through Vehicle-to-Signal Connection 322
Sida Luo, Yu (Marco) Nie, and Lin Zhu

Prioritizing Highway Development Projects Based on Market Access in Appalachia 333
Elham Shayanfar, Paul M. Schonfeld, and J. Jason Wang

Testing the Effectiveness of Objective and Subjective Predictors of Driving Behavior under Fatigue 343
Giannis Adamos and Eftihia Nathanail

Truck CACC Implementation and Test to Verify Control Performance 353
Xiao-Yun Lu, Steven Shladover, and Stefan Bergquist

Capacity Modeling of Weaving Areas on Urban Expressways with Exclusive Bus Lanes Based on Gap Acceptance Theory 365
Xumei Chen, Xiaomi Han, Xianchao Jia, Lei Yu, and Tao Wan

Comparison of Overnight Truck Parking Counts with GPS-Derived Counts for Truck Parking Facility Utilization Analysis 377
Karla Diaz Corro, Taslima Akter, and Sarah Hernandez

Comparison of Stochastic Estimates of Capacity and Critical Density for U.S. and German Freeways 388
Justin Geistefeldt and Siavash Shojaat

Evaluation of Driver Comprehension and Visual Attention of the Flashing Yellow Arrow Display for Permissive Right Turns 397
Hisham Jashami, David S. Hurwitz, Christopher Monsere, and Sirisha Kothuri

Impact of State of Charge and Cell Arrangement on Thermal Runaway Propagation in Lithium Ion Battery Cell Arrays 408
Christopher Lee, Ahmed O. Said, and Stanislav I. Stoliarov

Incorporating Attitudinal Factors to Examine Adoption of and Willingness to Pay for Autonomous Vehicles 418
Hamidreza Asgari and Xia Jin

Lessons and Evaluation of a Headway Control Experiment in Washington, D.C. 430
Jaime Soza-Parra, Oded Cats, Yvonne Carney, and Catherine Vanderwaart

Single-Lane Roundabout Manager under Fully Automated Vehicle Environment 439
Marilo Martin-Gasulla and Lily Elefteriadou

Delays of Shared-Short Lanes at Unsignalized Intersections 450
Ning Wu and Werner Brilon

Driving Simulator Study: Eco-Driving Training System Based on Individual Characteristics 463
Ying Yao, Xiaohua Zhao, Jianming Ma, Chang Liu, and Jian Rong

Laboratory Investigation of Foam Grout Performance under Freeze and Thaw Conditioning 477
Vinicius Afonso Velasco Rios and Leila Hashemian

Capacity Analysis and Cooperative Lane Changing for Connected and Automated Vehicles: Entropy-Based Assessment Method 485
Yunpeng Shi, Qing He, and Zhitong Huang

Developing an Aerial-Image-Based Approach for Creating Digital Sidewalk Inventories 499
Ji Luo, Guoyuan Wu, Zhensong Wei, Kanok Boriboonsomsin, and Matthew Barth

Influence of Travel Behavior, Personal Preferences, and Lifestyle on Perceived Convenience to Amenities among Calgary Residents 508
Mark Onderwater, Geneviève Boisjoly, and Ahmed El-Geneidy

Lane-by-Lane Analysis Framework for Conducting Highway Capacity Analyses at Freeway Segments 523
Fabio Sasahara, Lily Elefteriadou, and Shen Dong

Propagation Index on Airport Delays 536
Mingyuan Zhang, Xuting Zhou, Yu Zhang, Lijun Sun, Ming Dun, Wenbo Du, and Xianbin Cao

Regionalizing the Quality Assurance Processes in New England Area for Pre-Stressed and Precast Concrete Elements used in Highway Construction 544
Rasool Nemati, Eshan V. Dave, Jo E. Sias, and Alan D. Perkins

Ensemble Model to Estimate Incident Clearance Durations using Sequential Partitioning Process and Robust Regression 554
Minsu Won and Gang-Len Chang

Modeling Wrong-Way Driving Entries at Limited Access Facility Exit Ramps in Florida 567
Md Imrul Kayes, Adrian Sandt, Haitham Al-Deek, Nizam Uddin, John H. Rogers, Jr., and Grady Carrick

Accelerating Bus Electrification: A Mixed Methods Analysis of Barriers and Drivers to Scaling Transit Fleet Electrification 577
Kelly Blynn and John Attanucci

Benefits and Risks of Truck Platooning on Freeway Operations Near Entrance Ramp 588
Meng Wang, Sander van Maarseveen, Riender Happee, Onno Tool, and Bart van Arem

Evaluation and Validation of Fatigue Testing Methods for Rubberized Bituminous Specimens 603
Huayang Yu, Zihan Zhu, and Duanyi Wang

Reliability Analysis for Roadway Curves with Horizontal Sightline Obstructions 611
Daniel J. Cook, Douglas W. Harwood, Ingrid B. Potts, Eric T. Donnell, and Bachir Hamadeh

Travel Time Differences between Cargo Cycles and Cars in Commercial Transport Operations 623
Johannes Gruber and Santhanakrishnan Narayanan

Analyzing Simulation-Based Active Traffic Management Impact on a Large-Scale Regional Network 638
Minha Lee, Chenfeng Xiong, Zheng Zhu, Weiyi Zhou, and Lei Zhang

Design and Development of In-Vehicle Lane Departure Warning System using Standard Global Positioning System Receiver 648
Muhammad Faizan, Shah Hussain, and M. I. Hayee

Disaggregate Short-Term Location Prediction Based on Recurrent Neural Network and an Agent-Based Platform 657
Yanjie Dong, John Polak, Aruna Sivakumar, and Fangce Guo

Impact of Neighborhood Built Environments on Shopping Travel Modes in Shanghai, China 669
Hao Wu, Yong Chen, and Junfeng Jiao