

Transportation Research Record: Journal of the Transportation Research Board

Volume 2676, Issue 11

November 2022

ISBN: 978-1-7138-6246-8

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© (2022) by Transportation Research Board of the National Academies
All rights reserved.

ISBN (Print) 978-1-7138-6246-8

Printed with permission by Curran Associates, Inc. (2023)

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

Contents

Research Articles

Determining Yellow Change and Clearance Intervals for Left-Turning Phases: Evaluation of the Current Guidelines with Connected Vehicle Data <i>Zachary Jerome, Xingmin Wang, Shengyin Shen, and Henry X. Liu</i>	1
Injury Severity Analysis for Large Truck-Involved Crashes: Accounting for Heterogeneity <i>Ghazaleh Azimi, Alireza Rahimi, Hamidreza Asgari, and Xia Jin</i>	15
Investigating the Effects of Pedestrian-to-Vehicle Human–Machine Interface Design Using Driving Simulator Experiment <i>Mohamed Abdel-Aty, Lishengsa Yue, Yina Wu, and Ou Zheng</i>	30
Performance Evaluation and Prediction of Preservation Asphalt Overlay in Louisiana <i>Zhaoxing Xie, Zhong Wu, Farzana Moon, Moinul Mahdi, and Yilong Liu</i>	44
Representation of Work-Related Trip Patterns in Household and Commercial Travel Surveys <i>Anna Reiffer, Lukas Barthelmes, Martin Kagerbauer, and Peter Vortisch</i>	59
Twenty-Five Years of Rubber Tire Wheel Tracking of Asphalt Pavements in a Laboratory <i>Ben C. Cox, Ashley S. Carey, Jessica V. Lewis, and Isaac L. Howard</i>	74
Real-Time Distributed Cooperative Adaptive Cruise Control Model Considering Time Delays and Actuator Lag <i>Yingtong Tan and Kuilin Zhang</i>	93
Convolutional Neural Network with Attention Module for Identification of Tunnel Seepage <i>Qian Chen, Chuanguo Xiong, Weishan Lv, Ben Shen, Baoshan Zeng, Jinming Li, Chenzefang Feng, Zhou Hu, and Fulong Zhu</i>	112
Developing an Optimal Peer-to-Peer Ride-Matching Problem Algorithm with Ride Transfers <i>Amirreza Nickkar, Young-Jae Lee, and Mana Meskar</i>	124
Exploring Bicyclists' Visual Attention during Conflicts with Truck Traffic <i>Masoud Ghodrat Abadi, Patrick Maloney, and David Hurwitz</i>	137
Mitigating Pumping in Pavement Shoulder Using Wicking Geotextile: An Experimental Study <i>Javad Galinmoghadam, Jenny Liu, Xiong Zhang, Chuang Lin, and Yipeng Guo</i>	145
Dynamic Routing Algorithm for Hazmat Transportation Problems <i>Ta-Yin Hu, Yu-Cheng Hsu, and Tsai-Yun Liao</i>	160
Application of Geographic Information Systems in Impact Evaluation and Geospatial Portfolio Analysis of Transport Projects <i>Toshiyuki Yokota and Homer Pagkalinawan</i>	171
Are New Pavement Condition Indices Necessary for Long-Poor Pavements? <i>Thomas Calhoon, Mihai Marasteanu, and Shannon McGrath</i>	186

Data-Driven Computation of State-Dependent Passenger Car Equivalency for Multiple Truck Lengths <i>Eren Yuksel, Robert L. Bertini, Xiaopeng (Shaw) Li, Brian Staes, and Seckin Ozkul</i>	194
Long-Term Performance of Flexible Pavements Constructed on Recycled Base Layers <i>Hani Titi, Issam I. A. Qamhia, Jessie Ramirez, and Habib Tabatabai</i>	206
Micromobility Trip Origin and Destination Inference Using General Bikeshare Feed Specification Data <i>Yiming Xu, Xiang Yan, Virginia P. Sisiopiku, Louis A. Merlin, Fangzhou Xing, and Xilei Zhao</i>	223
Benefit–Cost-Based Method to Determine When Safety Performance Functions Should be Redeveloped for Use in Intersection Network Screening <i>Mohammad Zarei, Bruce Hellinga, and Pedram Izadpanah</i>	239
Roadmap for Child-Pedestrian Training Program Informed by Contextual Crash Data <i>Anika Jannat Rimu, Shuchisnidha Deb, Mouyid Islam, Roya Etmnani-Ghasrodashti, and Anurag Pande</i>	250
Automated Vehicles: Use, Share, Own? Young Adults' Perceptions of Automated Vehicles <i>Hannah Bagli, Elizabeth Shay, and Tabitha Combs</i>	262
Design, Implementation, and Evaluation of a Roadside Cooperative Perception System <i>Rusheng Zhang, Zhengxia Zou, Shengyin Shen, and Henry X. Liu</i>	273
Developing Capacity Estimation Metrics for Airports Accommodating Smaller Aircraft Using Locally Collected Automated Dependent Surveillance-Broadcast Data <i>Danae Zoe Mitkas, David J. Lovell, Seth B. Young, and Sandeep Venkatesh</i>	285
Investigating the Influence of Joint Reinforcements of Portland Cement Concrete Slabs Under Asphalt Concrete Overlays on Vertical Deflections Using Accelerated Pavement Testing <i>Mehmet Tevfik Seferođlu, Ayşegül Güneş Seferođlu, Muhammet Çelik, and Muhammet Vefa Akpınar</i>	296
Multi-Vehicle Interactive Lane-Changing Velocity Change Model Based on Potential Energy Field <i>Yanli Ma, Biqing Yin, Ke Chen, Peng Zhang, and Ching-yao Chan</i>	306
Performance Dashboard Tool to Visualize Adaptive Resilience Maturity of Transportation Agencies <i>Perna Singh, Adjo Amekudzi-Kennedy, and Habte Kassa</i>	324
Statewide Assessment of Balanced Mixture Design for New York State's Asphalt Mixtures <i>Thomas Bennert, Edwin Haas, Edward Wass, Jr., Drew Tulanowski, and Zoeb Zavery</i>	340
Maturity in Automated Driving on Public Roads: A Review of the Six-Year Autonomous Vehicle Tester Program <i>Xiaoyu Guo and Yunlong Zhang</i>	352
Procurement Benchmarks for Major Transportation Projects <i>Kunqi Zhang, Abdolmajid Erfani, Ousama Beydoun, and Qingbin Cui</i>	363
Work Zone Crash Occurrence Prediction Based on Planning Stage Work Zone Configurations Using an Artificial Neural Network <i>Yang Cheng, Keshu Wu, Hanchu Li, Steven Parker, Bin Ran, and David Noyce</i>	377
Decentralised Multi-Agent Reinforcement Learning Approach for the Same-Day Delivery Problem <i>Elvin Ngu, Leandro Parada, Jose Javier Escribano Macias, and Panagiotis Angeloudis</i>	385
Application of Emerging Data Sources for Pedestrian Safety Analysis in Charlotte, NC <i>Ian Hamilton, Kristin Kersavage, R.J. Porter, Vikash Gayah, Josie Sanchez, Keith Smith, Carol Tan, and Ana Maria Eigen</i>	396
Effects of Aggregate/Filler Characteristics on Semi-Circular Bend Fracture Parameters of Asphalt Concrete Mixtures Subject to Moisture Damage <i>Rodolpho Medeiros Frossard, Jamilla Emi Sudo Lutf Teixeira, and Yong-Rak Kim</i>	408

Rolling Stock Allocation and Timetabling for Urban Rail Transit Network with Multiple Depots <i>Fan Pu, Jiateng Yin, Yihui Wang, Shuai Su, Lixing Yang, and Tao Tang</i>	422
Evaluating the Effects of Disruptions on the Behavior of Travelers in a Multimodal Network Utilizing Agent-Based Simulation <i>Mahsa Rahimi Siegrist, Beda Büchel, and Francesco Corman</i>	436
Macro Analysis to Estimate Electric Vehicles Fast-Charging Infrastructure Requirements in Small Urban Areas <i>Harprinderjot Singh, Mohammadreza Kaviani-pour, Amirali Soltanpour, Fatemeh Fakhrmoosavi, Mehrnaz Ghamami, Ali Zockaie, and Robert Jackson</i>	446
Modeling Users' Adoption of Shared Autonomous Vehicles Employing Actual Ridership Experiences <i>Roya Etmnani-Ghasrodashti, Ronik Ketankumar Patel, Sharareh Kermanshachi, Jay Michael Rosenberger, and Ann Foss</i>	462
Optimal Design of Pouring Semi-Flexible Pavement via Laboratory Test, Numerical Research, and Field Validation <i>Senlin Ling, Zhongbo Chen, Daquan Sun, Hangtian Ni, Yue Deng, and Yu Sun</i>	479
Using Large-Scale Drone Data to Monitor and Assess the Behavior of Freight Vehicles on Urban Level <i>Allister Loder, Thomas Otte, and Klaus Bogenberger</i>	496
Behavior Decision Model With Situation Assessment for Intelligent Vehicles Based on Vehicle-to-Everything Information <i>Runde Zhang, Shaowu Zheng, and Weihua Li</i>	508
Exploring Agent-Based Modelling for Car-Based Volunteer Driver Program Planning <i>Romaine Morrison and Trevor Hanson</i>	520
Implementation of Finite Element and Fracture Mechanics Based Reflection Cracking Models for Asphalt Concrete Overlay of Existing Asphalt Concrete Pavement in AASHTOWare Pavement ME Design <i>Leslie Titus-Glover, Biplab B. Bhattacharya, and Deepak Raghunathan</i>	533
Pavement Recycling in Cold Climates: Laboratory and Field Performance of the MnROAD Cold Recycling and Full Depth Reclamation Experiment <i>David Allain, Benjamin F. Bowers, Adriana Vargas-Nordcheck, and Tiana Lynn</i>	545
Framework for Quantifying Right-Turn-on-Red Conflicts From Existing Radar-Based Vehicle Detection Infrastructure <i>Hiba Nassereddine, Kelvin R. Santiago-Chaparro, and David A. Noyce</i>	556
Access Benefits of Shared Autonomous Vehicle Fleets: Focus on Vulnerable Populations <i>Jooyong Lee and Kara M. Kockelman</i>	568
Development of a Screening Tool for Rapid Fly Ash Evaluation for Mitigating Alkali Silica Reaction in Concrete <i>Pravin Saraswatula, Anol Mukhopadhyay, and Kai-Wei Liu</i>	583
Evaluation of the Interlayer Bond Strength of Micro-Surfacing Mixes <i>Ahmad Al-Hosainat, Munir D. Nazzal, Sk Abu Talha, Sang-Soo Kim, Ala Abbas, Louay Mohammad, Eric Biehl, and Perry Ricciardi</i>	596
How to Model the Effect of Gradient on Bicycle Traffic in Microscopic Traffic Simulation <i>Guillermo Pérez Castro, Fredrik Johansson, and Johan Olstam</i>	609
Improving Spatiotemporal Transferability of Real-Time Crash Likelihood Prediction Models Using Transfer-Learning Approaches <i>Pei Li, Mohamed Abdel-Aty, and Shile Zhang</i>	621
Analysis of Indoor Guided Pedestrian Evacuation Dynamics in Single- and Multiple-Exit Scenarios: Toward a Unified Scheme for Guide Assignment <i>Ke Wang, Yongxing Li, and Shunzhi Qian</i>	632

Innovative Method for Estimating Large Truck Volume Using Aggregate Volume and Occupancy Data Incorporating Empirical Knowledge Into Linear Programming <i>Yangsong Gu, Diyi Liu, John Stanford, and Lee D. Han</i>	648
Analysis of Intrinsic Factors Leading to Aggressive Driving Behavior to Derive Safety Policy Implications for Bus Drivers <i>Eunsol Cho, Subin Park, and Cheol Oh</i>	664
Comparison of Relative Structural Characterization Methods for Additive-Modified Asphalt Mixtures <i>David H. Timm, Fan Yin, Nam Tran, Megan Foshee, and Carolina Rodezno</i>	676
Impact of Airspace Restrictions on Urban Air Mobility Airport Shuttle Service Route Feasibility <i>Mark T. Kotwicz HERNICZEK and Brian J. German</i>	689
Reclaimed Asphalt Pavement Binder Extraction and Recovery Evaluation and Their Effects on the Recycling Agent Assessment <i>Gustavo Pinheiro, Kamilla Vasconcelos, and Liedi Bernucci</i>	707
Systemic Safety Analysis of Midblock Pedestrian Crashes in Massachusetts <i>Jeff Gooch, Ian Hamilton, Bonnie Polin, Riana Tanzen, and Tal Cohen</i>	722