Transportation Research Record: Journal of the Transportation Research Board

Volume 2679, Issue 2

February 2025

Part 1 of 3

ISBN: 979-8-3313-2138-3

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© (2025) by Transportation Research Board of the National Academies
All rights reserved.

ISBN (Print) 979-8-3313-2138-3

Printed with permission by Curran Associates, Inc. (2025)

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 2679 Number 2 February 2025

TRR
JOURNAL OF THE TRANSPORTATION RESEARCH BOARD

Contents

Research Articles

Research on Optimization of Maintenance Task Scheduling for Metro Systems Based on Resource Constraints 1
Qin Luo, Shan Huang, Wei Li, Yi Wang, Cuifeng Zeng, and Jingjing Chen

How Does the Introduction of Shared Ride-Sourcing Services Affect Demand for Existing Modes for Non-Commuting Trips? Evidence from a Joint RP-SP Study in Metro Vancouver 18
Patrick Loa, Felita Ong, and Khandker Nurul Habib

Systematic Literature Review and Scientometric Analysis on the Advancements in Electrically Conductive Asphalt Technology for Smart and Sustainable Pavements 33
Arsalaan Khan Yousafzai, Muslich Hartadi Sutanto, Muhammad Imran Khan, Nura Shehu Aliyu Yaro, Abdullah O. Baarimah, Nasir Khan, Abdul Muhaimin Memon, and Adamu Sani Abubakar

Application of Multiplicative Two-Stage Network Data Envelopment Analysis in Measuring and Improving the Efficiency of Container Ports in Southeast Asia 68
Minh-Anh Thi Nguyen, and Feng-Ming Tsai

Automating Pedestrian Crash Typology Using Transformer Models 83
Amir Hossein Oliaee, Subasish Das, and Minh Le

Developing Balanced Mix Design Gyrations (N_{design}) for North Dakota's Hot-Mix Asphalt Pavements 96
Nabil Suleiman, Anjo Mate, Daba Gedafa, and Bruce Dockter

Enhancing Performance and Reducing Environmental Impact of Concrete with Replacement of Recycled Concrete Aggregate Treated with Various CO_2 Pressures 110
Fouad Ismail Ismail, Miras Mamirov, Seunghee Kim, and Jiong Hu

Exploring Inspection Technologies for Highway Infrastructure During Construction and Asset Management 123
Nhien Dinh Le, Daniel Tran, Christofer M. Harper, and Roy E. Sturgill, Jr

Exploring the Complexity of Pedestrian Dynamics: Impact of Societal Behaviors and Personal Attributes in Urban Environments 136
Amir Rafe, and Patrick A. Singleton

Fuel Consumption of Adaptive Cruise Control Platoons: Bench Experiments and Data-Driven Estimation for Real Traffic 161
Thibault Charlottin, Silvia Varotto, Bruno Jeanneret, Sylvain Gillet, and Christine Buisson

Improving the Durability of 12.5mm Open-Graded Friction Course using 9.5mm Nominal Maximum Aggregate Size Gradation and High Polymer-modified Binder 173
Trung Tran, Chen Chen, Nam Tran, Adam Taylor, Fan Yin, Donald Watson, Jim Musselman, Gregory Sholar, and Howard Moseley

Lane-Change Decision of Automatic Driving Based on Reinforcement Learning Framework 187
Jiaxin Li, Gang Liu, Zhiyu Chen, and Jianwei Guo

Operational Reliability of Hard Shoulder Running on Freeways 199
Justin Geistefeldt

Prediction of Freezing Air Temperature Distribution in the Entire Railway Tunnel According to Tunnel Length and Outside Air Temperature 206
Sehee Lee, Jongwon Kim, Sungbum Park, and Kook-Hwan Cho

Real-Time Urban Traffic Monitoring Using Transit Buses as Probes 219
Shangkun Jiang, Yuran Sun, Wai Wong, Yiming Xu, and Xilei Zhao

Research on the Effect of Different Length–Diameter Ratios of the Cylindrical Tank on the Roll Stability of Tank Semi- Trailers 237
Wencai Sun, Wei Jiang, Jingjing Tian, Weijian Li, and Yuwei Liu

Resource Assessment Tool for Effective Unmanned-Aerial-Vehicle-Assisted Bridge Inspections 255
Emmanuel A. Marfo, Mubbashar A. Khan, Tau Wu, Tara L. Cavalline, and Ali Karimoddini

Review of Vehicle Behavior Prediction for Intelligent Driving Systems in Highway Scenarios 264
Zihan Wang, Guozheng Li, and Lihui Peng

Influence of Nano-Activated $CaCO_3$-Metakaolin on Early Strength and Microstructure of Cement 285
Qingfu Li, Hailong Wang, and Huijun Xue

Toward Large-Scale Simulation of Railroad Dynamics: Coupled Train–Track–Discrete Element Method Model 299
Zhongyi Liu, Travis Shoemaker, Erol Tutumluer, and Youssef M.A. Hashash

Comprehensive Investigation of Pedestrian Hit-and-Run Crashes: Applying XGBoost and Binary Logistic Regression Model 317
Ahmed Hossain, Xiaoduan Sun, Ahmed Sajid Hasan, Mohammad Jalayer, and Julius Codjoe

Perimeter Control-Based Coordinated Ramp Metering with Linked Queue Management for Freeway Networks 338
Ziang He, Yu Han, Weihong Guo, Yanjie Ji, and Pan Liu

Assessing Regional Agency Interest in Truck Freight Planning Practices: Insights from Virginia 359
John S. Miller, and Nishara Vavitta Parambil

Behavioral-Adaptive Deep Q-Network for Autonomous Driving Decisions in Heavy Traffic 377
Zhicheng Liu, and Hong Yu

Community Public Mobility Using On-Demand, Low-Speed Electric Vehicles: A Case Study in Downtown St. Louis, Missouri 390
Johnny Esteban, Rick Grahn, Bonnie Powell, and Stanley E. Young

Construction of Hub Location Model Based on Genetic Algorithm 403
Liqin Hu, Hong Liu, and Cao Ying

Effect of Policy Mix on Urban Road Network Capacity Assessment Considering Shared Mobility 421
Ziyan Ju, and Muqing Du

Examining the Land Use and Land Cover Impacts of Highway Capacity Expansions in California Using Remote Sensing Technology 439
Serena Alexander, Bo Yang, and Owen Hussey

Human Trafficking Awareness Training and Response Procedure Template for Transit Agencies 450
Jodi Godfrey, and Lisa Staes

Modeling and Analysis of Microscopic Risk Avoidance Behavior of Homogeneous Driver Groups Under Risk Scenarios 457
Lili Zheng, Yanlin Li, Tongqiang Ding, Yuying Wang, and Fanyun Meng

Acquisition of Utility Property Interests for Transportation Projects 476
Cesar Quiroga, Jenny Naranjo, and John Campbell

Analyzing the Suitability of Vehicle Telematics Data as a Surrogate Safety Measure for Short-Term Crashes 489
Manmohan Joshi, Anshu Bamney, Kai Wang, Shanshan Zhao, John Ivan, and Eric Jackson

Comparison of E-Scooter and Bike Users' Behavior in Mixed Traffic 505
Natalia Distefano, Salvatore Leonardi, Mariusz Kieć, and Carmelo D'Agostino

Evaluating the Impact of Maintenance Actions on Diverse Users in Shared Automobile, Bicycle, and Pedestrian Facilities 519
Qiang Chen, Elise Miller-Hooks, Sue McNeil, Shelley Stoffels, Pengsen Hu, and Yuanchi Liu

Evaluation of a Load Cell-Based Bridge Weigh-in-Motion System 535
Shengyi Shi, Matthew Yarnold, Stefan Hurlebaus, and John Mander

Post-Disaster Traffic Micro-Circulation System Design for Traffic Distribution Optimization 550
Xueyi Gao, Yusheng Ci, Lili Zhang, and Lina Wu

Routing Optimization of Two-Echelon Two-Way Logistics in Rural Areas Based on E-Commerce Environment 564
Wei Hong, Chen Du, Shuling Xu, and Xujin Pu

Transit Board Diversity and Pandemic Service Cuts in Vulnerable Communities 575
Carole Turley Voulgaris, Rosalie Singerman Ray, and Lauren Ames Fischer

Trust in Autonomous Cars Does Not Largely Differ from Trust in Human Drivers when They Make Minor Errors 592
Ryosuke Yokoi

Wheel Wear Modeling and Re-Profiling Strategy Optimization Based on the Maintenance Data of a Three-Axle Bogie Locomotive 602
Yi Zeng, Bingzhi Chen, Qingguang Chi, and Xu Zhang

Causes of Incomplete Risk Identification in Major Transportation Engineering and Construction Projects 619
Evan P. Dicks, and Keith R. Molenaar

City Bus Reliability Measurement Based on Sparse Field Data Supported by Selected State Space Models 629
David Vališ, Kamila Hasilová, Zdeněk Vintr, and Joanna Rymarz

Developing Safety Performance Functions for Severe Distraction-Related Crashes along Kentucky's Rural and Urban Two-Lane Roadways 649
Arunabha Banerjee, Bharat Kumar Pathivada, Kirolos Haleem, Dylan Justice, Evan Brittenham, and Joshua Oliver

Feasibility of Sprayable Engineered Cementitious Composites Using Natural Sand and Low Fiber Content: Effect of Hybrid Fiber System, Silica Fume, and Air-Entraining and Shrinkage-Reducing Admixtures 669
Gabriel Arce, and Mary Sharifi

Pedestrian and Car Occupant Crash Casualties Over a 9-Year Span of Vision Zero in New York City 684
Ge Shi, Yu Song, Carol Atkinson-Palombo, and Norman Garrick

Real-Time Barge Detection Using Traffic Cameras and Deep Learning on Inland Waterways 703
Geoffery Agorku, Sarah Hernandez, Maria Falquez, Subhadipto Poddar, and Kwadwo Amankwah-Nkyi

Spatial and Temporal Variation of Subway Ridership before and during the COVID-19 Period in Beijing 721
Chengshuai Liu, Hui He, and Peng Chen

Study on Mechanical Properties of Tunnel Flame Retardant Asphalt Pavement Considering the Ablative Effect 733
Yunsheng Zhu, Ruiyang Hua, Liming Song, Kaifeng Wang, and Yue Li

Discrete Choice Model Applications for Air Passenger Airport Choices: A Literature Review 748
Mitsuyoshi Fukushi, Felipe Delgado, and Sebastián Raveau

Insights into User Acceptance of Battery Swapping Services for Sustainable Micromobility using the Unified Theory of Acceptance and Use of Technology 2 Model 770
Fan Zhang, Huitao Lv, Ning Sun, and Yanjie Ji

Observations on the Horizontal Bends of Rural Roads Whose Plan Sheets Never Existed 787
Banihan Gunay

Passenger Time Use Comparison Between Traditional and Autonomous Vehicles: A Latent Class and Transition Analysis 800
Nadim Hamad, Divyakant Tahlyan, Hoseb Abkarian, and Hani Mahmassani

Time-Varying Risk Assessment of Wind-Induced Disaster for Sea-Crossing Bridge 815
Jian Guo, and Zheng Wang

Understanding Drivers' Compliance Behavior: Data-Driven Assessment of Longer Yellow Intervals 828
Pouya Jalali Khalilabadi, Abolfazl Karimpour, Yao-Jan Wu, and Simon T. Ramos

Work-Zone Safety Analysis: Evaluating Rear-End Crash Risk with Extreme Value Theory 846
Prathamesh Avinash More, Jino Thomas Therattil, and Nipjyoti Bharadwaj

Close Look into the Spatial-Temporal Distribution of Speed, Lane Changes, and Heavy Vehicles in a Congested Freeway Weaving Section 862
Nachuan Li, Hani S. Mahmassani, Yanlin Zhang, Alireza Talebpour, and Samer Hamdar

Comparing the Performance of Different Missing Data Imputation Approaches in Discrete Outcome Modeling 879
Md Istiak Jahan, Tanmoy Bhowmik, Lauren Hoover, and Naveen Eluru

Cost-Effective Pavement Condition Survey for Municipal Road Networks 904
Christian Hecht, Surya Teja Swarna, Parth Bhavsar, Yusuf Mehta, and Taha Bouhsine

Innovative Rheological Modifiers for Decreasing the Cracking Susceptibility of Asphalt Mixtures 920
Josue Garita-Jimenez, Nam H. Tran, Faustina Keuliyan, Raquel Moraes, Carolina Rodezno, and Fan Yin

Modeling Pedestrian Near-Crash Events at a Rectangular Rapid Flashing Beacon-Controlled Intersection Using Video Analytics and Long Short-Term Memory Neural Network 935
Panick Kalambay, and Srinivas S. Pulugurtha

Review of Risk Assessment Methods for Cybersecurity Attacks on Road Network and Intelligent Transportation System Applications 949
Natchaphon Leungbootnak, and Kevin Heaslip

Macroscopic Fundamental Diagram for Airplane Traffic: Empirical Findings 960
Victor L. Knoop, Joost Ellerbroek, Mark ter Heide, and Serge Hoogendoorn

Ferry System Governance: A Review of the Michigan Ferry System and Comparative Analysis of Governance Strategies Nationwide 971
Farish Jazlan, Amirali Soltanpour, Ali Zockaie, and Mehrnaz Ghamami

Meta-Analysis on the Indirect Impacts of Highway Investment: Evidence from Japan 991
Yoshikazu Kanai, Jetpan Wetwitoo, and Hironori Kato

Multi-Scale Study on the Effect of Snowmelt Salt on the Interface Adhesion of Rubberized Asphalt–Steel Slag 1003
Le Zhang, Yang Liu, Lan Wang, and Zhihua Xue

Pavement Distress Detection Based on the Staged Deep Learning Classifier Approach 1015
Amit Dipankar, and Sanjeev Kumar Suman

Prediction of Maximum Live-Load Effects for Bridges Based on Weigh-in-Motion Data 1034
Patrick Lou, Chan Yang, and Hani Nassif

Railway Signal Digitalization with the European Rail Traffic Management System and Positive Train Control: Industry 4.0 Expectations and Reality 1052
Steven S. Harrod

Advancing Highway Work Zone Safety: A Comprehensive Review of Sensor Technologies for Intrusion and Proximity Hazards 1066
Ayenew Yihune Demeke, Moein Younesi Heravi, Israt Sharmin Dola, Youjin Jang, Chau Le, Inbae Jeong, Zhibin Lin, and Danling Wang

Can Geopolymer Be a Replacement for Portland Cement in Full-Depth Reclamation Projects? Short- and Long-Term Performance Analysis 1090
Abhitesh Sachdeva, G.D. Ransinchung R.N, Praveen Kumar, and Meraj Alam Khan

Collaboration between High-Speed Rail and Urban Transportation to Improve Urban Air Quality in Green Travel 1107
Luyang Zhao, and Luman Zhao

Evaluation of Conventional Surrogate Indicators of Safety for Connected and Automated Vehicles in Car Following at Signalized Intersections 1118
Wooseok Do, Nicolas Saunier, and Luis Miranda-Moreno

Insights for Sustainable Urban Transport via Private Charging Pile Sharing in the Electric Vehicle Sector 1134
Jianming Cai, Zixin Zhou, Zhiqiang Zhao, and Yaxin Wang

Parametric Study on Transversely Cracked Precast Prestressed Concrete Bridge Deck Girders with Rectangular Voids 1170
Dachina Gunasekaran, and Bassem Andrawes

Performance Analysis Relevant to Primary Design Parameters of Pervious Concrete: A Critical Review 1183
Daniel Niruban Subramaniam, and Arulanantham Anburuvel

Research on Joint Distribution Path Planning of Electric Logistics Vehicles with Different Recharge Modes 1209
Jing Wang, Tingting Gao, Jingzhe Zhang, and Chuang Tu

Sustainable Pervious Concrete with Silica Fume as Cement Replacement: A Review 1224
Navaratnarajah Sathiparan, and Daniel Niruban Subramaniam

Time Matters: Analyzing the Impact of Nighttime on Commuter Trip Chaining Behavior and Travel Time Use in Karlsruhe, Germany 1242
Jonas Kapitza

Assessing the Impacts of COVID-19 on Online-Shopping Behavior, the Resulting Delivery and Shipping Behavior of Private Households, and Freight Transportation: An Empirical Study of Germany 1257
Anton Galich, and Carina Kehrt

Automatic Traffic Safety Analysis using Unmanned Aerial Vehicle Technology at Unsignalized Intersections in Heterogeneous Traffic 1274
Debashis Ray Sarkar, K. Ramachandra Rao, and Niladri Chatterjee

Exploring the Differences in Types of Commodities and Delivery Methods among Online Shoppers during the Early Stage of the COVID-19 Pandemic 1291
Maria Magdalena Silaen, Duncan Crowley, Yongsung Lee, Miguel A. Jaller, and Giovanni Circella

Real-Time Estimation of Origin–Destination Matrices Using a Deep Neural Network for Digital Twins 1309
Donggyu Min, Hyunsoo Yun, Seung Woo Ham, and Dong-Kyu Kim

Simplified Analysis Method of Seismic and Static Stability for Embankments Supported with Concrete Piles in Soft Ground 1329
Shiguo Xiao, Tianyi Dai, and Shaohong Li

Analysis of Travel Mode Choice Behavior between High-Speed Rail and Air Transport Utilizing Large-Scale Ticketing Data 1344
Weiwei Cao, Zibing Chen, Feng Shi, and Jin Xu

Composite Accessibility Index: A Novel and Holistic Measure for Evaluating Transit Accessibility 1359
Rohit Rathod, Gaurang Joshi, and Shriniwas Arkatkar

Investigating Travel Demand Heterogeneity During and After the Pandemic in the Northern California Megaregion: A Data-Driven Analysis of Origin–Destination Structural Patterns 1379
Siddhartha Gulhare, Ran Sun, Keita Makino, Krishna Behara, David S. Bunch, and Giovanni Circella

Post-Purchase Trip Heterogeneity: Exploring the Impact of Free and Paid Return Deliveries on Shopping and Transport Mode Choices in the USA 1400
Oleksandr Rossolov, José Holguín-Veras, and Yusak O. Susilo

Research on Robust Model Predictive Control Based on Neural Network Optimization for Trajectory Tracking of High-Speed Autonomous Vehicles 1418
Fei Liu, Ping Qin, Zhizhong Guo, Yuze Shang, and Zhe Li

Tensor Decomposition for Spatiotemporal Mobility Pattern Learning with Mobile Phone Data 1432
Suxia Gong, Ismaïl Saadi, Jacques Teller, and Mario Cools

Association Patterns of Work Zone Crashes using Bayesian Network 1446
Subasish Das, M. Ashifur Rahman, Jinli Liu, Xinyue Ye, and Boniphace Kutela

Characterization of Degraded Ballast Strength: A Field Application of Ground Penetrating Radar and Dynamic Cone Penetration 1462
Youngdae Kim, Robert Wiggins, Yong-Hoon Byun, Issam I. A. Qamhia, Erol Tutumluer, Jeremy Beasley, Abby Cisko, Hamed Kashani, Ryan Langlois, and Michael J. Harrell

Comparative Evaluation of Falling Weight Deflectometer, Traffic Speed Deflectometer and Rapid Pavement Tester in Deflection Measurement 1475
Arman Hamidi, Ali Foroutan Mirhosseini, Inge Hoff, Helge Mork, Kim Rune Bragstad Grannes, and Per Otto Aursand

Eye Movement Evaluation of Pedestrians' Mobile Phone Usage at Street Crossings 1495
Mingyu Hou, Chenzhu Wang, Said M. Easa, and Jianchuan Cheng

Market Penetration Rate Optimization for Mobility Benefits of Connected Vehicles: A Bayesian Optimization Approach 1513
Di Sha, Yu Tang, Kaan Ozbay, Jingqin Gao, and Fan Zuo

Modeling Interdependent Infrastructure System Vulnerability with Imprecise Information Using Two Fuzzy Inference Systems 1528
Shidong Pan, Kyle Bathgate, Zhe Han, Jingran Sun, and Zhanmin Zhang

Prediction of Market Share of Different Vehicle Powertrains on Interprovincial Highways amid the Development of Urban Agglomerations 1541
Jianhong Ye, Yifei Qin, Guanpei Luo, Yifan Hu, and Meigen Xue

Residence-Workplace Identification and Validation Based on Mobile Phone Data: A Case Study in a Large-Scale Urban Agglomeration in China 1558
Yang Zhou, Quan Yuan, Chao Yang, Tangyi Guo, Xiaoyi Ma, Wenyong Sun, and Tianren Yang

Toward A Comprehensive Framework for Accessibility Measures for Movement-Challenged Persons 1572
Md Musfiqur Rahman Bhuiya, Wanyun Shao, Steven Jones, and Jun Liu

Using Perceptual Cycle Model and Text Mining to Investigate Ambulance Traffic Crashes 1586
Subasish Das, Rohit Chakraborty, Abbas Sheykhfard, Boniphace Kutela, and Xinyue Ye

Comparison of the Metaheuristic Algorithms Used in Road Maintenance Decision Making 1601
Ting Tan, Liping Cao, Xiangchen Hou, and Zejiao Dong

Data Accuracy Matters: Improving Highway-Rail Grade Crossings Crash Predictions through Inventory Verification 1616
Li Zhao, Muhammad Umer Farooq, and Aemal J. Khattak

Developing a Training Program for a Personal Navigation Intervention for Individuals with Disabilities 1628
Bethany J. Frick Semmler, Julie Faieta, Kaetlyn Culter Harris, Elizbeth Mance, Ashley Stojkov, Sarah Anderson, Olivia Vega, Sandra Metzler, and Carmen P. DiGiovine

Development of an Online Daily Goods Shopping Demand Model Using Internet-Based Consumption Behavior Survey Data 1639
Riki Motojima, Takanori Sakai, and Tetsuro Hyodo

Logistics Model for Indonesia's National Freight Model System: From a Deterministic to a Stochastic Framework 1651
Lydia Novitriana Nur Hidayati, Gerard de Jong, and Anthony Whiteing

Photomonitoring as a Tool for Monitoring Landslides: A Technology within Everyone's Reach 1667
Antonio Cosentino, Alessandro Brunetti, and Paolo Mazzanti

Research on Data-Driven Methodologies for Expressway Emergency Rescue Point Location 1676
Xinghua Hu, Zhouzuo Wang, Jiahao Zhao, Ran Wang, Hao Lei, Yifeng Cai, and Bing Long

Graph Convolution Network Combining Spatiotemporal Self-Attention and Mutual Information for Pedestrian-Trajectory Prediction 1694
Chungang Hu, Zhuping Zhou, Zhenlin Yue, Changji Yuan, and Leyi Sun

Systematic Study of Battery Electric Vehicle Ownership in England 1712
Justin Yiu, Jacek Pawlak, Ahmadreza Faghih Imani, and Aruna Sivakumar

An Exploratory Assessment of Driver Injury Severities in Large-Truck Crashes Involving Fatigued and Non-Fatigued Driving 1725
Mouyid Islam

Dual-Stage Analysis Combining Structural Equation Modeling and Machine Learning for Low-Carbon Travel Intention of Urban Residents 1742
Xinguang Li, Han Hu, and Dayi Qu

How was your Crossing Experience? Development of a Pedestrian Satisfaction with Unsignalized Crossings Scale 1762
Seth LaJeunesse, Wesley Kumfer, Sirisha Kothuri, Krista Nordback, and Nathan McNeil

Impact of Texting-Induced Distraction on Driving Behavior Based on Field Operation Tests 1777
Ankit Singh, Aman Srivastava, Rajalakshmi Pachamuthu, and Digvijay S. Pawar

Managing Transportation Asset Data Collection During COVID-19: The Origin of NYC DOT's Spatial Data Gathering Program 1797
Maddalena Romano, Maria Rodriguez, Marvin Souza, and Hui Yan (Terri) Chan

New Roughness Index of Passenger Car Rotational Vibration 1806
Peter Múčka

Ordinal Clustering Based Homogeneous Road Segments in Asphalt Pavement Maintenance and Rehabilitation Optimized Decision-Making 1817
Chang Xu, Qingwei Zeng, Lei Chen, and Shunxin Yang

Post-License Safety Interventions for Motorcyclists: A Systematic Literature Review 1833
Zahra Ghayeninezhad, Jerome Range, Milad Delavary, Hector Ignacio Castellucci, and Martin Lavallière

What Type of Incentives Can be Used to Motivate Generations Z and Y to Prefer More Sustainable Delivery Options? 1848
Ece Ünalmış, Burak Can Altay, and Abdullah Okumus

Construction of Electrically Heated Pavement Using Recycled Waste Rubber Tires 1862
Islam M. Radwan, and Mohamed AbdelRaheem

Recommended Changes to the Precision Estimates of AASHTO T 313 (BBR) 1879
Haleh Azari, Chandra K. Akisetty, and Alaeddin Mohseni

Sustainable Wheels of Fortune: Understanding the Asymmetric Bond between Green Finance and Electric Vehicle Adoption 1891
Yizhou Zhao, Sajid Ali, Raima Nazar, and Muhammad Khalid Anser

Investigating the Interrelationships among Factors Associated with Automated Vehicle Crashes Using Additive Bayesian Network 1908
Chunxi Huang, Ange Wang, Song Yan, and Dengbo He

Optimizing Dry Port Locations: A Comparative Analysis of Deterministic, Stochastic, and Robust Models 1922
Morteza Bagheri, Hossein Abbasi, Saeed Yaghoubi, Mir Saman Pishvaee, and Mehdi Fallahi

Two-step Passenger-to-Train and Route Assignment Model for Urban Rail Transit 1941
Ningning Dong, Tiezhu Li, Hui Liu, Yiyong Bo, and Fei Lin

Hybrid Deep-Learning Approach with Geoffrey E. Havers-Based Loss Function and Evaluation Metric for Multilocation Traffic-Flow Forecasting 1957
Martin Esugo, Olivier Haas, and Qian Lu

Analyzing Systematic Risk in Global Airline Industry: A Machine Learning Approach 1976
Melike Aktaş Bozkurt, Yaşar Köse, and Rıza Bayrak

Promoting Sustainable Transportation Modes: A Systematic Review of Behavior-Change Strategies 1993
Meiyu (Melrose) Pan, and Alyssa Ryan

Quantifying the Influence of Tank Car Position and Train Configuration on the Risk of Rail Transport of Class 3 Flammable Liquids 2013
Di Kang, Jiaxi Zhao, C. Tyler Dick, Xiang Liu, Chen-Yu Lin, Zheyong Bian, and Steven W. Kirkpatrick

Development of a Real-Time Lane Departure Warning System for Varying Severity Levels Using a Sparse 3-D Lidar Sensor 2031
Akshay Gupta, Shreyansh Jain, Pushpa Choudhary, and Manoranjan Parida

Estimating the Expected Change in Safety for a Potential Application of Three Intelligent Transportation System Treatments 2054
Bhagwant Persaud, Raghavan Srinivasan, Vikash Gayah, Kristin Kersavage, Taha Saleem, Shauna Hallmark, and Cameron Mohammadi

Predicting the Future Signalization of Traffic-Actuated Signals Using Extreme Gradient Boosting 2063
Kevin Heckmann, Jannik Budde, Lena Elisa Schneegans, and Robert Hoyer

Robust Lane Line Detection and Tracking Using Enhanced DBSCAN Optimized RANSAC and Optical Flow 2084
Yu Guo, Guigen Nie, WenLiang Gao, and Mi Liao

Simulation-Based Optimization for Vertiport Location Selection: A Surrogate Model With Machine Learning Method 2099
Xuan Jiang, Shangqing Cao, Baichuan Mo, Junzhe Cao, Hao (Frank) Yang, Yuhan Tang, Mark Hansen, Jinhua Zhao, and Raja Sengupta

Understanding Party Size in Ride-Hailing: Solo Versus Group Travel 2111
Matthew D. Dean

STEER special collection

On the Possibilities of Efficient Air Traffic Monitoring through Complex Network Clustering Based Airspace Sub-Sectorization: A Multi-Objective Discrete Particle Swarm Optimization Approach 2127
Aitichya Chandra, Sayan Hazra, Ashish Verma, and K.P. Sooraj

Enhancing Urban Mobility with Aerial Ropeway Transit (ART): Future Accessibility Impacts of Multimodal Transit Expansion Scenarios 2144
Agnivesh Pani, Harish Puppala, Shreepati Jha, Ankit Gupta, Ayan Mukhopadhyay, and Abhishek Dubey

Foundations and AI special collection

Prediction of the Nominal Side Resistance of Drilled Shafts in Dominantly Cohesive Soils using ANN 2162
Atsou Komla Herve Agbemenou, Ramin Motamed, and Amir Talaei-Khoei

Telecommuting special issue

Exploring the Relationship Between COVID-19 Transmission and Population Mobility over Time 2176
Tanmoy Bhowmik, and Naveen Eluru

On the Selection of Workplace in the COVID-19 Era Using Attitudinal Factors 2190
Alireza Dianat, and Khandker Nurul Habib

TRB Graduate Research Award Program on Public-Sector Aviation

Cold Recycling Technology for Airfield Pavement Rehabilitation Practices 2208
Saed N. A. Aker, and Hasan Ozer

Impact of Sea Level Rise-Induced Hazards on Airfield Pavement Performance: A Simulation Study 2225
Xiao Chen, and Hao Wang