

# **Transportation Research Record: Journal of the Transportation Research Board**

Volume 2675, Issue 2

February 2021

ISBN: 978-1-7138-2779-5

**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© (2021) by Transportation Research Board of the National Academies  
All rights reserved.

ISBN (Print) 978-1-7138-2779-5

Printed with permission by Curran Associates, Inc. (2021)

For permission requests, please contact [sagepub.com/journals-permissions](http://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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# Contents

## Research Articles

Feasibility of using Mastic for Performance Grading in Place of Extraction using SPS10 Mixtures <i>Haleh Azari, Alaeddin Mohseni, Richard Steger, and Dennis Muncy</i>	1
Mobility-as-a-Service and Demand-Responsive Transport: Practical Implementation in Traditional Forecasting Models <i>Pedro Camargo, Erin Pammenter, and Aliasgar Inayathusein</i>	15
Robust Maximum Coverage Facility Location Problem with Drones Considering Uncertainties in Battery Availability and Consumption <i>Darshan R. Chauhan, Avinash Unnikrishnan, Miguel Figliozzi, and Stephen D. Boyles</i>	25
Safety Performance of Rural Offset-T Intersections <i>Anthony Ingle and Timothy J. Gates</i>	40
Severity Analysis of Wildlife–Vehicle Crashes using Generalized Structural Equation Modeling <i>Iman Gharraie and Emanuele Sacchi</i>	53
Systematic Evaluation of a Multi-Lane Green-Driving Algorithm in a Mixed Connected Environment <i>Hao Yang and Kentaro Oguchi</i>	65
Taxi Drops Off as Transit Grows amid Ride-Hailing’s Impact on Airport Access in New York <i>Xiaoxia Dong and Megan S. Ryerson</i>	74
Influence of Lane Width on Bus Crashes <i>Boya Dai, Joan G. Hudson, Ben Ettelman, and Eun Sug Park</i>	87
Performance of Impure Calcined Clay as a Pozzolan in Concrete <i>Khashayar Jafari and Farshad Rajabipour</i>	98
Ultra-High-Performance Concrete Shear Keys in Concrete Bridge Superstructures <i>Elsy Y. Flores, Jordan Varbel, William K. Toledo, Craig M. Newtonson, and Brad D. Weldon</i>	108
Understanding the Effect of Bid Quantities, Project Characteristics, and Project Locations on the Duration of Road Transportation Construction Projects during Early Stages <i>Guillermo Nevett, Paul M. Goodrum, and Ray L. Littlejohn</i>	121
Use of Shared Automated Vehicles for First-Mile Last-Mile Service: Micro-Simulation of Rail-Transit Connections in Austin, Texas <i>Yantao Huang, Kara M. Kockelman, Venu Garikapati, Lei Zhu, and Stanley Young</i>	135
User Experiences with Two New Wheelchair Securement Systems in Large Accessible Transit Vehicles <i>Jimin Choi, Jordana L. Maisel, Brittany Perez, Don Nguyen, and Victor Paquet</i>	150
Valuation of Metro Crowding Considering Heterogeneity of Route Choice Behaviors <i>Hosuk Shin, Dong-Kyu Kim, Seung-Young Kho, and Shin-Hyung Cho</i>	162

Winter Maintenance of Permeable Interlocking Concrete Pavement: Evaluating Opportunities to Reduce Road Salt Pollution and Improve Winter Safety <i>Jeffrey T. Marvin, Jody Scott, Tim Van Seters, Robert Bowers, and Jennifer Anne Drake</i>	174
Using Wi-Fi Signals from Mobile Devices to Determine Characteristics of Pedestrian Behavior in Public Spaces <i>Eva Šimara, Pavla Kilnarová, Jiří Palacký, and Radka Vašut</i>	187
Visual Simultaneous Localization and Mapping with Applications to Monitoring of Underground Transportation Infrastructure <i>Fred Daneshgaran, Antonio Marangi, Nicola Bruno, Fausto Lizzio, Marina Mondin, and Khashayar Olia</i>	198
Refinement of Climate-, Depth-, and Time-Based Laboratory Aging Procedure for Asphalt Mixtures <i>Elizabeth Braswell, Nooralhuda F. Saleh, Michael Elwardany, Farhad Yousefi Rad, Cassie Castorena, B. Shane Underwood, and Y. Richard Kim</i>	207
Testing Curbside Management Strategies to Mitigate the Impacts of Ridesourcing Services on Traffic <i>Andisheh Ranjbari, José Luis Machado-León, Giacomo Dalla Chiara, Don MacKenzie, and Anne Goodchild</i>	219
Overcoming Challenges of Distributed Fiber-Optic Sensing for Highway Traffic Monitoring <i>Chaitanya Narisetty, Tomoyuki Hino, Ming-Fang Huang, Ryusuke Ueda, Hitoshi Sakurai, Akihiro Tanaka, Takashi Otani, and Toru Ando</i>	233