Contents

Introduction: The Transportation Research Board’s 2013 Workshop on Road Vehicle Automation ..................................... 1
Steven E. Shladover, Jane Lappin, Robert P. Denaro and Bryant Walker Smith

Part I  Public Sector Activities

Autonomous Vehicles: A Perspective from the California Department of Motor Vehicles ........................................... 15
Bernard C. Soriano, Stephanie L. Dougherty, Brian G. Soublet and Kristin J. Triepke

Accelerating Road Vehicle Automation ........................................ 25
Joseph I. Peters

Activities, Findings and Perspectives in the Field of Road Vehicle Automation in Japan ........................................... 37
Yasuhiro Okumura

Part II  Industrial Research and Innovation

Bosch’s Vision and Roadmap Toward Fully Autonomous Driving ........ 49
Jan Becker, Maria-Belen Aranda Colas, Stefan Nordbruch and Michael Fausten

History and Status of Automated Driving in the United States ........ 61
Sven Beiker

Research and Innovation for Automated Driving in Germany and Europe ............................................................. 71
Gereon Meyer and Stefan Deix
Part III  Societal and Environmental Impacts

A Legal Perspective on Three Misconceptions in Vehicle Automation. 85
Bryant Walker Smith

Machine Ethics and Automated Vehicles 93
Noah J. Goodall

Vehicle Automation and Its Potential Impacts on Energy and Emissions 103
Matthew Barth, Kanok Boriboonsomsin and Guoyuan Wu

Human Factors of Highly Automated Driving: Results from the EASY and CityMobil Projects 113
Natasha Merat, Hamish A. Jamson, Frank Lai and Oliver Carsten

Key Factors Influencing Autonomous Vehicles’ Energy and Environmental Outcome 127

An Analysis of Possible Energy Impacts of Automated Vehicle 137
Austin Brown, Jeffrey Gonder and Brittany Repac

Part IV  Technical Progress

Disruptive Innovation on the Path to Sustainable Mobility: Creating a Roadmap for Road Transportation in the United States 157
Steven E. Underwood

CityMobil2: Challenges and Opportunities of Fully Automated Mobility 169
Adriano Alessandrini, Alessio Cattivera, Carlos Holguin and Daniele Stam

A Partial Reality Experimental System for Human-in-the-Loop Testing of Connected and Automated Vehicle Applications: Development, Validation and Applications 185
Yunjie Zhao, Yunfei Hou, Aditya Wagh, Shan Huang, Kevin Hulme, Chunming Qiao and Adel W. Sadek
Evaluation of Automated Road Vehicles ........................................ 197
Adrian Zlocki, Felix Fahrenkrog, Mohamed Benmimoun, Johanna Josten
and Lutz Eckstein

Advanced Intersection Traffic Control Strategies Accommodating
Autonomous Vehicles ......................................................... 209
Douglas Gettman, Jason Castillo and Lisa Burgess

Synergies Between Vehicle Automation, Telematics Connectivity,
and Electric Propulsion ...................................................... 215
Steve Marshall and John Niles

Toward a Systematic Approach to the Design and Evaluation
of Automated Mobility-on-Demand Systems: A Case Study
in Singapore ................................................................. 229
Kevin Spieser, Kyle Treleaven, Rick Zhang, Emilio Frazzoli,
Daniel Morton and Marco Pavone

Automated Truck Platoon Control and Field Test ....................... 247
Xiao-Yun Lu and Steven E. Shladover
Road Vehicle Automation
Meyer, G.; Beiker, S. (Eds.)
2014, XII, 261 p. 53 illus., Hardcover
ISBN: 978-3-319-05989-1