# TABLE OF CONTENTS

## VOLUME 1

### TECHNICAL/SCIENTIFIC SESSIONS

#### TS01 – USING SIMULATION FOR TRAFFIC MANAGEMENT APPLICATIONS

<table>
<thead>
<tr>
<th>Paper Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matlab-Vissim Interface for Online Optimization of Green Time Splits</td>
<td>1</td>
</tr>
<tr>
<td>Validation and Quality Management of the San Diego I-15 ICM Aimsun Online Real-time Simulation Model</td>
<td>7</td>
</tr>
<tr>
<td>A Web Application of Flexible Open-structure Traffic Simulation</td>
<td>23</td>
</tr>
</tbody>
</table>

**Authors:**
- Prateek Bansal
- Matthew Juckes, Peter Thompson, Alex Torday
- Xuan Shi, Jing Jin, Yang Chen,Steven T. Parker, Bin Ran

#### TS02 – LOCAL BASED TRAVEL INFORMATION

<table>
<thead>
<tr>
<th>Paper Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of Integrated System for Real-time Traffic Information on Social Network Services</td>
<td>35</td>
</tr>
<tr>
<td>Traffic Information Service By Data Fusion Apps and BIS</td>
<td>45</td>
</tr>
<tr>
<td>The Current Situation and Prospect of the Travel Information Service in Megacities of China</td>
<td>53</td>
</tr>
</tbody>
</table>

**Authors:**
- Hyokyoung Eo, Weon-Eui Kang, Bumjin Park, Jisoo Kim
- Bumjin Park, Weon-Eui Kang, Taehyeong Kim, Hyo-Kyoung Eo
- Jian Gao, Ling Sun

#### TS03 – CONNECTED VEHICLE DEPLOYMENT AND FIELD TESTS

<table>
<thead>
<tr>
<th>Paper Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEEE 1609 Protocol Conformance Test Tool</td>
<td>62</td>
</tr>
<tr>
<td>Bringing Connectivity to Automation — A Vehicle-based Researcher Platform to Field Test Operational Concepts</td>
<td>N/A</td>
</tr>
<tr>
<td>Maricopa County DOT SMARTDrive Program: Connected Vehicle Applications in Arterial Environment</td>
<td>67</td>
</tr>
<tr>
<td>Preparing a Possible Oregon Road Map for Connected Vehicle/Cooperative Systems Deployment Scenarios</td>
<td>75</td>
</tr>
<tr>
<td>High Level Deployment Concepts for Connected Vehicles</td>
<td>86</td>
</tr>
<tr>
<td>Early Deployment of V2I Technology on a “Smart Corridor”</td>
<td>94</td>
</tr>
</tbody>
</table>

**Authors:**
- Chia-Chang Hsu, Jing-Shyang Hwo, Yen-Chu Huang
- Christopher Armstrong
- Enrique Cramer
- Faisal Saleem, Nicolaas P. Swart, K. Larry Head
- Robert L. Bertini, Todd M. Barkontz, Hafizhong Wang, Rachel Vogt, Derek H. Wang
- Brian Burkhard
- Darryl Dawson, Jeff Hochmuth, Ahmed Ghaly, Jim Powell

#### TS04 – V2X TECHNOLOGY EVALUATIONS

<table>
<thead>
<tr>
<th>Paper Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>V2V Prototype System Construction and Analysis in Campus Environment</td>
<td>104</td>
</tr>
<tr>
<td>Enrique Cramer, Business Development Director, Drivewyze, Canada</td>
<td>N/A</td>
</tr>
<tr>
<td>V2V 5.9 GHz RF Channel Models</td>
<td>115</td>
</tr>
<tr>
<td>Decentralized Congestion Control for DSRC Systems: A Comparison</td>
<td>122</td>
</tr>
</tbody>
</table>

**Authors:**
- Luoyi Huang, Yinsong Wang, Xiahua Yang, Xingguang Yang
- Enrique Cramer
- Paul Alexander
- Paul Alexander, Malik Khan

#### TS05 – COOPERATIVE ITS SYSTEM STANDARDS

<table>
<thead>
<tr>
<th>Paper Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigation of ITS Coexistence on the Physical Layer</td>
<td>138</td>
</tr>
<tr>
<td>Major European C-ITS Corridor Project Defines V2I Functions &amp; InterfacesSubtitle: “Traffic Management in a C-ITS Environment”</td>
<td>147</td>
</tr>
<tr>
<td>SCORE@F Project: Cooperative ITS and DATEX II at the Service of Roads Operators and Roads Users</td>
<td>N/A</td>
</tr>
<tr>
<td>Session-Based Communication over IEEE 802.11p for Novel Complex Cooperative Driver Assistance Functions</td>
<td>155</td>
</tr>
</tbody>
</table>

**Authors:**
- Liesbeth Gommé, Tony Kerselaers
- Anto Komarica
- Ludovic Simon
- Oliver Sawade, Ilja Radusch
13548 Connected Vehicle Integration Research and Design Guidelines Development: Formative Expert Interviews .................. 166
Tammy Trimble, Naomi J. Dunn, Sheila G. Klauer

**TS06 – POLICY CHANGES TO CONNECTED AND AUTONOMOUS VEHICLES**

12136 ITS Horizon Scan 2.0: Examining the Larger Trends that will Impact Transportation .......................................................... N/A
Michael McGurrin

12644 State Legislative Approaches to Automated Vehicles: A Review and Analysis ............................................................. 175
Eric Paul Dennis, Matt Smith, Richard Wallace

12645 The National Highway and Traffic Safety Administration Preliminary Statement of Policy Concerning
Automated Vehicles: A Review and Analysis ............................................................. 189
Eric Paul Dennis, Matt Smith, Richard Wallace

12753 Barriers to Successful Implementation of a National DSRC Connected Vehicle Network .................. 195
Eric Paul Dennis

**TS07 – ROUTING STRATEGIES FOR IMPROVED ECO-DRIVING**

12481 Connectivity-Enhanced Route Selection and Adaptive Control for the Chevrolet Volt .......................................................... 202
Jeffrey Gonder, Eric Wood, Sai Rajagopalan

12563 Eco-navigation Route Choice Evaluations With a Simplified, Macro-model for Fuel Consumption and
Emissions Estimation .................................................................................. 214
Yanjie Zhao, Adel W. Sadek

13012 A Methodology for Eco-Routing Based on Vehicle Fuel Consumption and Emissions .......................................................... 226
Wei Li, Yi Zhang, Wei Guo, Xudong Xie, Xin Pei

13660 Trip Prediction Using GIS for Vehicle Energy Efficiency .................................................................................. 242
Dominik Karbowski, Aymerc Rousseau, Vivien Smis-Michel, Valentin Vermeulen

13687 A Connected Vehicle Supported Routing Strategy for Electric Vehicles .......................................................... 257
Kakan C. Dey, Zhiyan Li, Mashrur Chowdhury, Parth Bhavsar

**TS08 – SMART PARKING 1**

12418 Payment Platform Model for Parking — Parking Operator Approach ........................................................................... N/A
Tami Koivuniemi

12584 Flexible Parking Data Management Across Enterprise and Beyond ........................................................................... 270
Ali Lattuned, Artem Katasonov, Tami Koivuniemi

13006 Implementation of an Autonomous Parking System in a Parking Lot ........................................................................... 280
Po-Kai Tseng, Mings-Huang Huang, Po-Kai Yu, Sheng-Wei Chang, Tong-Wen Wang

13407 I-94 Truck Parking Information and Management System — Providing Value Through Success
Management .................................................................................. 291
Collin Castle, Eric Morris, Matthew Junak

13551 Evaluation of Dynamic Parking Lot Vacancy Information Board at the Rest Area Entrance .......................................................... N/A
Tadahisa Muramatu

**TS09 – NEW FRONTIERS FOR ITS**

12385 Traffic Signal Control Using Cellular Communications ........................................................................... N/A
Robert Blount

12373 MnPass Easy; Keeping the H.O.T. Lane Hot .................................................................................. 299
Brian Scott, Mark Gallagher, Brian Kary

13716 Integrating Roadway Tunnels Into the Regional Traffic Network ........................................................................... N/A
David Marki

13726 Innovations in Automated Airport Ground Transportation Management Systems ........................................................................... 302
Forrest Swonsen

13783 Latest Achievements in the Operation of an Innovative AID System for Road Tunnels ........................................................................... 305
Peter Böhnke

**TS10 – SAFETY BASED SENSOR SYSTEMS**

12251 Improving Performance of DS/SS IVC Scheme Based on Location Oriented PN Code Allocation by
Restricting Communication Distance ........................................................................... 312
ReiKo Kusakari, Kohei Ohno, Makoto Itami

12450 Elements to Consider for Parking Automation ........................................................................... 323
Yu Hiei, Shinya Sannoda, Ryosuke Ohmura, Yoshio Mukaiyama, Atsushi Sugisaka

13146 Implementation of a Computer Vision Based Advanced Driver Assistance System in Tizen IVI ........................................................................... 331
Georka Velez, Orii Senderson, Marcos Nieto, Geoffrey Van Cutsem
TS11 – RECENT DEVELOPMENTS IN DATA COLLECTION

12394 A Train Speed Measure and Arrival Time Prediction System for Highway-Rail Grade Crossings .......................................................... 342
Laurence Rilett, Yifeng Chen

12621 License Plate Recognition as a Tool for Fiscal Inspection ......................................................... 360
Cledson Akio Sakurai, Alessandro Santiago Dos Santos, Caio Fernando Fontanita, Leopoldo Rideki Yoshioka, Claudio Luiz Marte

12192 Towards Risk Prediction Considering People Flow ................................................................... 371
Mikio Sasaki, Yoshie Hide Sekimoto

12315 Performance Evaluation of Transit Data Formats on a Mobile Device ........................................ 383
Sean Barbeau, Tato Salovanta

12846 Gait Based Pedestrian Identification with Reducing Dependency of Accelerometer Position ...................... 399
Takeshi Savada, Tadashi Yamagihara, Chihiro Sunnomiya, Kenji Horiguchi, Kazunari Nawa, Kazuya Ohari, Kazo Nishimura, Yoshiyuki Mizuno

TS12 – IMPLICATIONS OF DRIVER BEHAVIOR ON ITS SYSTEM PERFORMANCE

12630 Assessing the Implications of Age on Applying Visual-manual Distraction Guidelines to Portable Telematics Interactions .................................................................................................................................. 409
Yu Zhang, Bruce Mehler, Bryan Reimer, Daniel Belyusar, Silvia Pala, Shimonomoto Hushii, Justin McBride

12789 Driver Vehicle Interaction and the Impact of Interruption Type on Task Completion and Driving Performance of a Connected Vehicle System .................................................................................................. 421
Latanya M. Holmes, Zachary R. Doerzaph, Ryan C. Smith, Sheila G. Klauer

13096 Prediction of the Meta-stability Phase Through Analysis of Driving Behavior ........................................ 437
Toshio Ito, Ryohi Kaneyasu

13103 Effects of IVIS Auditory and Visual Secondary Tasks on Drivers’ Vision ........................................ 449
Tong Zhu, Ling Wu

TS13 – BIG DATA MANAGEMENT AND ANALYSIS

12889 Performance Metrics Trend Analysis of Features Present in Transportation Systems ...................................... 462
Alvaro Gil

13020 A*DAX for Transport Data Management, Sharing and Analytics ......................................................................................... 470
Wee Siong Ng, Paul Min Chim Lim, See-Kiong Ng, Huayu Wu, Shili Xiang

13238 Management Procedures for Data Collected via Intelligent Transportation Systems ............................................ 480
Qiang Hong, Richard Wallace, Brian Reed, William Tansil, Matt Smith

13308 Big Trucks and Big Data: Opportunities for Improvements in Carrier Performance and Profitability .......... 493
Dan Filby

TS14 – EVALUATING DEPLOYMENTS

12896 A Review of International ITS Procurement Methods and Recommendations on how to Improve ITS Procurement in Australia ........................................................................................................ 505
Vaishali Shah, Greg Hatcher, Elizabeth Greer

13038 Post-hoc Data Analyses of Four Regional ITS Deployments ........................................................................ 517
Jana Sochor, Helena Stromberg, I. C. Marianne Karlsson

13367 Deploying ITS Services: Case Finland-Russia Smart Transport Corridor .................................................. 543
Karri Rantasila, Raine Hantula, Matti Lankinen, Lauri Lankinen

TS15 – INNOVATIONS IN BUS VEHICLE SYSTEMS

12083 Improving the Quality of Public Transport Wireless LAN Based on Backhaul Performance .................. 556
Tsuyoshi Takahashi, Satoshi Imata, Nobuo Suzuki

12579 Bus Fleet Speed Guidance Strategy in V2I Environment ........................................................................ 566
Tianzi Chen, Zhizhou Wu, Yufie Fan

12788 Transit ITS Research: Dynamic Bus Operations ........................................................................ 578
Tim Witten, Andrew Aiken, Cole Degerhardt
TS16 – SIGNAL AND ARTERIAL APPLICATIONS

12500 Vehicle and Pedestrian Signal Optimization at Intersection Utilizing Intelligent Vision Sensors ................................................................. N/A
Shunsuke Kamiyoo
12818 Does Adaptive Signal Control Work? Evaluating Oregon’s Five Corridors with High-Resolution Performance Data ................................................................. 581
Shaun Quayle, Galen McGil
Joanne Cheong, Zhih Zhou
13670 Individual Vehicle Level Evaluation of Loop, Video Image, and Microwave Detector ........................................................................... 604
Jinhwan Jung

TS17 – ITS, SUSTAINABILITY AND BUSINESS CASES

12000 ITS for Sustainable Mobility on Trans-European Networks — Example of Pan-European Corridor II ................................................................. 617
Roman Himmler
12561 The Economic Case for Connected Vehicle Infrastructure .................................................................................................................. 626
David Miller
13105 Towards Self-Sustaining 511 Systems .......................................................................................................................................................................................... 635
Alan Clelland
13784 ITS Factory — Intelligence to Boost Smart Cities .................................................................................................................................. 644
Aki Lumiaho, Mika Kulmala, Sini Kahilainen

TS18 – CHALLENGES FROM THE WORKD

12008 ITS Innovation Stockholm Kista — New Innovative ITS Solutions to Help Stockholm Commuters ........................................................................... 655
Jens Löfgren
12848 Stepwise Approach to Technical Operations for the Intelligent Transportation Industry ........................................................................................................... 663
Konrad Weichmann
Edmond Chin-Ping Chang
13217 Adapting Municipal Service Delivery to the Digital Age — The Washington, D.C. Approach ........................................................................... 680
Soumya Dey, Stephanie Dock
13689 CIMU - Integrated Center for Urban Mobility — São Paulo, Brazil .................................................................................................................................. 692
Olimpio Mendes De Barros

TS19 – ROUTE GUIDANCE SYSTEMS

12657 Street Scanner Geo Location ....................................................................................................................................................................... 698
J. R. Richardson, Kevin A. Wortman
12184 A New Option for ATIS: Hands-Free, Eyes-Free, Highway Advisory Smart Phone Application ........................................................................... 707
David Jones, Mary Farrell
12218 Engineering a Statewide Travel Time Engine for Virginia .................................................................................................................................. 712
David R. Robison
12452 The Development of Traffic Estimation System in Distributed Stream Processing Architecture ........................................................................... 722
Wern-Sheng Shieh, Peng-Jui Tseng, Yu-Hsiang Chuang, Pei-Jung Lu, Chih-Yi Chiang
13168 A Distributed Approach for Harnessing Regional Knowledge in Transregional Vehicle Routing ........................................................................... 727
Tobias Kraus, Hannes Koller, Gordon Isaac, Markus Piffl, Franz Pohl

TS20 – ROAD USER CHARGING 1

12267 Open Payment Systems for Transport and ITS Services .................................................................................................................................. 732
Trond Foss, Jacob Tronsdten
13442 No GPS Required: Road Usage Charging and the Future of Transportation Finance ...................................................................................... 744
Matthew Dorfman
13566 The Convergence of ITS and Tolling .............................................................................................................................................................. 752
Christopher Dorfman

TS21 – TRAFFIC SAFETY APPLICATIONS

12198 Lessons Learned from Evaluation of the Interactive Project and Next Steps Towards Evaluation of Automated Driving ........................................................................... 757
Felix Fahrenkrog, Adrian Zlocki, Lutz Eckstein
12426 A Trial of Real-time Server-based Cooperative System for Safety Use Case ............................................................................................. 769
Yutaka Kamata, Masazaki Satomura, Jun Kimura, Yuhji Yamashita
An Evaluation of Intelligent Roundabouts Under V2V and V2I ................................................................. 776
Jeong-Eun Eom, Hee Jin Jung, Sang Hoon Bae

Intelligent Turn Signals: A Vital Link to an Intelligent Transportation Future ........................................  N/A
Richard Ponziani

TS22 – DRIVER SUPPORT SYSTEMS ON PERSON

A Dynamic Route Selection Methodology for Progressive Vehicle Navigation Applications .............................. 785
Mohamad Abdul-Hak, Nizar Al-Holou, Youssef Ahmad Bazzi

Investigation of the Efficacy of Information Provision Services ................................................................. 790
Daisuke Watanabe, Toshiro Ogiso, Masaki Hiro, Hiroshi Makino

Vehicle Telematics: A Key Element to an Ecodriving Strategy in Commercial Vehicle Fleets ........................ 798
Benoit Vincent

Counteracting Traffic Congestion Using Intelligent Feedback ........................................................................ 809
David K. Drum, Timothy C. Matisziw

White Labeling of Mobile Traffic Apps - A Practitioner Guide for Highway Authorities and Private Companies ............................................................................................................................. 823
David Kamnitzer, Matt Mann

TS23 – DRIVER ASSIST SYSTEMS

Providing Real-time Driving Volatility Information ..................................................................................... 828
Jun Liu, Xin Wang, Asad J. Khattak

Map Based Intersection Collision Avoidance ................................................................................................ 848
Erdem Ergen, Gulsum Cigdem Cavdaroglu, Serdar Arslan

A Vehicle Behavior Analysis: When the Merging Support Information is Provided in Urban Highway Using a Driving Simulator ........................................................................................................ 860
Toshiyuki Nakamura, Nobuhiro Uno, Keisichi Yamamura, Masami Yanagihara, Hiroshi Shimamoto

Quick Response Code as an Alternative Solution to Classical V2I Communication System ........................ 869
Jitendra Shah, Martin Klubal, Christoph Arndt

Development of an Advisory Response Model for a Connected Vehicle Enabled Freeway Merge Assistance System: Interim Status ................................................................................................................................................ 879
Md Tanveer Hayat, Hyungjun Park, Brian Lee Smith

TS24 – ROAD USER CHARGING 2

Congestion Charging: Influence of Public Consciousness on Acceptability in Jakarta Metropolitan Area ........ 891
Sugiarto, Tomio Miwa, Hitomi Sato, Takayuki Morikawa

European Nationwide ETC Systems — Retire or Refurbish? ..................................................................... 904
Michael Bibaritsch

New Functions of the Electric Toll Collection System .................................................................................. 912
Kazuhiro Yamamoto, Hiroshi Osaki, Masayuki Tokabuchi

Innovative Enforcement Systems for Road Tolls .......................................................................................... N/A
Per Ola Clemetsen

Integrated System Delivery of a Tolling and Traffic Management System for the Capital Beltway I-495 Express Lanes Design Build Project in Virginia .............................................................................. N/A
Olu Adeyinka

TS25 – DATA SHARING AND OPEN SOURCE DATA

Open Data: Challenges and Opportunities for Transit Agencies ...................................................................... 917
Carol Schweiger

Open Source Development Model for Transportation Industry: Case Study District DOT .......................... 929
Rakesh Nune, Peter Doan

The TMDD Standard — Data Aggregator for the Infrastructure .................................................................. 940
Patrick Chan, Siva Narla, John Baker

Implementing the IDTO Bundle: Leveraging Today's Emerging Technology to Benefit the Traveling Public ... 946
Thomas J. Timchco, Ronald E. Boenau
TS26 – DRIVING SAFELY

13174 Acoustic Segmentation, Identification and Localization of Emergency Vehicles for Safer and Comfortable Driving ..................................................................................................................................................................................... 957
  Sacha Vriens, Ippei Sugah, Eliji Niwa, Yuichi Murakami

13296 Characteristics Between Driving Operation and Brain Activity in Curve Sections .......................................................... 970
  Shuguang Li, Toshiyuki Sugimachi, Shigeyuki Yamabe, Kimihiko Nakano, Yoshihiro Suda, Kouji Yamamoto

13435 Influence of the Driving Context in the Controllability Assessment .................................................................................. 982
  Andreas Puetz, Johanna Josten, Adrian Zlochi, Lutz Eckstein

13785 Rider and Powered Two-wheeler Mobility Through Industry and User Communities Cooperation ................................. 993
  Aki Lumiaho, Tapani Makinen

TS27 – CONGESTION AND DEMAND MANAGEMENT

12743 The Tel Aviv Fast Lane — HOT Lane Management in Israel ........................................................................................................ 1000
  Thomas Sachse, Harel Hanin, Ezra Levy

13189 Demand Management to Solve Congestion and Air Quality Issues .................................................................................. 1011
  Andy Gill

13703 On the Brink of Change: A Look at the Evolution of a Managed Lanes Project in South Florida ........................................... N/A
  Alicia Torrez

TS28 – ITS WEATHER SYSTEMS 1

12887 Evaluation of Weather Responsive Variable Advisory Speed System in Portland, Oregon ............................................. 1020
  Matthew Downey, Robert L. Bertini, Ahmed Al-Kaisy, Levi Evan, David Veneziano

13043 Road Weather Applications and End-user Services of FOTsis .............................................................................................. 1032
  Pertti Narmi, Evgeny Atlashin, Daria Stepanova, Timo Sahavuori

13124 ITS Technology for Winter Road Management .................................................................................................................. N/A
  Kinta Hoshi

13241 Development and Deployment of Innovative Weather Responsive Traffic Management Strategies ...................................... 1042
  Deepak Gopalakrishna, Roemer Alfjord, Kevin Balke, Fred Kittchen, Lisa Miller, Mark Taylor, Galen McGill

13480 An All-Weather Above-Ground Traffic Sensor .................................................................................................................. 1054
  Saad Bedros, Chad Stelzig, Cory Swingler

TS29 – DEVELOPMENTS IN PROBE DATA COLLECTION

12648 Innovative Evaluation of Third Party Probe Vehicle Data ........................................................................................................ 1061
  Charles R. Lattimer

12783 Assessing Network Changes Attributed to Opening a New 67 Mile Segment of I-69 Using Field Data from Bluetooth Probe Vehicles ............................................................................................................. 1071
  Stephen M. Remias, W. Benjamin Smith, Alexander M. Hainen, Richard S. Freije, Darcy M. Bullock

13299 Cellular Probe Technologies Moving Forward: The Current Trends and Perspectives on 3G, 4G, and Smartphone Applications .................................................................................................................. 1084

13370 Utilization of Probe Data Obtained from its Spots .................................................................................................................. 1096
  Hidetaka Saji, Yoshihiro Tanaka, Hideyuki Kanoshima, Hiroshi Makino

TS30 – PUBLIC TRANSPORTATION MODELING

13269 Improvement of Bus Arrival Time Estimation Model by Weighted Moving Average Method .............................................. 1105
  Jisoo Kim, Bumjin Park, Byung-Sup Moon, Hyo-Kyoung Eo

13188 Near-side Bus Stop with Queue Jumper Lane Under Connected Vehicles .................................................................................. 1119
  Jia Hu, Byungyu Park, Robert Robinson, Anit Salhaye

13597 Investigation of the Impact of Bus Blockage on Performance of Signalized Intersections by Using the Cell Transmission Model .................................................................................................................. 1135
  Metin Mustaf Aydin, Kiarrash Chashmeh, Ali Asghar Kazemi Afshar, Mehmet Sinan Yildirim

TS31 – INNOVATIVE TRAFFIC DATA COLLECTION AND ANALYSIS STRATEGIES

12633 GNSS Pseudorange Evaluation Using 3-dimensional Map ........................................................................................................ 1145
  Shunsuke Kamiyo, Fuyu Chen, Shunsuke Kamiyo

12089 Polycentricity of the Urban Structure: Spatial Movements Analysis in Shanghai with Smart Card Data ........................................ 1157
  Wefeng Li, Shichao Sun, Zhengyu Duan, Dongyuan Yang

12673 An Approach for Rail Transit Ridership Analysis Based on Large-scale Mobile Phone Data ........................................ 1167
  Wefeng Li, Xiaoyuan Cheng, Zhengyu Duan, Dongyuan Yang

13070 Forecasting Changes of Traffic Flow Caused by Road Incidents .......................................................................................... 1183
  Wei Liu, Dmqh Sarda, Fang Chen, Glenn Gueen
**TS32 – INNOVATIONS IN VIDEO AND AERIAL SENSING**

<table>
<thead>
<tr>
<th>ID</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>12096</td>
<td>Exemplar-based Object Detection using Car-mounted Fisheye Cameras for 360-degree Object Detection</td>
<td>Chikato Tsuchiya, Shinya Tanaka, Antonio Torralba</td>
</tr>
<tr>
<td>12946</td>
<td>Using Unmanned Aerial Vehicles for Traffic and Road Management</td>
<td>Erwin Vermassen</td>
</tr>
<tr>
<td>13373</td>
<td>The First Step Approach for Neuro-ITS — An Investigation on Multi-view Scenes</td>
<td>Mikio Sasaki</td>
</tr>
<tr>
<td>13608</td>
<td>Evaluating the Use of Unmanned Aerial Vehicles for Transportation Purposes: A Michigan Demonstration</td>
<td>Colin N. Brooks, Thomas Oommen, Steven J. Cook</td>
</tr>
</tbody>
</table>

**TS33 – NATIONAL EFFORTS TO PLAN AND DEPLOY ITS SYSTEMS**

<table>
<thead>
<tr>
<th>ID</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>12301</td>
<td>Johannesburg (Economic Hub of South Africa): Smart, Sustainable City Through ITS</td>
<td>Darryl Thomas</td>
</tr>
<tr>
<td>12382</td>
<td>National Transport Management in Sweden</td>
<td>Stefan Janson, Trevor Platt</td>
</tr>
<tr>
<td>12471</td>
<td>Expanding ITS in Africa - Potential Areas for International Cooperation</td>
<td>Abuyu Bertie</td>
</tr>
<tr>
<td>13547</td>
<td>ITS Development in the Arab Middle East: Planning and Design</td>
<td>James Powell</td>
</tr>
<tr>
<td>12589</td>
<td>Abu Dhabi Multimodal ITS Strategy &amp; Action Plan (Business Opportunities in the UAE)</td>
<td>Salah Al-Marzouqi</td>
</tr>
</tbody>
</table>

**TS34 – COOPERATIVE SYSTEMS RESEARCH AND DEVELOPMENT**

<table>
<thead>
<tr>
<th>ID</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>12194</td>
<td>The Estimated Truth Will Evolve on Neuro-ITS</td>
<td>Mikio Sasaki</td>
</tr>
<tr>
<td>13513</td>
<td>Intelligent Network Flow Optimization (INFL0) Prototype Development and Testing — An Overview and Status</td>
<td>Theodore Smith, Kate Hartman, Osman Altan, Denny Stephens, Thomas Timcho, Kevin Balke</td>
</tr>
<tr>
<td>13616</td>
<td>Taxi Hailing System Using Connected Vehicle Technology</td>
<td>Mohammad A. Hoque, Xiaoyan Hong, Brandon Dixon</td>
</tr>
<tr>
<td>13684</td>
<td>Extending Connected Vehicle and Cooperative System Concepts to Non-motorized and Vulnerable Transportation System Users</td>
<td>Robert L. Bertini, Todd M. Borkowitz, Haizhong Wang, Rachel Vogt, Derek H. Wong</td>
</tr>
</tbody>
</table>

**TS35 – REAL TIME INFORMATION FOR MULTIMODAL ITS APPLICATIONS**

<table>
<thead>
<tr>
<th>ID</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>12757</td>
<td>Web-based Dynamic Routing and Scheduling System for Smes: Concept and Perspective</td>
<td>Tomio Miywa, Michael G. H. Bell</td>
</tr>
<tr>
<td>13003</td>
<td>A Study on the real-time Scheduling and Routing for the Major Online Supermarket</td>
<td>Seunghyun Kim</td>
</tr>
<tr>
<td>13125</td>
<td>Real-time Travel Information Using Bus AVL Data</td>
<td>Yingying Chen, Haomin Wu, Hao Tang, Weiyan Meng, Yongyao Yang</td>
</tr>
<tr>
<td>13257</td>
<td>Co-modal Adaptation Between Modes of Transport — River Information Services for River Göta Älv</td>
<td>Mathias Karlsson, Per-Erik Holmberg, Mikael Lind, Sandra Haraldsson</td>
</tr>
<tr>
<td>13659</td>
<td>Potentials of ITS-Applications and Traffic Information for Consignors, Consignees and Logistics Service Providers</td>
<td>Andreas Pell, Christian Haider, Oliver Schauer</td>
</tr>
</tbody>
</table>

**TS36 – POLICY AND STRATEGY BENEFITS AND LESSONS LEARNED IN ITS**

<table>
<thead>
<tr>
<th>ID</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>12593</td>
<td>Unlocking the Benefits of ITS</td>
<td>Mark Byrne, Richard Harris</td>
</tr>
<tr>
<td>12867</td>
<td>Safety and Road Closure Benefits of Rural Interstate Variable Speed Limit System</td>
<td>Bhomde Saha, Promotesha Saha</td>
</tr>
<tr>
<td>13212</td>
<td>FAST-TRAC — 20 Years of Innovation-Benefits and Lessons Learned</td>
<td>Ahmad Jawad, John Abraham, Ken Yang</td>
</tr>
</tbody>
</table>
13712 The Benefits of Transportation Management Center Performance Measure Reporting ................................................................. 1423
   Oladayo Akinyemi

**TS37 – ASPECTS OF MULTIMODAL PUBLIC TRANSPORTATION**

12115 Results and Public Opinion on a Full-scale Implementation of Co-modal Travel Services, Including Park and Ride, in Gothenburg Sweden .................................................................................................................. 1426
   Peter Wessel

12837 Development of a Multi-Modal Transportation Framework in Hangzhou .......................................................................................... 1436
   Ting Song, Cheng Yang, Wusha Huang, Yongyouo Yang

13454 Development of An Integrated Public Transportation System Based in a Train Station ................................................................. 1443
   Younake Hukaka, Toshitaho Suda

13737 APIs and French Journey Planners Interoperability .......................................................................................................................... 1455
   Jean Seng, Marc Florisson, Stephane Simart

13753 Reorganization of the Mobility Service Provision — Public Governance as a Contributor ................................................................. 1461
   Sonja Heikkilä

**TS38 – COMMERCIAL VEHICLE ENFORCEMENT STRATEGIES**

13032 High Accuracy Weight in Motion Enforcement System Implementation and Testing ................................................................. 1472
   Michal Karkowski, Leezek Rafański

12754 Using On-Board Electronic Logbook Data to Analyze Truck Driver Schedules and the Hours-of-Service Rules .................................................................................................................................................................................. N/A

13745 Use the Toll System in the Detection of Overweight Cargo Vehicles .......................................................................................... 1486
   Karel Feix

12524 Dynamic Force Sensing — Dynamic Axis Scale with High Speed and Heavy Running Vehicle ...................................................................... 1498
   Eisichi Tada, Yoshiaki Ichii, Koji Tada, Nelson Fan, Ryo Omata, Shuji Akimichi, Itsu Samedu, Toshio Uchimara, Atsuka Takahashi

**TS39 – MANAGEMENT OF SHARED AND ELECTRIC VEHICLES**

12397 Development of Personal Mobility Sharing System — Use of Segway as Personal Mobility ................................................................. 1501
   Naohisa Hashimoto, Kohji Tomita, Akiya Kamimura, Osamu Matsuamo

12742 Competence Area of Electric Vehicles and Relevance of An ITS Support for Transport and Parking Issues ................................................................ 1513
   Eiichi Tada, Yoshiaki Ichii, Koji Tada, Nelson Fan, Ryo Omata, Shuji Akimichi, Itsu Samedu, Toshio Uchimara, Atsuka Takahashi

13543 Multiple Station Shared Vehicle Systems Design and Operations Modeling Framework ................................................................................ 1533
   Akhtaa Hossain, Ata M. Khan

**TS40 – HUMAN-MACHINE INTERFACE EVALUATION**

12587 Eye Glance Time Reduction Using AR Lane Guidance .......................................................................................................................... 1555
   Yoshito Kondo

12996 Evaluation of Navigation Displays by Analysis of Gaze Direction in a Driving Simulator ............................................................................. 1561
   Kimihiko Nakano, Rencheng Zhang, Hiromita Ishiko, Yuandong Yin, Masanori Ohori, Kenji Hagita, Makuto Kihara, Toshito Yano

13176 Fundamental Study of In-vehicle Information Provision Based on Cognitive Workload of Elderly Drivers When Approaching an Intersection ........................................................................................................ 1572
   Toshiki Nakamura, Tatsuya Daimon, Yoshito Oda

13772 Passenger Presence Effect on Elderly Drivers Evaluated by a Driving Simulator ................................................................................ 1584
   Kaeuch Park, Reika Abe, Manabu Ohta, Hiroshi Ono, Yasuhiro Kumagai

13773 A New Driving Ability Test to Predict Risks of Traffic Accident Types According to Ages and Leukoaraiosis ................................................ 1594
   Kaeuch Park, Misuhrno Nagahara, Manabu Ohta, Reika Abe, Yasuhiro Kumagai

**TS41 – TOOLS FOR PROVIDING STATEWIDE AND METROPOLITAN AREA ENFORCEMENT INCIDENT AND EMERGENCY MANAGEMENT**

13180 Critical Infrastructure Protection System: 3rd Street, NW Tunnel – Washington, D.C. ......................................................................................... 1605
   Rakesh Nune, Peter Doan, Brook Haillemariam, Jason Tao

12988 Research for Highway Network Management and Emergency Management Platform of Guangdong .................................................................. 1612
   Ling Sun, Jian Gao, Qi-Lin Wang, Mei-Cun Luo

13281 Effectively Managing and Sharing Statewide Data ................................................................................................................................. 1619
   James Knowlton, John Horner
TS42 – ROAD USER CHARGING

12005 Examination on Cooperation of ETC and Axle Load Scale
Ken Chikamatsu, Yukinori Matsushita, Yasuyuki Matsuda
1626

12080 GNSS Road User Charging in America
Brian Michie
1636

12361 Present Situation and Future Prospect of ETC Services in Japan
Yugi Tamura, Yasutomo Uenishi
1640

TS43 – PLANNING AND DEPLOYMENT

12505 Planning Needs & Gap Analysis for Safety Pilot Connected Vehicle Infrastructure Deployment
Brian Reed
1653

12865 Deployment Strategies for Safety Pilot Connected Vehicle Infrastructure
Brian Reed, Scott Shogan
1662

13392 NorSIKT - Nordic System for Intelligent Vehicle Classification
Torbjørn Haugen, Torgeir Vaa, Per Melen
1671

13522 West Michigan ITS Network Upgrade, An Integrated Approach
Suzette Peplinski, Thomas Richer, Matt Wiersma, Michael S. Wagner
1684

13681 Pilot Program for the Implementation of Information Exchange Processes and Interoperability Protocols Between Control and Operation Centers on toll and Free Roads, in the National Roads Network of Mexico
Antonio Galletero
N/A

TS44 – CONNECTED VEHICLE APPLICATIONS

13540 Driver-assistive Truck Platooning and Highway Safety: Features for Drivers, Fleet Managers and Highway Officials
Joshua Switkes, Steve Boyd, Ganymed Stanek
1697

13336 Design, Implementation and Field Trail of DSRC-based Transit Signal Priority System
Andy An-Kai Jeng, Mark Chih-Wei Hsu
1707

VOLUME 3

13381 Potential Safety Benefits of Automatic Collision Notification — A Case by Case Analysis
Maria Ohlin, Johan Strandstroth, Anders Lie
1716

13729 A Methodology to Deal with Priority for Intelligent Vehicles in a Segment of a Single Lane Highway
Ricardo Reghelin, Lucia Valeria Ramos De Arruda
1729

13786 Deployment Challenges for Truck Platooning
Wei-Bin Zhang, Ching-Yao Chan, James Misener, Kun Zhou, Han-Shue Tan, Jingquan Li
1741

TS45 – ENERGY AND EMISSION IMPACTS OF ITS

12806 Combining Speed and Dwell Time Advisories for Improving Bus Ride Comfort
Marcin Serekowsky, Djamel Khadraoui
1753

12856 Public Transport Priority: An Energy Saving ITS Measure
Marco Bottero, Bruno Dalla Chiara, Francesco Deforio, Mario Berger
1765

13439 Analysis of Fuel Economy Improvement in the Eco-driving Pilot Program with ITS
Hideki Kato, Akio Masegi, Tsuyoshi Ono, Keiichi Higuchi
1776

13569 Optimal Design of Energy Harvesting Vehicle Suspension Systems
Bo Huang, Chen-Yu Hsieh, Farid Golnaraghi, Mehrdad Moallem
1785

13622 Connected, Automated, Zero-Emission Cars are Essential for Improving Livable, Sustainable Communities
John S. Niles
1799

13686 Assessing Energy Impact of Traffic Management and ITS Technologies
Vadim Sokolov, Dominick Karbowskis, Namsook Kim
1811

TS46 – ADVANCED VEHICLE SYSTEMS

12180 A Novel Channel Scheduling in IEEE 1609 Vehicular Networks
Tien-Yuan Hsieh, Chih-Wei Hsu
1821

12432 The Development of Remote Diagnostic System for Internet-connected Vehicles
Chu-Yuan Hsu, Rong-Terng Huang, Tian-Li Wang, Chi-Cheng Chen
1833

12527 Calibrating Relative Pose of Non-Overlapping In-Vehicle Cameras with Laser Pointer
Shigang Li, Wuhe Zou
1847

13242 The Application of the Human-in-the-Loop Warning Messages Notification Model in the Design of Vehicle-to-Infrastructure (V2I) Communication Systems
Yugi Zhang, Changzhu Wu
1859
13344 Mobility Impacts of Cooperative Adaptive Cruise Control (CACC) Under Mixed Traffic Conditions .......................................................... 1876
   Joyoung Lee, Joe Bared, Byungkyu Park

TS47 – COOPERATIVE VEHICLE FIELD TEST PROGRAMS

12625 Asset, Configuration & Maintenance Management for Safety Pilot .......................................................... 1888
   Anthony Gastorowski, Brian Reed
12628 Network Architecture & Network Monitoring for Safety Pilot Connected Vehicle Infrastructure ...................................................... 1895
   Anthony Gastorowski, Brian Reed
13394 Lessons Learned: Security and Privacy in Safety Pilot Model Deployment .......................................................... 1903
   Andre Weimerskirch, Scott Bogard, Debby Bezzina
13549 Detroit Builds First Urban Canyon Connected Vehicle Test Bed .................................................................................. 1908
   Colleen Hill-Stromsak, Sunny Jacob, Prasad Nannapaneni, Beata Lamparski, Greg Kraeger
13624 Automating the Analysis of Field Operational Test Data for the Evaluation of Cooperative Systems .................................................. 1919
   Bart D. Netten, Harry Wedemeijer, Igor Passchier

TS48 – ITS WEATHER SYSTEMS 2

12231 Improving the Efficiency of Road Weather Data Collection ..................................................................................... N/A
   Rose Mooney
12717 Winter Maintenance Quality Monitoring and Stopping Distance Evaluation .......................................................... 1923
   Jukka Pahlakari, Tuomo Karjalainen, Marjo Hippi
13057 Framework for a Comparison and Demonstration of Seasonal Weight Restriction Models Using RWIS Data .............................. 1932
   Dawn Gustafson, Heather J. Miller, Christopher Cupral, Maureen A. Kestler, Richard Berg
13177 AVL/GPS Use for Winter Maintenance .................................................................................................................. 1937
   Timothy Creaze, Justin Droste, Mark Neill, Ben Hershey
13542 Michigan DOT Road Weather Decision Support System .......................................................................................... 1951
   Elise Kapphuhn, Shawn Truelson, Lex Jacobson

TS49 – MULTIMODAL SIGNAL PRIORITY MANAGEMENT

12629 Traffic Signal Priority, Business Architectures and Available Solutions - Challenges and Opportunities ............................................. 1969
   Andrew Somers, David Johnston
12702 Concept for Commuter Express Lanes on an Urban Arterial through Signal Priority .......................................................... 1984
   Melissa Ackert, Xuanwu Chen, Mohammed Hadi
12971 Leveraging Existing Priority Control and Vehicle Detection Equipment to Create a Multi-modal Priority Control System with DSRC .................................................................................. 1999
   Kevin Eichhorst

TS50 – DEVELOPMENT IN ROAD PRICING AND PARKING MANAGEMENT

12497 iPark Video-based System to Identify Available Parking Locations Over Large Areas .......................................................... 2002
   Seri Park, Edmond J. Dougherty
13016 Value Added Services of the GNSS CN Based Road Pricing System .................................................................................. 2011
   Tetsuya Adachi, Masaki Sato, Ryota Hiura, Kyoko Oshima, Takeshi Fukase, Takuma Okazaki
13172 Vision-based Adaptive Vehicle Detection for Intelligent Parking Service ............................................................................ 2020
   Liyuan Li, Gang S. Wang, Jiaqi Zhu, Jaya Shankar
13787 Impacts of Differentiated Road Charges — A Proposed Model .......................................................................................... 2032
   Gideon Mbiydzenyuy

TS51 – ECO-DRIVE MANAGEMENT SYSTEMS

13794 Study of Eco-Driving Support System for Hybrid Vehicle Considering Traffic Flow .......................................................... 2046
   Katsumi Taguchi, Keiji Taguchi, Shota Fuji
12799 Impact Assessment for Cooperative Urban Traffic Management Based on Microscopic Traffic Flow Simulation .................................. 2057
   Jonas Luedemann, Jaap Vreeswijk, Ronald Van Katwijk, Robbin Blokpoel, Matthew Fullerton
13095 Installation of Environment Protection Management System (EPMS) to the Traffic Control Systems in Tokyo .................................................. 2069
   Aki Kabasawa, Yutaka Yoshida, Katsunori Yamazaki
TS52 – CORRIDOR BASED TRAVEL INFORMATION

12570 Study on Airport Access Behavior Modification by Providing Predictive Travel Time Information in Cases of Sudden Incident .......................................................... N/A

N/A

13285 A Proposal for Multidimensional Geofencing as a Data Transfer Standard .................................................. 2079
Stan Young, Kyle Rush

13588 Examination of the Methods and Costs of Providing Traveler Information ........................................... 2090
Gregory Tava

12807 Comparison of National Performance Measure Data Set (NPMRDS) with Bluetooth Traffic Monitoring (BTM) Data and I-95 Corridor Coalition Vehicle Probe Project (VPP) Data .................................. 2109
Karthik Kausik, Elham Sharifi, Stanley E. Young, Babak Baghaei

TS53 – SAFETY SYSTEM SENSORS

12451 Suppression of Interference Wave by Employing Staggered PRIon Two Frequency Interrupted CW Radar .......... 2121
Takayuki Inaba, Kento Hihara, Shouhei Ogawa

12956 Measuring the Performance of Active Safety Algorithms and Systems .......................................................... 2127
Tony Giosatos, Jeff Blackburn, Krzysztof Chadaj

13399 A Reliable Lane Detection Using Steerable and Average Filters .............................................................. 2138
Seungwha Hyun, Inseok Yang, Dong Seong Han

13455 Integrated Approach to Enable Real World Testing in Public Traffic by Complex Scenario Interpretation ........ 2142
Daniel Jones, Ulrich Lages, Wolfgang Nickel

TS54 – VEHICLE DETECTION AND LOCATION BY VIDEO, SENSORS, AND PROBES

13239 Strain Gauge Strip Sensor for Precision Weigh-in-motion System .............................................................. 2145
Kai Kroll, Matthew Young, Karl Kroll

13310 Road Intersection Monitoring from Video with Large Perspective Deformation ........................................ 2161
Takashi Furuya, Camillo J. Taylor

13337 BlueEye: A Bluetooth-Based Vehicle Location Identification System for Queue Length Estimation at Signalized Intersections ................................................................. 2173
Mecit Cetin, Ahmed Afgham, Tamer Nadeem, Mecit Cetin

13676 Variability in Travel Time Measurement Studies by the Degree of Data Aggregation ................................ 2185
Aleksandar Stevanovic, Jaehyun So, Cameron Kergaye

TS55 – DEVELOPMENT OF NEW ITS ALGORITHMS

12307 Random Forest Travel Time Prediction Algorithm Using Spatiotemporal Speed Measurements .................. 2200
Hesham Rakha, Mohammed Elhenawy, Hao Chen

12310 Congestion Prediction Using Adaptive Boosting Machine Learning Classifiers ....................................... 2216
Hesham Rakha, Mohammed Elhenawy

12612 Cloned Vehicle Detection Approach Based on the Shortest Paths and License Plate Recognition Algorithms 2229
Feng Wang

13740 An Automatic Calculation Method of Identifying the Hysteresis Loop Characteristics in Macroscopic Fundamental Diagram ................................................................. 2251
Zhe Xu, Peter J. Jin, Jian Zhang, Bin Ran

TS56 – ROAD USER CHARGING 4

12249 Vehicle Axle Counting Using Two LIDARs for Toll Collection Systems ..................................................... 2271
Toshio Sato, Yasuhiro Aoki, Yasuhiro Takebayashi

13084 Multi-Lane-Free-Flow Charging System Based on ID tag ................................................................. 2283
Ieji Saka, Kato Masato, Nagata Takeshi

13302 SMART Tolling System Based on Multi-Lane Free-Flow ......................................................................... 2291
Rye-Na Woo, Ki-Han Lee

13402 The ‘F’ Factor — Not Only Smart but Flexible Synergies of Traffic Control and Management Systems .......... 2303
John Yalda

TS57 – ITS APPLICATIONS TO IMPROVE TRAFFIC FLOW

11933 Strategy of Practical Implementation of Signal Information Drive Systems .................................................. 2310
Yasushi Domae

12298 Performance Analysis of a Crossing Collision Prevention System Using Microscopic Traffic Simulator ........ 2318
Yuusuke Takatori, Hidetsu Takao

12812 Traffic Light Assistant - Applying Cooperative ITS in European Cities and Vehicles .................................. 2324
Michael Schuch, Michael Zoweck
<table>
<thead>
<tr>
<th>ID</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>12957</td>
<td>Support Vector Machines — A Suitable Approach for a Prediction of Switching Times of Traffic Actuated Signal Controls</td>
<td></td>
</tr>
<tr>
<td>13514</td>
<td>Signal Phase and Timing for Connected Vehicles: A Discussion on ITS’ Implementation and Challenges</td>
<td>Thomas J. Timcho, Deborah Curtis</td>
</tr>
<tr>
<td>12661</td>
<td>Probabilistic Pedestrian Safety Modeling in Intersections Using a Surrogate Safety Measure</td>
<td>Kaveh Gharieh, Farbod Farzan, Mohsen A. Jafari, Tao Gang</td>
</tr>
<tr>
<td>11990</td>
<td>Development and Operation of the New Push-button Signal Control System</td>
<td>Akio Yamazaki</td>
</tr>
<tr>
<td>12332</td>
<td>Improved Bike Safety at Traffic Signals via Better Detection</td>
<td>Dan Sall</td>
</tr>
<tr>
<td>12627</td>
<td>Intersection Safety and Mobility System (SAMS)</td>
<td>Christopher Flores, Ajith Muralidharan, Pravin Varaiya</td>
</tr>
<tr>
<td>12938</td>
<td>Priority of PT in Trondheim by Adaptive Signaling</td>
<td>Kristin Kraakenes, Orjan Tveit</td>
</tr>
<tr>
<td>12140</td>
<td>RoadRunner: Infrastructure-less Vehicular Congestion Control</td>
<td>Jason Gao, Li-Shuan Peh</td>
</tr>
<tr>
<td>12538</td>
<td>Enhancements of Traffic Simulator and ITS Performance Evaluation</td>
<td>Hajime Sakakibara, Hirofumi Ohmagi, Motoyoshi Noda, Katsuhisa Kawasaki</td>
</tr>
<tr>
<td>12580</td>
<td>Sophistication of MPD Traffic Control System</td>
<td>Tatsuya Seki, Motoyoshi Noda, Hajime Sakakibara, Kazunori Masuda</td>
</tr>
<tr>
<td>12823</td>
<td>Exploring the Use of Advanced Traffic Management Systems (ATMS) to Mitigate Atypical Bottlenecks</td>
<td>Mark L. Frantz, Yang Lu, Gang-Len Chang, Jin-Chung Ma</td>
</tr>
<tr>
<td>12665</td>
<td>Innovative Solutions for Sustainable Urban Freight Transport</td>
<td>Meng Lu</td>
</tr>
<tr>
<td>12880</td>
<td>Container Number Database</td>
<td>Paul Clark</td>
</tr>
<tr>
<td>13048</td>
<td>Empowering the Commercial Vehicle Fleet with V2X</td>
<td>Steve Sprouffske</td>
</tr>
<tr>
<td>13398</td>
<td>Analyzing Benefits and Barriers of Tracking and Tracing Solutions for the Transportation of Dangerous Goods - Match Literature View and Expert Observations</td>
<td>Christian Haider, Gerald Aschauer, Andreas Pell</td>
</tr>
<tr>
<td>13782</td>
<td>Grade Adaptation for Improving Commercial Vehicle Fuel Economy — Experimental Results</td>
<td>Rajeev Verma, Naved Pavanwala, Saurb Khope, Zhijun Yang</td>
</tr>
<tr>
<td>12291</td>
<td>Modernizing Hours-of-Service Compliance: Electronic Logging Devices</td>
<td>Soona Lee</td>
</tr>
<tr>
<td>13014</td>
<td>Study About the Small Diversity Antenna for 5.9 GHz Band V2X Communication</td>
<td>Yuji Sugimoto, Tadao Suzuki, Yasumune Yukiwaki</td>
</tr>
<tr>
<td>13133</td>
<td>A Priority Based Transmission Scheme for Extended Channel Access in Vehicular Networks</td>
<td>Jung-Hoon Song</td>
</tr>
<tr>
<td>13224</td>
<td>5.9 GHz V2X Modem Performance Challenges with Vehicle Integration</td>
<td>Rick Zerod</td>
</tr>
<tr>
<td>13736</td>
<td>Measuring Integrity of Navigation in Real-time</td>
<td>Atti A. Lange</td>
</tr>
<tr>
<td>13387</td>
<td>Compass 4D: Method to Implement Road Side Units</td>
<td>Guilhem Autret, Technical Studies And Research Engineer, Cerema, France</td>
</tr>
<tr>
<td>13426</td>
<td>Successful Management of a Connected Vehicle and Infrastructure Model Deployment</td>
<td>Debby Bezzina, Jim Sayer</td>
</tr>
</tbody>
</table>
13400 SCORE@F: French Field Operational Test for Cooperative Systems ................................................................. 2548
Louahdi Khoudour, Sebastien Romon, Cecile Barbier, Thierry Ernst, Hasnaa Aniss, Olivier Segard, Dominique Guichon, Ludovic Simon

13675 Advanced Technology Test Beds ........................................................................................................ 2557
Matthew Smith

TS63 – INNOVATIONS IN RURAL ITS

12280 Tri-State Automated Traffic Management System & 511 ................................................................. 2560
Robert T. White

VOLUME 4

12842 Movable ITS for Intensive and Cost-Effective Traffic Management for a Large-scaled and Short-time-period Event Area ................................................................................................. 2572
Jin-Tae Kim

12983 A Rural ITS Intersection Safety Application for Magnetometer Based Vehicle Detection Equipment ................................................................. 2584
Kyle Holgate

13268 Rural Intersection Conflict Warning Systems — A Minnesota Statewide Effort to Reduce Fatalities ................................................................. 2587
Ken Hansen, Janelle Borgen

TS64 – DEVELOPMENTS IN CONNECTED AND AUTONOMOUS VEHICLE SYSTEMS

14272 Outlook for Connected/Automated Vehicles: Points and Counterpoints ................................................................. N/A
Mark Norman

12041 Black Box Design Approach for Optimal Stand-alone V2X and Integrated Active Safety Applications Implementation ........................................................................................................ 2595
Faroog Ibrahim, Vidya Sagar Katta

13340 Testing Impacts of Work Zone X2V Communication System on Safety and Air Quality in Driving Simulator ........................................................................................................ 2607
Fengxiang Qiao, Qing Li, Lei Yu

13403 Network of Automated Vehicles: The Autonet2030 Vision ........................................................................................................ 2618
Arnaud De La Fortelle, Ali Marjovi, Alcherio Martinoli, Ignacio Llatser, Andreas Festag, Sjoberg Katrin

TS65 – DRIVER ASSISTANCE SYSTEMS

12758 Development of the Device to Prevent Wrong-way Driving ............................................................................ 2627
Yuichi Mizushima, Shinobu Matsumoto

13041 Designing of Active Front Steering Using Dynamic Inversion ............................................................................ 2635
Inseok Yang, Dong Seog Han

13457 Human-Machine Cooperation in Highly Automated Driving ............................................................................ 2642
Martin Krähling, U. Lages, S. Griesche, D. Kathner, R. Rojas

13529 Results of Initial Test and Evaluation of a Driver-Assistive Truck Platooning Prototype ................................................................. 2645
Richard Bishop, David Bevly, Joshua Switkes, Lisa Park

TS66 – ADVANCED CORRIDOR MANAGEMENT 1

13109 Data Management and Integration of a Multi-Modal and Multi-Agency Integrated Corridor Management System ........................................................................................................ 2655

13062 MDOT Metro Region Integrated Corridor Management Projects ............................................................................ 2666
Michael Scheuer, Michele Mueller, Danielle Deneau, Patrick Johnson

13246 AZTech: An Approach for a Low Cost ICM Program ............................................................................................. 2674
Nicolaas P. Sward, Reza Karimvand, Steve Ramsey, Faisal Saleem

13460 Dynamic Corridor Congestion Management in the Los Angeles South Bay ............................................................................ N/A
Alien Chen

13508 Multi-Agency Fast-Tracked ITS Deployment - I-90/39/88 Problem Solving ................................................................. 2682
Scott Lee, Ahmed Ghaly

TS67 – APPLICATION OF SMARTPHONE TECHNOLOGY TO IMPROVE MOBILITY

12541 Connected Car: The Story of a 21st Century Driver ............................................................................................. 2694
Eugene Tsyrklevich

12761 Creating Big Data for Pavement Maintenance Management of Unsprung Movement Information from Sprung Acceleration ............................................................................ 2705
Koichi Yagi
12952 Impact Evaluation Methodology for Collaborative Transport Applications .............................................. 2715
Merja Pentinnen, Frederik Diedrichs, Katri Pagle, Evangelia Portouli, Pirikko Rama

13132 Changing Travel Behavior Through Incentives Using a Smartphone Application with Automatic Travel
Behaviour Detection — Results from Gothenburg ...................................................................................... 2720
Anders Hjalmarsson, Dirk Van Amelsfort, Mathias Karlsson

13323 Enhancing Mode Choice via Crowdsourcing and Decentralization of Routing and Scheduling ................. 2732
Santosh Mishra, Gabriel Lopez-Bernal

TS68 – NEW USES FOR ROADSIDE EQUIPMENT

12947 Modeling and Characteristics of Traffic State Generation from Loop Detector Based on Vehicular
Trajectory Data .............................................................................................................................................. 2737

13204 Characteristics and Performance Level of the USN-based Portable Reference Equipment Developed to
Overcome the Shortcomings of the Laser Sensor-based PORE for ITS Systems Performance Evaluation .......... 2744
Sang Hyup Lee

13322 Approach on the License Plate Recognition System Performance Improvement .............................................. 2754
Yuuske Yasukura, Takahiro Urao

TS69 – ADVANCED TRAFFIC MANAGEMENT 1

13379 Co-operative Road Weather Information - Slipperiness Detection .............................................................. 2765
Pasi Pyykkönen, Eetu Pilli-Silvola, Juho Kostiani, Renne Tergajeff, Raine Haustala

13546 I-80 Integrated Corridor Mobility Project .................................................................................................. 2775
Derek Pines, Stewart Ng

12922 Advanced Corridor Traffic Management Based on Infrastructure and Probe Data Fusion ......................... 2778
Toshihiko Oda, Mitsuhiro Koga, Satoshi Niikura

12988 Video on Desktop .................................................................................................................................... 2784
Clay Packard, Derek Vollmer

13452 Success Factors for Tendering Advanced Traffic Management Systems ...................................................... 2787
Sebastian Althen

13517 Operational Benefits of ATMS Deployment to Miami-Dade County ......................................................... 2790
K. K. Saxena, Hiram Hernandez, Elyse Lee, Nelson Berthin

TS70 – STRATEGIC ISSUES IN ITS DEVELOPMENT

12725 Cooperation, A Prerequisite for Result .................................................................................................... 2800
Annica Roos, Lars Ake Asplund, Urban Stenberg

12325 Smarter Transportation Management through ITS .................................................................................. 2810
Robert Edelstein

12594 Trends in Transportation and Mobility .................................................................................................... 2819
Richard Harris

12979 Reliability is the Key to Sustainability in Transportation ......................................................................... 2825
Cary Vick

TS71 – TRANSIT SIGNAL PRIORITY

13265 NYC Manhattan Transit Signal Priority System Evaluation ........................................................................ 2825
Lihua Zhang

13438 Taichung City BRT Priority Signal System Design ................................................................................... 2832
Chao-Fu Teh, Liang-Tay Lin

13492 Regional Transit Signal Priority Interoperability ...................................................................................... 2837
Daryl J. Tsawola, Kevin D. Stanciel, Mark E. Pittsick

13567 DSRC for Transit Vehicles in the Bay Area ............................................................................................... 2849
Paul Gray, Daniel Buckley

TS72 – DRIVER SIMULATION

12666 Extraction of the Driving Features of the Elderly Drivers with Pre-dementia Drivers from Driving
Simulator Test ................................................................................................................................................... 2860
Chisa Takahashi, Yasuhiro Nakano, Yurie Iribe, Haruki Kawanaka, Koji Oguri

13347 Driver Behaviour Impacts of Cooperative In-vehicle Signage ................................................................... 2867
Satu Innamaa, Anna Rama

13591 3-D VR Model for Optimal Alignment Search System of Highway Design (OHPASS) using ASTER
GDEM ............................................................................................................................................................ 2878
Motoya Yamasaki, Masaharu Inoue, Takayuki Fukase, Ichizuru Ishimoto, Ippei Iwamoto, Shunta Shimizu
TS73 – PROBE DATA APPLICATIONS AND EVALUATIONS

13458 Improving Operations on MDOT’s Freeways Using Probe Vehicle Data ................................................................. 2888
Jia Hu, Michael D. Fontaine

12383 Field Evaluations of an Adaptive Traffic Signal Control System Using Private Sector Probe Data ................................. 2896
Jason Firmen, Charles R. Lattimer

12476 Probe-Based Travel Time Decomposition Using Speed-time-distance Approximation Technique ............................ 2912
Sorawit Narupiti, Porntep Puangprakhon

13063 Analysis of Emergency Vehicle Travel Time Variance Using GPS and GIS Data, Speaker 5 .................................................. N/A
N/A

13605 Detecting Vehicle Stops from Smartphone Accelerometer Data ................................................................................. 2925
Mecit Cetin, Ilyas Uzun, Abdulla Alasaudi, Tamer Nadeem

TS74 – NAVIGATION SYSTEM TRAVEL INFORMATION

12572 A Study of NMEA Format (GPS) Utilizing Short Range Data for Mobile Phone and Applied Map Deliver System ................................................. 2938
Yuichi Takayunagi, Yuzu Hirotsu

12585 Microscopic Simulation Testbed Based on ITS Environments ....................................................................................... 2947
Taehyung Kim, Bum-Jin Park, Seung-Ki Ryu, Hyungsoo Kim, Minho Shin

13191 Improvement of Global Map Matching Algorithm Based on Frechet Distance ............................................................... 2955
Kai Zhang, Linlin Xiao, Qiang Li, Guangdong Hou

13225 Ideal Addressing for Automotive ............................................................................................................................. 2962
Kameron Barron Clifford

13476 Difference Between Estimated Travel Time By Car Navigation System and Real Travel Time By Probe Vehicle Test in Urban Area ................................................. N/A
Heejin Jung

TS75 – INNOVATIVE APPROACHES FOR ATIS

13477 Predicting Corridor Travel Time Reliability in Real-time Using Bluetooth Data ................................................................. 2965
Laurence Rilett, Zifeng Wu

12800 An Automated System for City-scale Travel Time Calculation .................................................................................... 2979
Vinod Biijani, Suresh R. Tiwari, Bipul Srivastava, Pamela A. Nezbait

13075 Utilizing the Systems Engineering Process in Support of Building a Construction Traveler Information for
I-35 Widening in Central Texas ........................................................................................................................................... 2990
Robert Brydia, Anthony Voigt, Christopher M. Poe, Kevin Balke, Gerald Ullman

13139 A Hybrid Approach for Feature Selection and Freeway Travel Time Prediction Using Biogeography-based Optimization and Support Vector Regression ................................................................................. 3007
Prateek Bansal, Mu-Chen Chen

TS76 – INNOVATORS IN NETWORK MANAGEMENT

12735 Improved Incident Management through Anomaly Detection in Historical Records ......................................................... 3019
Ronnie Tai, David Yee, Fang Chen, Wei Liu

12901 Real-time Traffic Queue Length Estimation at the Freeway Off-ramp Using Dual-zone Detectors ...................................... 3031
Yao Cheng, Xinlong Yang, Gang-Len Chang

12969 Alternative Performance Measures and Weighting for Quantifying Spatial and Temporal Congestion Using Probe Data ........................................................................................................................................... 3044
Thomas Brennan Jr., Christopher M. Day, Stephen M. Remias, Deborah K. Horton, Edward D. Cox, Darcy M. Bullock

13013 A Study of Traffic Volume Fluctuation Considering Traffic Incidents in Hanshin Expressway Network ......................... 3063
Akito Higata, Hidetsugu Uno, Yoshitsuya Nakamura, Hiroshi Yamazaki, Hiroshi Shimamoto

TS77 – SENSING THE VEHICLE ENVIRONMENT

11962 A Novel Controller Design for Collision Avoidance Systems Using Sensor Fusion Method .................................................. 3075
Ming Hung Li, Yi Feng Su, Chan Wei Hsu

13366 Optimization of Computer Vision Algorithms in Codesign Methodologies ................................................................. 3087
Marcos Nieto, Juan Diego Ortega, Oihana Otaegui, Andoni Cortes

13391 Forward-Backward Object Tracking for Generation of Reference Scenarios Based on Laser Scan Data .......................... 3099
Martin Spencer, Roman Katz, Ulrich Lages

13598 Stereo Vision Approach for Night Time Pedestrian Detection and Protection ................................................................. 3106
Mario Haddad, Truman Shen, Greg Schamp, Rashid Minhas, Guang Zeng, Rohan Divekar

13164 Punctuality as Performance Metrics for Efficient Transportation Systems ................................................................................. 3122
Mikael Lind, Sandra Haraldson, Per-Erik Holmberg, Mathias Karlsson, Alf Petersson, Mikael Hagg
### TS78 – MEASURING PERFORMANCE

<table>
<thead>
<tr>
<th>Paper ID</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>12965</td>
<td>Comparison of Travel Times Displayed on Dynamic Message Signs with Bluetooth Traffic Monitoring (BTM) Travel Time Data in Pittsburgh, PA</td>
<td>Stanley E. Young, Elham Sharifi</td>
</tr>
<tr>
<td>13561</td>
<td>Safety and Operational Performance Measures from Radar-based Vehicle Detection Systems</td>
<td>Kelvin R. Santiago-Chaparro, Madhav Chitturi, Andrea R. Bill, David A. Noyce</td>
</tr>
<tr>
<td>13693</td>
<td>Measuring Performance on Interrupted Flow Facilities with GPS Probe and Bluetooth Traffic Monitoring Data</td>
<td>Rueben M. Juster, Stanley E. Young, Elham Sharifi</td>
</tr>
</tbody>
</table>

### TS79 – MULTI OBJECT COLLISION AVOIDANCE

<table>
<thead>
<tr>
<th>Paper ID</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>12200</td>
<td>Effect and Acceptance of V2I Cooperative Crossing Collision Prevention System at Non-Signalized Intersections</td>
<td>Atsushi Furuta, Yasunari Iwata, Akio Masegi, Yasuhiro Mimura</td>
</tr>
<tr>
<td>13185</td>
<td>Real-time Multiple Object Recognition for Collision Avoidance Using Wide Angle Stereo Camera</td>
<td>Dmitry Tishkov, R. Shirvany, F. Abad, S. Bougnoux, R. Bendahana</td>
</tr>
<tr>
<td>13277</td>
<td>Vehicle-to-Pedestrian Cooperative Safety Application</td>
<td>Kazutoshi Nobukawa, Timothy J. Gordon</td>
</tr>
<tr>
<td>12273</td>
<td>Methodology for Designing Intersection Collision Avoidance Systems based on Multi-objective Criteria</td>
<td>Ikaro Sato, Hideki Nithara, Kensuke Yokoi</td>
</tr>
</tbody>
</table>

### TS80 – TRAFFIC CONTROL

<table>
<thead>
<tr>
<th>Paper ID</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>12399</td>
<td>Yellow Light and Yellow Light Dilemma — An Independent Scrutinization from the View of Logic</td>
<td>Jiantong Ni</td>
</tr>
<tr>
<td>12419</td>
<td>An Evaluation of Adaptive Traffic Control System in Istanbul, Turkey</td>
<td>Nihat Kocyigit</td>
</tr>
<tr>
<td>13472</td>
<td>A Rationale for Incorporating ITS Applications’ Effect into the HCM Signalized Facilities Analysis Procedure</td>
<td>Jia Hu, Byunghyu Park, Joyoung Lee, Young-Jun Moon, Jae-Joon Lee</td>
</tr>
<tr>
<td>13495</td>
<td>Real-time Traffic Control for Urban Environments: Expanding the Surtrac Testbed Network</td>
<td>Gregory Barlow, Stephen F. Smith, Xiaofeng Xie, Zachary B. Rubinstein</td>
</tr>
<tr>
<td>13509</td>
<td>Variable Speed Limit Analysis on the Highway Istanbul</td>
<td>Zekai Karagec, Fatih Gundogar, Orhan Kiray</td>
</tr>
</tbody>
</table>

### TS81 – ACADEMIC ISSUES ON PUBLIC TRANSPORTATION

<table>
<thead>
<tr>
<th>Paper ID</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>12888</td>
<td>Selection Guidelines and Anomaly Detection of Performance Metrics in Transportation Systems</td>
<td>Alvaro Gil, John Handley</td>
</tr>
<tr>
<td>13196</td>
<td>A Web Platform for User-Oriented Reliability Diagnosis in Bus Transit Services</td>
<td>Benedetto Barabino, Carlino Casari, Roberto Demontis, Cristian Lai, Sara Mozzi, Antonio Pintos, Proto Tilocco</td>
</tr>
</tbody>
</table>

### TS82 – INNOVATIONS IN TRAFFIC DATA COLLECTION AND ANALYSIS

<table>
<thead>
<tr>
<th>Paper ID</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>12322</td>
<td>Using Mobile Data for Weather Response Traffic Management</td>
<td>Steven J. Cook</td>
</tr>
<tr>
<td>12647</td>
<td>Operation and Use of an Enhanced Real-Time Traffic Statistics Reporting System</td>
<td>Charles B. Lattimer, Corey Quinns</td>
</tr>
<tr>
<td>13044</td>
<td>Use of Traffic and Citizen Tweets for Incident Management for District DOT</td>
<td>Rakesh Nune, Kaiqun Fu</td>
</tr>
<tr>
<td>13436</td>
<td>A Study on Automated Data Collection and Deduction of Road Updates Using Public Tender Notices</td>
<td>Satoru Nakajo, Yoshikide Sekimoto, Ryosuke Shibaishi</td>
</tr>
<tr>
<td>13017</td>
<td>Learning Mobility User Choice and Demand Models from Public Transport Fare Collection Data</td>
<td>Frederic Rouillard, Luis Uillea, Arturo Mondragon, Michael Niemaz, Guillaume Bouchard, Victor Ciriza</td>
</tr>
</tbody>
</table>
TS83 – CRASH DATA ANALYSIS

11948 Pattern Matching Longitudinal Acceleration Time Series Data to Identify Crashes in Naturalistic Driving Data .......................................................................................................................................................................................... 3328
Robert Kluger, Brian L. Smith

12678 Characteristics and Contributing Factors of Serious Single Passenger-vehicle Collisions in Beijing from 2009 to 2013 .................................................. 3340
Quan Yuan, Yihing Li, Xu Dai, Weinan Wang

12972 A Model-Based Crash Prediction Technique for Chinese Roadway Segments .......................................................... 3353
Seyed A. Vaghefi, Mohsen A. Jafari, Bobby Jafari, Amir Zahireddin Rezvani, Tao Gang, Khalifa Nasser

TS84 – SECURITY CHALLENGES FOR ITS SYSTEMS

12097 Guidelines for Vehicle Cybersecurity ....................................................................................................................................................................................... 3368

12270 A Case Study on Information Security and Cyber Risks Implementation on an IP/MPLS Network ................................. 3382
Gabriel Ozique, Peter Crampton

12611 An Efficient Prototype Implementation for Message Security in V2X Communication .................................................. 3391
Kees Moerman, Timo Van Roermond

13502 Over the Air Software Updates in a Secure Automotive Environment ........................................................................................................ 3400
Dan Prestidio

TS85 – NEW DEVELOPMENTS IN PROBE AND FLOATING CAR DATA PROCESSING

12670 Real Time Visualization of Probe Information Using Web Based Technologies ............................................................. 3412
Hiroaki Kanazawa

VOLUME 5

12945 Developing an Objective Measure of Urban Congestion across the Globe: The TomTom Traffic Index .................................................. 3420
Nick Cohn, Edwin Kools

13134 Design of System Configuration for Floating Car Traffic Information Provision Service on Cloud Computing Environments .......................................................... 3427
Takaya Sue

13375 A Proactive Route Search Method for an Efficient City Surveillance .................................................................................................................. 3439
Osamu Maustani

13665 Transportation Database Development Using Floating Car Data .......................................................................................... 3451
Evan Burton

TS86 – COMMUNICATION PLATFORMS FOR VEHICLES AND DRIVERS

12350 Development, Piloting and Deployment of Co-operative Mobility Services of the Future — Experiences of the CoMoSeF Project .............................................................................................................................................................................. 3454
Pekka Eloranta

12894 Achieving Interoperability Between the Emerging C-ITS platform and Existing ITS Infrastructure in Australia ................................................................................................................................................................................. 3465
David Green, Charles Karl, Freek Faber, Stuart Ballingall

13011 Study on Interference Signal Cancellation In-vehicle Communication Systems ................................................................. 3477
Ippei Sugae, Shuhei Mizuguchi, Hisato Iwai

13446 V2I After the V2V Mandate: Safety, Semi-Autonomous Vehicles, and the Case for Connected Vehicle Roadside Infrastructure ............................................................................................................................................................................. 3485
Matthew Dorffman

13792 Proposal of Feasible ASV Services Using V2V Communications Based on FOT in Hiroshima .......................... 3496
Sho Watanabe, Takayuki Hirasawa, Yoshihiro Suda, Kimishiko Yudano, Hidenori Yoshida, Tomonori Hasegawa, Takeshi Mizuma, Yasunori Yamamoto, Masashi Yamamoto, Takahiro Toshioka, Hideki Fujimoto, Koichi Higashi

TS87 – INTELLIGENT WORK ZONES

13600 Analysis of the Impacts of Freeway Work Zones and Incidents Using Bluetooth Data .............................................................................................................................................................................................................................................. 3505
Geza Pest, Robert E. Brydia, Christoother Pue

13248 Intelligent Work Zone Data Collection and Evaluation for 21st ITS World Congress ........................................................................................................................................................................................................................................ 3517
Rashmi S. Brever, Brian Kary, Cory Johnson

13503 Data, Models, and Construction Permits .......................................................................................................................................................................................... 3525
Michael Marsico, Satya Muthuswamy, Jay Jaber

13656 Smart Work Zone — Fully Integrated Operations and Management .............................................................................................................................................................................................................................................. 3531
Bini William, Efeye Morgan
TS88 – COLLISION AVOIDANCE SYSTEMS

12463 Definition of a Microscopic Traffic Simulations Driver Model for Inter-urban Intersections for 21st World Congress .............................................................. 3543

Jens Klimke, Frederic Christen, Lutz Eckstein

13081 Collision Avoidance System Based on Adaptable Speed ............................................. 3559

Insook Yang, Dong Seog Han

13453 Cooperative Collision Warning Application for High Speed Track Safety Management .......................................................... 3565

Alvaro Arreé, Carlos Bustamante, Victor Pascual, Lorena Garcia-Sol, Alvaro Arreé

13690 Evaluating the Performance of Intersection Collision Warning Systems Over Vehicular Networks .......................................................... 3578

Mohammad Horani, Uwayba Mohammad, Mohammad Naserian, Nizar Al-Holou

TS89 – DEVELOPING AN ITS WORKFORCE

12455 Virtual ITS training — A Reality! .................................................................................. 3588

Peter Von Heidenstam, Lilia Halsen Bidar

12781 Strengthening University ITS Teaching for the Workforce ........................................... 3594

Mac Lister, Michelle Maffeo

12782 Building the Future Transportation Workforce: ITS Skills and Competencies ............... 3606

Elizabeth Greer, Mac Lister

13636 Reinventing Traffic Operations Center Resource Management ..................................... 3626

Joanna Scott

TS90 – INNOVATIVE TRAFFIC MANAGEMENT CONCEPTS AND SYSTEMS

12532 Traffic Facilitation Field Operation Tests in Expressway Sag Sections Based on Adaptive Cruise Control .......................................................... N/A

Fumihiko Kanazawa

12937 Intelligent Condition-based Mega-city Traffic Management System: A Novel Comprehensive ‘Holographic’ Information Approach .................................................. N/A

Zhi Han

13035 Effective Traffic Management Practice Needed to Combat the Growing Traffic Congestion in Many Developing Countries ......................................................... N/A

Mike Barnet, Dennis Tessarolo, Linda Preisen

13378 Evaluation Method for Analysis of Congestion Reduction Effect of VICS Information Service Using Traffic Simulation .................................................. N/A

Toshihiko Oda

13564 An Overview of the Analysis, Modeling, and Simulation (AMS) Testbed to Support Dynamic Mobility Applications (DMA) and Active Transportation and Demand Management (ATDM) Programs ............................................. 3638

Balaji Yelchuru, Ismail Zohdy, James Colyar, Sudeeksha Murari

TS91 – VIDEO DETECTION & PROCESSING

12158 Registration of Aerial Images Using Pseudo-Orthogonal Space ..................................... 3641

Koji Uegura, Hitoshi Saji

12233 VectorSense Technology for Enhanced Traffic Information, Safety and Roadway Design .......................................................... 3652

Randy Hanson, Roy Czinku, Scott McGibney

12601 Enhanced Image Processing — Why the Tolling Industry Should Apply a Holistic Approach to Image Handling .......................................................... 3665

Frank Robert Kjelstil

13203 Understanding the Potential Benefits of Video Analytics to Support Traffic Data Collection, Incident Detection, and Wrong Way Vehicle Detection ............................................. 3674

Mike Barnet, Dennis Tessarolo, Linda Preisen

TS92 – REGIONAL AND STATEWIDE INTEGRATED ITS DEPLOYMENTS

12517 A New Central System with Disaster Recovery Functions — For Business Continuity of Road Traffic Control .......................................................... 3682

Atsushi Edahiro, Yotaaro Nagai, Kazuto Yamamoto

13483 NC Operations Business Maturity: Preparing for a New ATMS ...................................... 3687

Jennifer Portanova, Cole Dagerhardt

12719 Multi-Model Transportation Operations, SFMTA, A Project Update .................................. 3690

Clifford Conklin

13706 Operating a Transportation Management Center .............................................................. N/A

Matthew Lee
TS93 – DATA MANAGEMENT STRATEGIES

12135 Generating Summaries from Field Operational Test Data ................................................................. 3700
Sami Kookknen
12679 Design and Implementation of Location-Aware Contents Distribution Platform Utilizing Precise Probe Vehicle Data ................................................................. 3709
Yasuhiro Tsukahara, Nahuel Matias Salcedo, Ryota Hiura, Takeshi Fukase, Kyoko Orishima, Masahiro Sato, Kazunori Sugihara
13182 A Platform for Sharing Data from Field Operational Tests ................................................................. 3721
Yvonne Barnard, Sami Kookknen, Helena Gellerman
13614 Analyzing Data from the Safety Pilot Infrastructure: Influencing Future Deployments .......................... 3726
Lee T. Motson, Jeffrey Brown

TS94 – INTEGRATED CORRIDOR OPERATIONS

12470 Amalgamating UDOT ITS Databases to Evaluate Corridor Strategies and Projects ............................. 3731
Grant Farnsworth, Kelly Burns, Glenn Blackwelder, Pete Marshall, Eric Rashband
13497 Zoo Interchange: Integrated Corridor Management (ICM) ................................................................. 3739
Jason Stribiak, Chris Hager
13651 Evaluating Integrated Corridor Management Response Plans in the San Diego Region ............................. 3773
Michael Washko, J. Alex Estrella
13671 Deploying a “Smart Corridor” Today, for Tomorrow’s Needs: ATM and Connected Vehicles .................. 3779
Darrel Dawson, Ahmed Ghaly, Jeff Hochmuth, Jim Powell
13779 Connected Mobility Services in an Integrated City ............................................................................. 3794
Jaap Vreeswijk, Siebe Turksma, Robbin Blokpoel

TS95 – TRAVELER INFORMATION CHALLENGES

12416 Evaluation of a Driving Route Display System for Heavy Vehicles .................................................. 3804
Takahiro Tsuki, Shoichi Suzuki, Hitotaka Saji, Hiroshi Makino
13377 The Digital Road Authority: Reduction of Emissions in City Centres by Optimisation of Freight Traffic .......... 3813
Daphne Van Leuven, Karin Van Eeden, Frank Ottenhof
13718 A Traveler Information Platform for Modern Smart Cities ..................................................................... 3822
Saurav Bhattacharya, Mohit Sindhwani
12084 Ottawa Nav — A Context Awareness Traveler Information Platform .................................................. 3829
Philippe Landry, Hossein Rahnama, Douglas Heintzman
13009 Traffic Data Quality Assurance Programme for a Consistent and Reliable Accurate Data Collection and Information Dissemination ......................................................... 3838
James Zhou Guangjun, Joyce Qiao Hong, Wei Ping Koh, Bernadette Lee Tan Mei

TS96 – DRIVER BEHAVIOR AND COGNITION OF SIGNAGE AND MARKINGS

12577 A Development of Road Surface Temperature Prediction System by Using Vehicle Ambient Temperature of Can Data .................................................................................................................................. 3849
Youngkyun Kang, Jun Seo Park, Seong Wook Shin, Ji Hoon Kim
13087 Investigation of Graphic Symbols Displayed on Expressway Information Board ..................................... 3858
Hideki Takashashi, Masahito Takizawa, Kouji Yamamoto, Fukuyoshi Oribe, Fumihito Inoshima, Katsuhiro Iida, Kazumi Renge, Shingo Kita, Akira Kijima, Tatsuo Akase
13330 Large-Scale Image Registration for Road Markings Deterioration Management from in-Vehicle Camera Images and Logged Can Data .................................................................................................. 3868
13386 Evaluation of Effects of Traffic Sign and Signal by Using Driving Simulator ........................................ 3878
Toshiyuki Sugimachi, Shinitaro Ono, Sungjoon Hong, Takayuki Hiroseawa, Takahiro Suzuki, Kimihiko Nakano, Takashi Oguchi, Yoshihiro Kihira, Toshiyuki Yokozeki
13485 Validation Study on Evaluation of Traffic Safety Installations Using fNIRS ............................................... 3881
Kouji Yamamoto, Hideki Takashashi, Yoshitomo Orino, Shuguang Li, Toshiyuki Sugimachi, Kimihiko Nakano, Yoshihiko Tabuchi, Yoshihiro Suda, Noriyuki Oka, Kazuyoshi Yoshima, Toshinori Kato

TS97 – NEW TECHNIQUES TO ANALYZE, PREDICT, AND MITIGATE TRAFFIC SAFETY

12467 Software Architecture for PLAN4SAFETY China .............................................................................. 3889
Mohsen Jafari, Tao Gang, Evan Bossett, Bobby Jafari
12581 Control Techniques for Traffic Accident Deterrence - Effects of Traffic Signal Control for Speeding Prevention .......................................................................................................................... 3903
Nobuyuki Kimura, Yuko Kato, Makoto Wachi
12851 Practical Use of the Real Time Traffic Hazard Prediction on Hanshin Expressway .................................. 3911
Takashi Kodama, Torn Inoue, Takehiko Daito
13218 Improving Traffic Safety with ITS: Results from a Trial Installation
Raza Muhamed, Jonas Jorgensen

TS98 – IMPLICATIONS OF AUTOMATED DRIVING
12443 Multi-class Driverless Vehicle Cooperation for Mobility-on-Demand
Scott Pendleton, Zhang-Jie Chong, Boqing Qin, Wei Liu, Tatit Uthaicharoenpong, Xiaotong Shen, Guo Ming James Fu, Marcello Scarneccia, Seong-Woo Kim, Marcello H. Ang Jr., Emilio Frazzoli

12649 State Legislative Approaches to Automated Vehicles: A Review and Analysis
Eric Paul Dennis, Matt Smith, Richard Wallace

12864 The Implications of Fully Automated Driving for the Automotive Industry
Ian Riches

12886 Autonomous Vehicle Technology: How to Best Realize ITS Social Benefits
James M. Anderson

13258 Technical Challenges for Fully Automated Driving Systems
Steven E. Shladover

13734 Towards Holistic Assessment of Automated Driving
Merja Pihetinen, Jukka Laitinen, Pirkko Rama, Satu Innamaa, Henri Sintonen

TS99 – ADVANCED TRAFFIC MANAGEMENT 2
13512 Unified Evaluation Method for Traffic Control Logarithms
Robbin Blokpoel, Jaque Frieswijk, Daniel Kruiszewicz, Tina Kless

12502 Analysis of Areas of Vegetation Using Satellite Images and Three-Dimensional Map
Tomoya Hasegawa, Hitoshi Saji

12652 Testing Non-Intrusive Sensors to Replace Loop Systems: A Case Study from the UK’s Highways Agency
Bryan Jarrett

12740 Proposal of a Cooperative Infrastructure-Vehicle System for Traffic Signal Control
Noriyuki Tsukada, Saioshi Nikiura, Shunichiro Takashima

13026 Strategy Management Toward Smart City
Roberto Marino, Samson Tzegey

TS100 – INCIDENT MANAGEMENT IN LARGE METROPOLITAN AREAS
13657 Event-Driven Incident Management in the District of Columbia with the Capital Traffic Operations
Xianding Tao, Rakesh Nune, Peter Doan

12074 Managing Metro Detroit Traffic Incidents Through Partnerships
Richard F. Beauchien

13256 San Mateo County Smart Corridor Project — Providing Alternate Routes During Incidents
Al Lee, David Man, Parviz Mohkari, Richard Shinn

13601 Florida DOT District Six Evolution of Incident Management Program
Joseph Snyder

13650 The Use of ITS in Incident Management for the Illinois State Toll Highway Authority
Jeff Hochmuth, John Benda, Darryl Dawson, Jim Powell

13696 Use of ITS in New Integrated Center for Urban Mobility Sao Paolo
Olimpio Mendes De Barros

TS101 – SMART PARKING 2
12423 Smart Parking Solution Assessment for Reduce Urban Traffic Jams
Eric Klein, Frederic Mazing

13259 LA Express Park™ – Curbing Downtown Congestion Through Intelligent Parking Management
Peer Gheet, Alex Pullin, Eduardo Cardenas, Stephane Clinchant, Christopher Dance, Onno Zoeter

13306 Vehicle Coordinates Sensing for C-AVP Using Surveillance Cameras
Toru Saito, Naoki Osawa, Kazuhiro Fukuda

13738 Parking Developing its Own Space
Robert De Beukelaer, Richard Harris

TS102 – INNOVATIVE USES OF PROBE DATA
12530 Detecting Abnormal Traffic Using Traffic Data
Shokoto Obara, Makoto Senga, Yukari Aoki, Motoryuki Noda

12598 Estimating Time-Varying O/D Information on the Base of Detector Pulse Data and FCD Measurements
Thomas Biedel, Toshihiko Oda, Mitsuishi Koga

13341 Estimation of Real-time Origin-destination Flow Using Mobile Sensor Network
Joyoung Lee, Zijia Zhong
13368 Application of Probe Data in Estimating Volume, Average Travel Time and Delay in an Intersection

Sandy Mae Gaspay, Takashi Oguchi, Sungjoon Hong, Daizuke Oshima

TS103 – REDUCTION OF FUEL CONSUMPTION

12496 Traffic Jam Reduction with Cooperative Cruise Control

Tomoyuki Doi, Mitsuhisa Shida, Kenichi Kitaohma

13001 Development of an Algorithm for the Dynamic Curve Speed Warning System

Ji-Eun Choi

13615 Comparative Evaluation of Fuel Consumption Estimation Models

Edward Jastrzembski, Byungkyu Park, Joonwoo Son

13714 Context-sensitive Eco-driving Scores

Matthew Barth, Kanok Boriboonsomsin

13759 Fuel Economy Improvement Potential of a Heavy Duty Truck using V2X Communication

Rajeev Verma, Tim J. Laclair, Sarah Norris, Robert Cochran

TS104 – COLLISION WARNING SYSTEMS

12861 Speed Management at Bends Using LDM

Cigdem Cavdaroglu, Erdem Ergen

12835 Vehicle Collision Warning System Based on Fuzzy Inference

Yong-Tao Yang, Wei Zhang, Chen Lan, Yuan Zhan

13008 Methodology for Evaluating Effectiveness of In-vehicle Pedestrian Warning Systems Using Driving Simulator

Chesel Oh, Jiyoung Jung, Seyeong Jung

13114 FCW Algorithm Adaptive to Driver Behavior Change: Conceptual Framework and Experimental Validation

Jianqiang Wang, Chenfei Yu

13274 The Effects of Lead Time of Verbal Collision Warning Messages on Driving Performance

Changxi Wu, Jingyan Wan, Yiqi Zhang

TS105 – NEW TRENDS IN DETECTION

12282 Length-Based Vehicle Reidentification for Travel Time Measurement

Rob Hranac, Nathan Webster, Michael Darier

12330 New Detection Technology Eliminates Dilemma Zones

Nader A. Ayoub

13292 Millimeter-wave Radar in 65-nm CMOS Technology

Kiyokazu Sugai, Kazuki Hamada, Toshihiro Shimura, Hiroshi Matsumura

13724 Is Ramp Metering Coming to NC?

Alf Badgett, Greg Fuller

13780 The Accuracy Levels of Vehicle Detectors Commonly Used in Korea Based on the Results of Quality Certification Test

Sang Hyup Lee

VOLUME 6

TS106 – DEVELOPMENTS IN ITS BASED SAFETY SYSTEMS

12100 Older Driver Crash Trend Evaluation Relating to Societal Change and Intelligent Transportation Systems

Seri Park, Vanvi Trieu, John McFadden, Christopher Savo

12160 A Study to Consider the Most Appropriate Alert Point to Assist Pedestrians Crossing at Intersection

Hidekatsu Hamaoka, Toru Hagiwara

12316 Safety Assessment and Spatial Exploration of Automated Red-light Running Enforcement Cameras

Mohamed M. Ahmed, Mohamed Abdel-Aty

12803 A GPS-enabled Smart Phone App with Simplified Diagnosis Functions of Driving Safety and Warning Information Provision

Junyi Zhang, Ying Jiang, Katsushi Sasaki, Masaki Tsuobouchi, Takeshi Matsushita, Akimasa Fujiwara

13700 Increased Persistence of Wi-Fi Direct Adhoc Networks for Smartphone-based Collision Avoidance

Clark Hochgraf, Priyanka Angadi

TS107 – VEHICLE AND DRIVER MODELS AND ALGORITHMS

12510 Development of Control Algorithm for Safety Systems Using Fusion of V2X and Environmental Sensors

Mambok Park, Sanghyun Lee, Namgyu Oh, Sibun Jun, Hyunjin Kang, Paljoo Yoon
12654 Virtual Driving Scenarios from Real-world Test Drive Data for Automated Evaluation of ADAS

Applications .........................................................................................................................................4362

Yutaro Hayata, Yuri Iribe, Haruki Kawanaka, Koji Oguri

TS108 – ADVANCED CORRIDOR MANAGEMENT 2

13107 Application of Real-time Transit Data for Integrated Corridor Management ........................................4387

Kevin T. Miller, Alan Gorman, Todd Flexo, Farrel Bouattoura

12960 Smart Mobility for Arterial ITS ....................................................................................................4403

Farhad Pooran

13088 Planning an Active Arterial Management Program ............................................................................4407

Melissa Ackert, Mark Plass

13325 Traffic Performance of Integrated Arterial and Motorway Traffic Management Policies Using SCATS ..................................................4421

Steven Shaw, Christian Chong-White, Gareth Millar, Alan Dixon, J. Carlos Aydos

TS109 – USER BEHAVIOR

12031 Characterizing Cell Phone Use at Signalized Intersections ..........................................................4434


12653 The Future of Driver Assistance: Driver Mental State Monitoring ....................................................4445

Ronnie Taib, Benjamin Itzein, Kun Yu, Geoffrey McKellar, Glenn Geers

12655 Development of a Risk Assessment Tool Based on Driver Behavior and Environment ..................4449

Farhad Farzam, Kaveh Ghareh, Mohsen A. Jafari, Khalifa Nasser Al-Khalifa

12843 Driver Visual Distraction Analysis Using Percent Area of Interest Method ......................................4470

Coichi Iwatake, Kazuhiro Suzuki, Hideyuki Kanoshima, Hiroshi Makino

13764 ViFa 65plus — Visual Driver Assistance Systems for Elderly Drivers ............................................4489

Arne Glaser, Andre Welzel, Franziska Hartwich, Patrick Rohner, A. C. Bullinger, Ganguf Hirtz

TS110 – ITS DEVELOPMENTS IN EVOLVING MARKETS

13275 National ITS Architecture for Mexico V.2 ....................................................................................N/A

Miguel Lopez

12300 Sustainable Strategy for Cost-effective ITS Deployment in Nigeria: Lessons from the Korea City-by-city Model ................................................................................................................4498

Joshua A. Odeleye, Aminu M. Yaya

12776 Providing Big Picture of Evolving ITS Market in Iran, Using Pest Analysis .....................................N/A

Hamid Mahyad

13575 Accelerating the Adoption of Intelligent Transport Systems in Low-income Countries ................N/A

Murty Makkinen

13701 Potentials for Intelligent Transportation Systems Deployment in Developing Countries — A Case Study ..................................................4504

Sakib Mahmud Khan, Kakan Dey, Mizanur Rahman, Kelsey Lantz, Mashrur Chowdhury

TS111 – FUTURE DIRECTIONS IN AUTOMATED DRIVING

12134 The Interrelationships Between Connected and Automated Vehicle Technologies .............................4516

Michael McGurrin

12917 Industry-government Joint Research of Preparation Method of Road Structure Data for Automated Driving ........................................................................................................................................4524

Atsushi Kimura, Ryouichi Imai, Masayuki Fukuda, Susumu Matsui, Koichi Shigetaka

13683 Implications of Connected Automation ..........................................................................................4540

Bybhusan Sundararaman, Derek Freckleton

TS112 – CHALLENGES IN BIG DATA MANAGEMENT

12478 Crafting Measures from the National Performance Management Research Data Set ..........................4548

Peter Bajertor, Chip Hunkley

13192 Singapore-In-Motion: More Data Lead to Better Understanding ..........................................................4554

Wee Siong Ng, Liang Yu, Gin Howe Goh, Paul Lim Min Chim, See Kiong Ng
13585 Streaming Big Data Management as a Platform for Real-time Traffic Flow Analysis and Dynamic Congestion Management ................................................................. 4544
Ronnie Begg

13607 Development and Implementation of a Real-time Big Data Management Architecture for Effective Adaptive Traffic Signal Control ........................................ 4553
Wuping Xin, Elena S. Prassas

TS113 – TOOLS TO IMPROVE TRANSIT SERVICES

13627 Implementation of Open Source TSP …………………………………………………. 4564
David Phillips, Robert Vance

13320 Augmenting the Transit Operations Management Tools with Emerging Technologies …………………………………………………………………………………. 4570
Santhosh Mishra

13324 Advances for An Advanced Public Transport System “APTS” At West Central Metropolitan Area Colombia …………………………………………………………… 4573
Natalia Giraldo, Diego Mauricio Orrego, Cesar Augusto Marin

13447 Transit Light Rail Incident Response Before and After ICM Deployment: Strategies and Constraints …………………………………………………………… 4576
Lee Biernbaum, Paul Minnice, Steve Mortensen

12989 Real-Time Bus Scheduling via Proactive Bus Demand Estimation …………………… N/A
Yangrok Jeong

TS114 – REGIONAL EXAMPLES OF ITS DEPLOYMENTS

13031 Traffic/Travel Information Integration Service Through User-Based, Open-Architecture, Public-Domain, Cloud-Computing …………………………………………………. 4587
Edmond Chang

13424 MDOT DUAP Project — The Agency of the Future …………………………………. 4592
Collin Castle, Lee T. Mixon

13467 Strategic Assessment on Emerging Innovative Transportation Technologies for Future Transportation in Texas …………………………………………………………… 4602
Clifford Heise, David Binkley, Steve Sill, Walt Fehr

13501 Mainstreaming ITS in the IT Environment: Illinois Tollway Traffic and Incident Management System (TIMS) …………………………………………………………… 4615
Kurt Eckert, Matthias Mann

13668 Intelligence in Urban Mobility for World Cup 2014: A Case Study of the Sao Paulo Arena ……………………………………………………………………………… 4623
Alessandro Santiago Dos Santos, Claudio Luiz Marie, Jose Mauro Marquez, Carolina Maria Andrade Carrera, Pedro Berlinger Saravina

TS115 – DEVELOPMENT OF COOPERATIVE ITS ARCHITECTURE

13520 Best Practices in Implementing ITS Architectures …………………………………… 4633
John Baker, Robert S. Jaffe

12741 Advancing the Cooperative ITS Architecture: Data Collection and Business Projection ………………………………………………………………………………… 4639
Federico Garcia-Linares

12745 CAR2X Systems Network Architecture and Possible Application ……………………………………… 4639
Kurt Eckert, Matthias Mann

13707 Connected Vehicle Reference Implementation Architecture: Common Language and Application Tools …………………………………………………………… 4651
Clifford Heise, Tom Lasco, Walt Fehr, Steve Sill

13711 Evolving the National ITS Architecture to Support Connected Vehicle ……………………………………………………………………………………… 4660
Clifford Heise, David Binkley, Steve Sill, Walt Fehr

TS116 – STANDARDIZATION

12326 Australian Cooperative ITS Platform — Prepared to Adopt and Adapt ……………… 4668
Freck Faber, Stuart Ballingall, David Green

12438 Standardization of Variable Message Signs in Korea ……………………………… 4677
Weon-Eui Kang, Taehyeong Kim, Bum-Jin Park, Jisoo Kim

13178 Advanced Transportation Management Systems Based on International Standards ………………………………………………………………………………… 4684
Knut Evensen

13404 Converge — Future IRS-infrastructures as Open Service Networks ……………………………………………………………………………………… 4692
Horst Waker, Manuel Funfrucken, Matthias Scholtes, Jonas Vogt, Niclas Wolniak

TS117 – INNOVATION MODELING TECHNIQUES

13587 Approach for Freeway Work Zone Capacity Estimation Incorporating Probe Vehicle Data ……………………………………………………………………………… 4701
Joyoun Lee, Bo Du, Branimir Dimitijevic, Kitae Kim, Steven Chien
12024 Traffic Signal Control Based on Particle Swarm Optimization
Kuen-Rong Lo, Shen-Lung Tsang

12696 When Gap Acceptance Does Not Apply — A New Approach
Erlend Aakre

12850 A Practical Simple Technique to Detect Abnormal Traffic Flow in Freeway
Hamid Torfehnejad, Shahram Adamnejad

TS118 – RADIO COMMUNICATIONS FOR ITS

12050 DSRC Performance Assessment under Critical Radio Conditions
Fumio Watanabe, Hiro Onishi, Fumio Watanabe, Carlos Velasquez

12528 An Examination of the Applicability of a Film Antenna for 700 MHz Band ITS
Atsuo Iwase, Seiji Matsui, Ken Nakasaka

12836 A Novel Traffic Micro Radio Station Implemented via DSRC Network Technology
Jihan Lou, Quanfang Fan, Hongda Jin, Yongyao Yang

13488 Improved Resource Utilization and Transmission Quality for V2X Communication
R. Tugrul Güner

13688 Wireless Vehicular Safety Systems: DSRC Real-Time In-Vehicle Evaluator (DRIVE)
Brian Gallagher

TS119 – AUTONOMOUS DRIVING SYSTEMS

11885 Intelligent Transportation - The Time To Engage Is Now
Guy Prakker

12104 The Effect of Autonomous Speed Control System: An Investigation on Minimum Headway and Driver’s Acceptance
Changxu Wu, Yunfeng Hou, Jingyan Wang, Yunjie Zhao, Kevin Hulme

12475 From Driving Assistance Systems to Automated Driving: A Robust Approach based on the Subsumption Architecture
Luisa Andreone, Andrea Saroldi, Mauro Da Lio

12722 Intersection Management of Autonomous Vehicles Using an Agent-based Passenger Priority Framework
Hesham A. Rakha, Ismail H. Zohdy

13654 Vehicle Automation and the Duty to Act
Noah J. Goodall

INTERACTIVE SESSIONS

IS01 – INTERACTIVE 1

14383 A Dynamic Routing Strategy in a Cooperative Vehicle Environment
Mizanur Rahman, Mashrur Chowdhury

12133 The Basics of the Regulation - Concerning the Information to be Provided by a Transport Provider About the Quantity of Carbon Dioxide Emitted by the Transport Modes Used for the Transport Service
Eric Louette

12755 Operational Benefits of InSync Adaptive Signal Control for Nonrecurring Traffic Conditions
Alexandar Stefanovic, Milan Zlatkovic

13034 From Intelligent Transport System (ITS) Integration to Effective Smart City (SC) Implementation - An Overview for Global Knowledge Management
Edmond Chin-Ping Chang, Zong Yan

13206 A Study of Optimal DSRC Antenna for Multi-Lane Free-Flow
Kenta Kakizaki, Ryosuke Suga, Yasuyuki Matsuda, Yukinori Matsushita, Osamu Hashimoto

IS02 – INTERACTIVE 2

14384 Sustaining V2V with Software Defined Radio & Modular Computing Architecture
Billy Kihei

13300 Predicting Taxi Pickups Using Spatial Partitioning
Wei Wu, W. Grant Wilder

13437 Multi-Level Evaluation of the Benefits of Intelligent Transportation Systems
Mohammed Hadi

13506 Scaling Up Penetration Rates in Field Tests by Emulating V2X Communication
Bart Netten, Igor Passchier, Harry Wedemeijer, Roy Bous

IS03 – INTERACTIVE 3

14385 Attitudes and the American Way: Barriers to Fully Automated Vehicles
Lacy Kaarre