Proceedings of the 2017 Australasian Road Safety Conference

Year of Publication: 2017
Publisher: Australasian College of Road Safety

Proceedings Editors
Mongiardini, M.\(^{(1)}\), Grzebieta, R.H.\(^{(1)}\), Palamara, P.\(^{(2)}\)
\(^{(1)}\) Transport and Road Safety (TARS) Research Centre, University of New South Wales, Sydney
\(^{(2)}\) Curtin Monash Accident Research Centre (C-MARC), Curtin University, Perth

Preface

We are pleased to welcome you to the third annual Australasian Road Safety Conference, an amalgamation of the Road Safety Research, Policing and Education Conference and the Australasian College of Road Safety Conference. The conference provides the unique opportunity for those involved in all aspects of road safety, including researchers, practitioners, policymakers, police, and educators, to meet, present, and discuss their work.

These proceedings describe research, educational and policing program implementation and policy and management strategies related to all aspects of road safety and especially related to the conference themes of “Expanding Our Horizons”. Some of the popular topic areas for this year include young and ageing drivers; human factors related to distraction, inattention, and fatigue; policing, vehicle safety technology; and road design. The authors of accepted Extended Abstracts and Full-Paper represent international and local institutions from all aspects of their respective communities including research centres, private companies, government agencies, and community groups. This great set of papers is a wonderful indication of the work being done in Australia, New Zealand and abroad as part of the United Nations Decade of Action for Road Safety.

The Conference Organising Committee allowed two manuscript types for the Conference: Extended Abstracts and peer-reviewed Full Papers. Using a similar format to the previous successful conference in 2016, the Conference Scientific sub-Committee initially called for submissions in the form of Extended Abstracts (approx. 1 to 3 pages). Groups of submissions around similar themes were assigned to Conference Editors with senior peer status in the respective field of road safety, who then handled the review process for their assigned submissions. Each Extended Abstract was reviewed by two independent expert peer reviewers on the following selection criteria: content consistent with the conference theme, novelty of information or data, clarity, relevance to practice or policy, scientific merit, and interest to audience. Authors were also provided the option of submitting a Full Paper, which is HERDC\(^{*}\) compliant. Based on the outcome of the peer review of their Extended Abstract, some authors were provided the opportunity to extend their submission into a full paper, which subsequently underwent further review by two independent peer reviewers. A total of 148 manuscripts were accepted as Extended Abstracts and further 39 submissions were accepted as Full Papers.

Putting together such a high-quality program requires a contribution from many people. The Proceedings Editors would like to thank the Conference Editors for taking the time to handle submissions, allocate appropriate reviewers, and provide useful and constructive feedback to authors. Likewise, we are most grateful for those peers in the road safety field that helped to review a total of 228 submissions. The calibre of the conference proceedings would not be so high without their assistance and we thank them all for giving up their valuable time. The Proceedings Editors would also like to warmly thank all the Keynote Speakers and presenters, the Conference Organising Committee, the Scientific Sub-Committee, the International Sub-Committee, the Social Activity Sub-Committee, the Conference Sponsors, and the Session Chairs. The valuable input and enthusiasm from each person and group has helped to ensure the 2017 Australasian Road Safety Conference meets the needs of the diverse range of participants and contributes to the overall success of the event. Most importantly, we hope that the work described in these proceedings will contribute to the reduction in road trauma in Australia, New Zealand and internationally.

Conference Organising Committee

Professor Lynn Meuleners (co-Chair)
Scientific sub-Committee (co-Chair)
Centre Director
Curtin Monash Accident Research Centre (C-MARC)
Curtin University

Dr Paul Roberts (co-Chair)
Scientific sub-Committee (co-Chair)
Principal Behavioural Scientist
ARRB

Dr Fritha Argus
Research & Data Coordinator
Main Roads Western Australia

Mr David Bobbermen
Safety Program Manager
Austroads

Mrs Samantha Buckis
Project Coordinator
Transport Accident Commission

Mr Jerome Carslake
Manager
National Road Safety Partnership Program
ARRB

Mr Eric Chalmers
Chief Executive
Kidsafe ACT

Christopher Davers
Assistant Director - Strategy and Policy
Department of Transport WA

Ms Kim Day
Office Manager
Australasian College of Road Safety

Mr Roger Farley
Assistant Director Strategic Communications
Road Safety Commission WA

Ms Lynne Greenaway
Event Manager & Business Manager for Associations
Encanta Event Management

Professor Raphael Grzebieta
Scientific Sub-Committee (Co-Chair)
Professor of Road Safety
Transport and Road Safety Research Centre University of New South Wales
Commander Scott Higgins
Commander
WA Police

Ms Claire Howe
Executive Officer
Australasian College of Road Safety ACRS

Professor Rebecca Ivers
Director, Injury Division
The George Institute for Global Health

Dr Marilyn Johnson
Senior Research Fellow Monash University

Mr Andrew Lee
Director Strategy, Policy and Governance
Department of Transport WA

Ms Sandy Lukjanowski
Manager
Road Trauma Support WA

Mr Lauchlan McIntosh
President
Australasian College of Road Safety (ACRS)

Ms Anne Miller
Resource Development
School Drug Education & Road Aware (SDERA)

Dr Mario Mongiardini
Research Associate
Transport and Road Safety Research Centre
University of New South Wales

Dr Lori Mooren
International sub-Committee (Chair)
Research Consultant
Transport and Road Safety Research Centre
University of New South Wales

Mr Peter Palamara
Research Fellow
Curtin Monash Accident Research Centre
Curtin University

Ms Terri-Ann Pettet
Manager RoadWise Program
WA Local Government Association (WALGA)

Ms Anna Sawyer
Manager Road Safety
Royal Automobile Club (RAC) WA
Ms Cynthia Wallace  
*Policy Officer - Road Safety*  
*Department of Infrastructure and Regional Development*

Ms Melissa Watts  
*Head of Strategy, Policy and Evaluation*  
*Road Safety Commission WA*

Professor Ann Williamson  
*Centre Director*  
*Transport and Road Safety Research Centre*  
*University of New South Wales*

**Conference Scientific Sub-Committee**

Professor Raphael Grzebieta (co-Chair)  
*Professor of Road Safety*  
*Transport and Road Safety Research Centre*  
*University of New South Wales*

Professor Lynn Meuleners (co-Chair)  
*Centre Director*  
*Curtin Monash Accident Research Centre (C-MARC)*  
*Curtin University*

Dr Paul Roberts (co-Chair)  
*Principal Behavioural Scientist*  
*ARRB*

Dr Fritha Argus  
*Research & Data Coordinator*  
*Main Roads Western Australia*

Dr Kerry Armstrong  
*Senior Research Fellow*  
*Centre for Accident Research and Road Safety – Queensland*  
*Queensland University of Technology*

Dr Matthew Baldock  
*Deputy Director*  
*Centre for Automotive Safety Research*  
*University of Adelaide*

Dr Rebecca Brookland  
*Research Fellow University*  
*of Otago*

Mrs Samantha Buckis  
*Project Coordinator*  
*Transport Accident Commission*

Mr Eric Chalmers  
*Chief Executive*  
*Kidsafe ACT*
Proceedings of the 2017 Australasian Road Safety Conference

Professor Jude Charlton
Acting Director
Monash University Accident Research Centre
Monash University

Dr Ralston Fernandes
A/Manager Road Safety Strategy
Centre for Road Safety
Transport for NSW

Dr Paul Graham
Principal Scientist
New Zealand Transport Agency

Professor Narelle Haworth
Centre Director
Centre for Accident Research and Road Safety – Queensland
Queensland University of Technology

Dr Marilyn Johnson
Senior Research Fellow
Monash University
Policy Manager
Amy Gillet Foundation

Professor Lisa Keay
The George Institute for Global Health

Dr Mario Mongiardini
Research Associate
Transport and Road Safety Research Centre
University of New South Wales

Dr Lori Mooren
International sub-Committee (Chair)
Research Consultant
Transport and Road Safety Research Centre
University of New South Wales

Mr Peter Palamara
Research Fellow
Curtin Monash Accident Research Centre
Curtin University

Dr Bridie Scott-Parker
Senior USC Research Fellow
University of the Sunshine Coast

Professor Mark Stevenson
Professor of Urban Transport and Public Health
University of Melbourne

Mr Joel Tucker
RACQ Senior Road Safety Advisor
RACQ
Ms Rebecca Wilkinson  
_Senior Evaluation Analyst_  
Centre for Road Safety  
Transport for NSW

Professor Ann Williamson  
_Centre Director_  
_Transport and Road Safety Research Centre_  
_Unciversity of New South Wales_

**Conference International Sub-Committee**

Dr Lori Mooren (Chair)  
_Research Consultant_  
_Transport and Road Safety Research Centre_  
_Unciversity of New South Wales_

Mr Phillip Bourke  
_Acting Team Leader – Future Transport, Infrastructure_  
_Austrade_

A/ Professor Dr Mark King  
_Centre for Accident Research and Road Safety – Queensland_  
_Queensland University of Technology_

Rob McInerney  
_Chiar Executive_  
_International Road Assessment Program (iRAP)_

Marcus James  
_General Manager_  
_Road Safety and Productivity Branch, Surface Transport Policy Division (DIRD)_

Rob Klein  
_Road Safety Consultant_

Jonathon Passmore  
_Technical Lead - Violence and Injury Prevention (Western Pacific Regional Office)_  
_World Health Organization (WHO)_

Jagnoor Jagnoor  
_Senior Research Fellow, Injury Division_  
_The George Institute for Global Health (George)_

Dr Chika Sakashita  
_Senior Project Leader_  
_Global Road Safety Solutions (GRSS) Pty Ltd_

Blair Turner  
_National Technical Leader - Safe Road Infrastructure Safe Systems_  
_ARRB_
Proceedings of the 2017 Australasian Road Safety Conference

Dr Soames Job
*Global Lead Road Safety & Head Global Road Safety Facility (GRSF)*
World Bank

Dr Judy Fleiter
*Global Manager*
*Global Road Safety Partnership (GRSP)*

**Conference Social Activities Sub-Committee**

Mr Roger Farley
Assistant Director Strategic Communications
Road Safety Commission WA

Ms Terri-Ann Pettet
*Manager RoadWise Program*
*WA Local Government Association (WALGA)*

Ms Claire Howe
*Executive Officer*
*Australasian College of Road Safety ACRS*

Ms Kim Day
*Office Manager*
*Australasian College of Road Safety*
Conference Editors

Dr  Kerry Armstrong  CARRS-Q, Queensland University of Technology
Dr  Matthew Baldock  CASR, University of Adelaide
Dr  Soufiane Boufous  TARS Research Centre, UNSW - Sydney
Dr  Kate Brameld  C-MARC, Curtin University
Dr  Rebecca Brookland  Preventive and Social Medicine, University of Otago
Dr  Julie Brown  NeuRA
Mrs  Samantha Buckis  Road Safety, Transport Accident Commission
Mr  Eric Chalmers  Kidsafe ACT
Dr  Chi Ngok Chow  C-MARC, Curtin University
Dr  Liz de Rome  Institute for Frontier Materials, Deakin University
Mr  Sam Doecke  CASR, University of Adelaide
Dr  Jeffrey Dutschke  CASR, University of Adelaide
Dr  Rena Friswell  TARS Research Centre, UNSW - Sydney
Dr  Paul Graham  New Zealand Transport Agency
Prof.  Raphael Grzebieta  TARS Research Centre, UNSW - Sydney
Dr  Julie Hatfield  TARS Research Centre, UNSW - Sydney
A/ Prof  Narelle Haworth  CARRS-Q, Queensland University of Technology
Dr  Michelle Hobday  C-MARC, Curtin University
Dr  Marilyn Johnson  Civil Engineering, Monash University
A/ Prof  Lisa Keay  Injury Division, The George Institute for Global Health
Dr  Mark King  CARRS-Q, Queensland University of Technology
Mr  David McTiernan  ARRB
A/ Prof  Lynn Meuleners  C-MARC, Curtin University
Dr.  Mario Mongiardini  TARS Research Centre, UNSW - Sydney
Dr.  Lori Mooren  TARS Research Centre, UNSW - Sydney
A/Prof  Jake Olivier  UNSW - Sydney
Mr  Peter Palamara  C-MARC, Curtin University
Dr  Paul Roberts  ARRB
Dr  Bridie Scott-Parker  Adolescent Risk Research Unit, University of the Sunshine Coast
A/ Prof  Teresa Senserrick  TARS Research Centre, UNSW - Sydney
Mr  Keith Simmons  TARS Research Centre, UNSW - Sydney
Dr  Richard Tay  RMIT University
Mr  Joel Tucker  RACQ
Dr  Jeremy Woolley  CASR, University of Adelaide
### Proceedings of the 2017 Australasian Road Safety Conference

#### Peer Reviewers

<p>| Mr | Raja Abeysekera | Centre for Road Safety, Transport for NSW |
| Dr | Joesph Affum | Safe Systems, ARRB |
| Dr | Trevor Allen | Monash University Accident Research Centre, Monash University |
| Dr | Kerry Armstrong | CARRS-Q, Queensland University of Technology |
| Mrs | Sareh Bahrololoom | Institute of Transport Studies, Monash University |
| Mr | Samuel Bailey | Queensland Department of Transport and Main Roads |
| Dr | Trevor Bailey | CASR, University of Adelaide |
| Ms | Joanne Baker | Centre for Road Safety, Transport for NSW |
| Dr | Matthew Baldock | CASR, University of Adelaide |
| Miss | Raewyn Baldwin | Network User Behaviour, NZ Transport Agency |
| Dr | Mike Bambach | Civil Engineering, The University of Sydney |
| Mr | Ben Barnes | Centre for Road Safety, Transport for NSW |
| Dr | Lyndel Bates | School of Criminology and Criminal Justice, Griffith University |
| Dr | Vanessa Beanland | University of the Sunshine Coast |
| Dr | Ben Beck | Epidemiology and Preventive Medicine, Monash University |
| Mr | Kenn BEER | Safe System Solutions Pty Ltd |
| Ms | Corinna Bennett | New Zealand Transport Agency |
| Prof | Lynne Bliston | NeuRA |
| Dr | Ross Blackman | CARRS-Q, Queensland University of Technology |
| Mr | Martin Boorman | Road Policing Command, Victoria Police |
| Dr | Soufiane Boufous | TARS Research Centre, UNSW-Sydney |
| Dr | Kate Brameld | C-MARC, Curtin University |
| Dr | Graham Brisbane | ARRB |
| Mr | Colin Brodie | New Zealand Transport Agency |
| Dr | Rebecca Brookland | Preventive and Social Medicine, University of Otago Dunedin |
| Inspector | Phillip Brooks | Traffic &amp; Highway Patrol Command, NSW Police Force |
| Dr | Julie Brown | NeuRA |
| Mrs | Samantha Buckis | Road Safety, Transport Accident Commission |
| Ms | Laurie Budd | Monash Injury Research Institute, Monash University |
| Dr | Peter Cairney | Safe Systems, ARRB |
| Prof | Max Cameron | Monash Injury Research Institute, Monash University |
| Ms | Nimmi Candappa | Monash Injury Research Institute, Monash University |
| Mr | John Catchpole | ARRB |
| Mr | Eric Chalmers | Kidsafe ACT |
| A/Prof | Judith Charlton | Accident Research Centre, Monash University |
| Mr | Wayne Chatters | Victoria Police |
| Ms | Anna Chevalier | Safer Roads Consulting |
| Dr | Chi Ngok Chow | C-MARC, Curtin University |
| Dr | Kyle Chow | C-MARC, Curtin University |
| Dr | Bruce Corben | Safe Roads |
| Dr | Kristy Coxon | School of Science and Health, Western Sydney University |
| Ms | Patricia Cullen | The George Institute for Global Health, UNSW - Sydney |
| Prof | Jeremy Davey | CARRS-Q, Queensland University of Technology |
| Dr | Tamara De Regt | School of Social Sciences, University of the Sunshine Coast |
| Dr | Liz de Rome | Institute for Frontier Materials, Deakin University |
| Mr | Angelo D’Elia | MUARC, Monash University |
| Dr | Sebastien Demmel | CARRS-Q, Queensland University of Technology |
| Mr | Sam Doecke | CASR, University of Adelaide |</p>
<table>
<thead>
<tr>
<th>Title</th>
<th>Name</th>
<th>Organisation/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr</td>
<td>Michael Tziotis</td>
<td>ARRB</td>
</tr>
<tr>
<td>A/Prof</td>
<td>Kirsten Vallmuur</td>
<td>Queensland University of Technology</td>
</tr>
<tr>
<td>Mr</td>
<td>Andrew van den Berg</td>
<td>CASR, University of Adelaide</td>
</tr>
<tr>
<td>Miss</td>
<td>Karen Vlok</td>
<td>MUARC, Monash University</td>
</tr>
<tr>
<td>Dr</td>
<td>Christopher Watling</td>
<td>CARRS-Q, Queensland University of Technology</td>
</tr>
<tr>
<td>Dr</td>
<td>Angela Watson</td>
<td>CARRS-Q, Queensland University of Technology</td>
</tr>
<tr>
<td>Ms</td>
<td>Natalie Watson-Brown</td>
<td>Adolescent Risk Research Unit, University of the Sunshine Coast</td>
</tr>
<tr>
<td>Dr</td>
<td>Michael White</td>
<td>CASR, University of Adelaide</td>
</tr>
<tr>
<td>Mr</td>
<td>Gary Whitman</td>
<td>ARCCA</td>
</tr>
<tr>
<td>Dr</td>
<td>Catherine Wilkins</td>
<td>Road Policing Command, Victoria Police</td>
</tr>
<tr>
<td>Prof</td>
<td>Ann Williamson</td>
<td>TARS Research Centre, UNSW-Sydney</td>
</tr>
<tr>
<td>Dr</td>
<td>Hollie Wilson</td>
<td>CARRS-Q, Queensland University of Technology</td>
</tr>
<tr>
<td>Dr</td>
<td>Darren Wishart</td>
<td>CARRS-Q, Queensland University of Technology</td>
</tr>
<tr>
<td>Ms</td>
<td>Sharon Wishart</td>
<td>Driver Performance, VicRoads</td>
</tr>
<tr>
<td>Dr</td>
<td>Jeremy Woolley</td>
<td>CASR, University of Adelaide</td>
</tr>
<tr>
<td>Dr</td>
<td>Lisa Wundersitz</td>
<td>CASR, University of Adelaide</td>
</tr>
</tbody>
</table>