



16-17

Annual Report

Contents

2016-17 Overview	2-3
Chair's Report	4
Chief Executive's Report	5
Governance	6
Activities	6
NEVDIS	10
Assets Program	13
Network Program.....	21
Safety Program.....	30
Connected and Automated Vehicles.....	37
Knowledge Sharing	41
Financial and Directors' Report	45
Abbreviations.....	59

Austrroads Annual Report 2016-17

Published: November 2017

Austrroads publication number: AP-C20-17

ISBN: 978-1-925671-02-5

Address: Level 9, 287 Elizabeth Street,
Sydney NSW 2000, Australia

Phone: +61 2 8265 3300

Email: austrroads@austrroads.com.au

Web: www.austrroads.com.au

Austrroads is the peak organisation of Australasian road transport and traffic agencies.

Austrroads members are collectively responsible for the management of over 900,000 kilometres of roads valued at more than \$200 billion representing the single largest community asset in Australia and New Zealand.

Austrroads' purpose is to support our member organisations to deliver an improved Australasian road transport network. One that meets the future needs of the community, industry and economy. A road network that is safer for all users and provides vital and reliable connections to places and people. A network that uses resources wisely and is mindful of its impact on the environment.

To succeed in this task, we undertake leading-edge road and transport research which underpins our input to policy development and published guidance on the design, construction and management of the road network and its associated infrastructure.

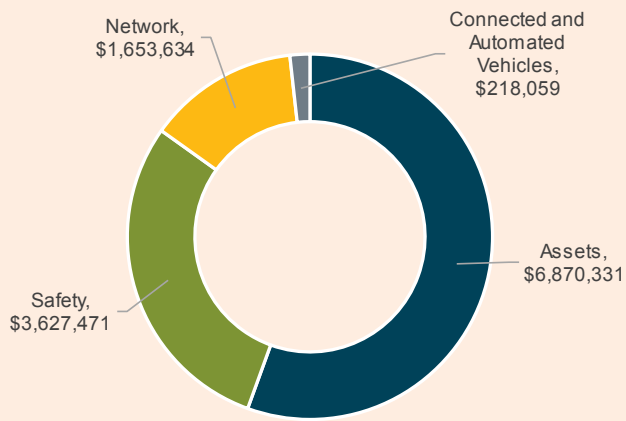
We also administer the National Exchange of Vehicle and Driver Information System (NEVDIS), a unique national system which enables road authorities to interact across state borders and directly supports the transport and automotive industries.

Austrroads provides a collective approach that delivers value for money, encourages shared knowledge and drives consistency for road users.

Members

- Roads and Maritime Services New South Wales
- Roads Corporation Victoria
- Queensland Department of Transport and Main Roads
- Main Roads Western Australia
- Department of Planning, Transport and Infrastructure South Australia
- Department of State Growth Tasmania
- Department of Infrastructure, Planning and Logistics Northern Territory
- Transport Canberra and City Services Directorate, Australian Capital Territory
- Commonwealth Department of Infrastructure and Regional Development
- Australian Local Government Association
- New Zealand Transport Agency

Research expenditure by program



\$12.4 million

research work program expenditure

27.9

full-time equivalent staff

46

projects completed

226

publications and papers produced

340,000

publications accessed

134.6 million

NEVDIS transactions

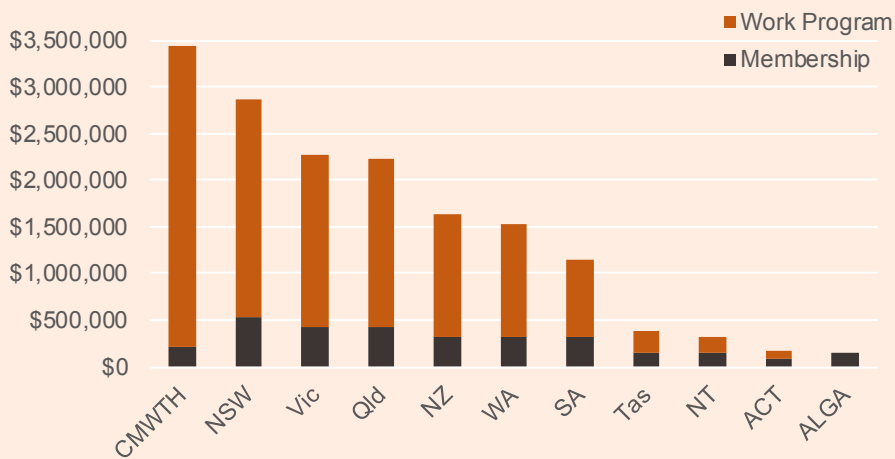
2.3 million

web page views

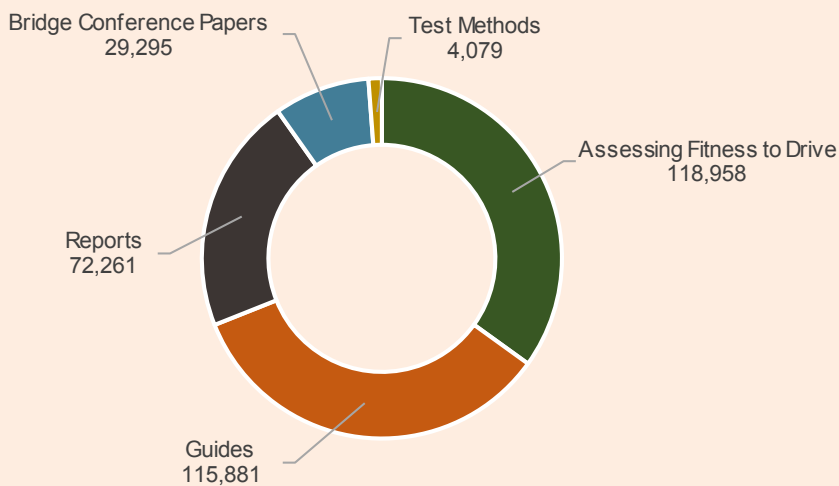
4,400

webinar participants

Austrroads funding contribution shares 2016-17



Publication downloads and sales 2016-17



Chair's Report

This is the first year for the delivery of the Austroads Strategic Plan 2016-20 and my first year as Chair of the Austroads Board. The Austroads Board are to be commended for their development of the plan and their continued support to the Chief Executive and senior management team in its delivery.

The plan has encouraged significant operational and strategic changes in Austroads.

Project development and delivery is now more agile and can better respond to emerging issues. We are starting to see a new breed of projects that are still delivering quality outcomes but at a much faster pace.

Board members are playing a more active role in the identification and leadership of priority projects. While Program Managers are leading larger scale projects that incorporate significant stakeholder engagement; a variety of outputs such as reports, online tools, workshops and knowledge sharing activities; and assessment of impact including adoption by member agencies and changes in practice.

Good examples of these larger, more influential projects are the ambitious project to establish a harmonised road asset data standard for use in Australia and New Zealand, and the four-part project to facilitate the introduction of a harmonised approach to temporary traffic control at road worksites across Australia.

A renewed focus on acquiring research on a strongly competitive and value for money basis has resulted in savings which have been invested in additional projects.

For the first time NEVDIS revenue has been used to fund an Austroads project. The funds were used to develop an online library of modern CGI videos to enable road agencies to deliver improved hazard perception testing for novice car drivers and motorcycle riders (a world first safety initiative). This is Austroads' largest driver licensing project to date. We expect NEVDIS will be able to self-fund another large project next year, the development of the online system to manage the national heavy vehicle registration scheme.

The work of Austroads continues to support the delivery of strategic national transport policies. This includes the Transport and Infrastructure Council's strategic work program, heavy vehicle road reform, the Australian National Road Safety Strategy 2011-2020, the National Policy Framework for Land Transport Technology and the National Remote and Regional Transport Strategy.

I congratulate each of the people to be recognised with Austroads awards. The awards recognise the contribution of individuals to the Austroads work program. The people who manage Austroads projects and serve on Task Forces and Working Groups often undertake that work in addition to their regular duties. The awards acknowledge their efforts and commitment on which Austroads' success depends.

In particular I acknowledge the work of Rifaat Shoukrallah, who recently retired from Transport Canberra and City Services, ACT and Cheryl Richey from Transport for New South Wales.

Rifaat had been an active contributor to Austroads for more than 20 years as a member of the Traffic Management Working Group and, for the past 10 years, a member of the Network Task Force. Rifaat was presented with an Austroads Outstanding Service Award in recognition of his outstanding contribution to Austroads and its activities over many years.

Cheryl Richey has been awarded an Austroads Special Commendation in recognition of her significant contribution to the work and objectives of Austroads for more than 12 years. Cheryl has led a number of successful Registration and Licensing projects and significantly contributed to the Program. She also represents Austroads on the Commonwealth Document Verification Advisory Board and the National Identity Security Coordination Group.

In his message last year, out-going Chair Peter Duncan, mentioned that the first on-road trials of driverless cars in the Southern Hemisphere had been undertaken. There are now trials in New Zealand and seven Australian jurisdictions incorporating driverless shuttle buses and other highly automated vehicles, vehicle-to-pedestrian technology, autonomous heavy vehicle platooning and Bluetooth in-car messaging to visiting drivers.

The potential societal benefits from these emerging technologies are significant. Our newly established Connected and Automated Vehicles Program is working closely with key government and industry stakeholders towards establishing the required supporting frameworks to optimise their potential road safety, transport efficiency, productivity, and environmental outcomes.

I would like to thank my fellow Board members and the Austroads staff for their hard work and commitment during the year. In particular, I would like to thank Nick Koukoulas, Chief Executive for his leadership, negotiations and collaboration.

I look forward to working with you all in 2017-18 to support our member organisations to deliver an improved Australasian road transport network.



Neil Scales, OBE

Neil Scales.

Neil Scales, OBE
Chair, Austroads

Chief Executive's Report

Delivery of the 2016-20 strategic plan has reshaped the way Austroads manages its work program and administers research projects.

While it was challenging to ensure the systems were in place to support delivery of the new plan at the beginning of the 2016-17 financial year, the results have been very pleasing.

The Austroads Program Structure was consolidated and full-time dedicated Program Managers were engaged to direct the work of each Program.

David Francis' position of Manager Program Support was changed to Chief Operating Officer. David now supervises a new project contract management role, oversees project development and delivery, and provides direction to the Program Managers. With his role assuming a stronger general day-to-day supervisory and management role of the Austroads National Office, including NEVDIS, this has allowed me to focus strategically on the overall operation of Austroads and the NEVDIS business unit, and externally on stakeholder engagement.

The number of projects Austroads manages each year has reduced and new projects are of a larger scale with more significant outcomes. We are seeing the development of more complex projects which incorporate a number of different contracts, and deliver multiple outputs targeting different stakeholders.

Austroads has invested in a cloud based project management system that is helping us to better track project milestones and budgets.

We continue to focus on improving our capacity to deliver projects on time.

I am pleased to note that all completed research projects were within their allocated budget. The completion of projects within their scheduled timeframe continues to be a challenge but also continues to improve. There were 40 projects scheduled for completion in 2016-17 and 15 were completed on schedule. At 30 June there were four projects running more than six months late, 14 running less than six months late and 60 running on time.



Nick Koukoulas

As the financial summary below shows, NEVDIS performed strongly again in the 2016-17 financial year. The continuing increase in the demand for NEVDIS services is now allowing us to fund substantial registration and licensing projects without financial contributions from member agencies. This is an exciting development for Austroads and the NEVDIS team are to be congratulated for their strong performance throughout the year.

I would like to thank the Austroads Chair, Deputy Chair, Board members, the Task Force and Working Groups members, our project managers and the Austroads staff for their dedication. This was a year of change for us all and I am proud of the way the organisation responded to the challenges with enthusiasm and optimism.

Nick Koukoulas
Chief Executive, Austroads

2016-17 Financial Summary

Income and Expenditure to 30 June 2017

	Austroads	NEVDIS	Consolidated
Revenue	16,021,851	11,817,749	27,839,600
Expenses	-16,160,759	-4,528,830	-20,689,589
Surplus/deficit for the year	-138,908	7,288,919	7,150,011

Statement of Financial Position as at 30 June 2017

	Austroads	NEVDIS	Consolidated
Total assets	10,583,533	16,502,601	27,086,134
Total liabilities	-3,547,093	-640,411	-4,187,504
Net assets	7,036,440	15,862,190	22,898,630
Equity			
Accumulated surplus b/f	7,175,347	8,573,272	15,748,619
Surplus/deficit for the year	-138,908	7,288,919	7,150,011
Total equity	7,036,439	15,862,191	22,898,630

Governance

Austrroads Ltd is a company limited by guarantee under the Corporations Act 2001. Austrroads is governed by a Board of directors. There is currently one director from each member organisation, the chief executive or a senior executive officer of their organisation.

Neil Scales OBE, Director-General of Queensland Department of Transport and Main Roads, was appointed Chair on 13 October 2016, following the retirement of Peter Duncan AM. The appointment is for a two year term.

Shane Gregory, General Manager State Roads for the Department of State Growth, Tasmania, was appointed Deputy Chair on 13 October 2016, following Neil Scales appointment to Chair.

The Austrroads national office, based in Sydney, provides secretariat support to the Board. The Chief Executive, Nick Koukoulas, is the Company Secretary and Public Officer of Austrroads Ltd. There is also an Executive Committee which comprises:

- Neil Scales OBE, Austrroads Chair
- Shane Gregory, Austrroads Deputy Chair
- Paul Gelston, Department of Planning, Transport and Infrastructure, South Australia
- Tommy Parker, NZ Transport Agency
- Peter Todd, VicRoads, Victoria
- Nick Koukoulas, Austrroads Chief Executive.

Activities

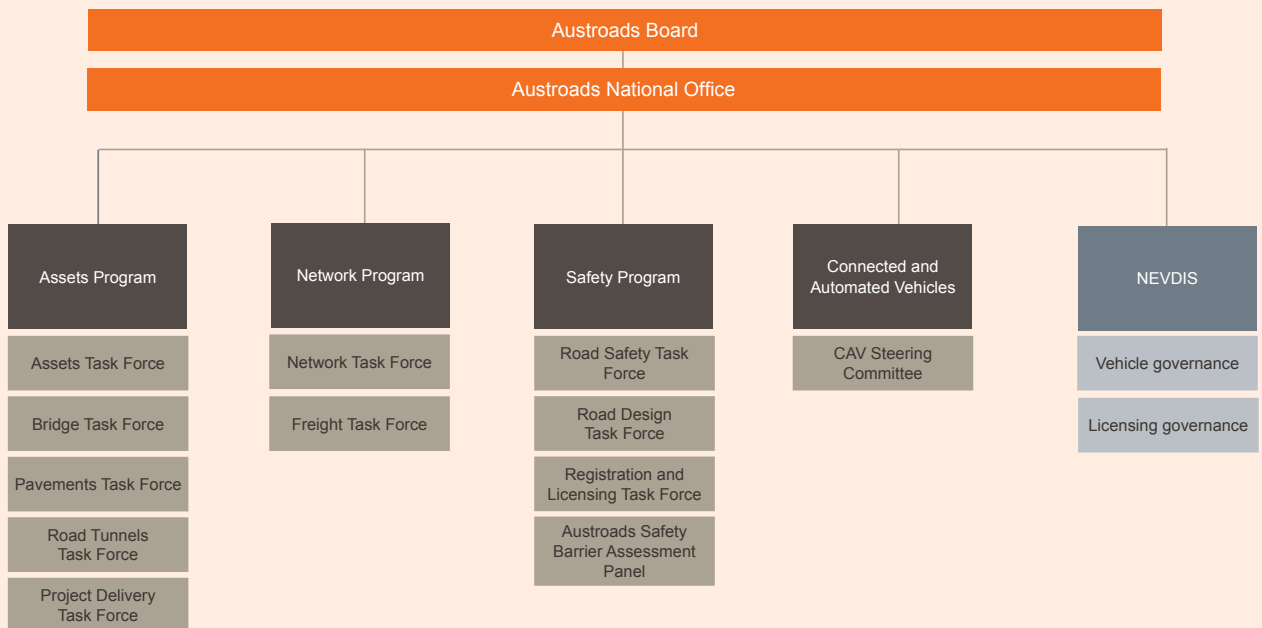
Austrroads:

- conducts strategic research which helps road agencies address current and emerging issues
- maintains and publishes Guides to promote a nationally consistent approach to the design, maintenance and operation of road networks
- facilitates the sharing of knowledge by widely disseminating research outputs, conducting seminars, and promoting the use of Austrroads work
- conducts business activities on behalf of Australasian road agencies
- fosters international collaboration by engaging with and supporting international road organisations.

Structure

Austrroads uses a program management approach to deliver the strategic plan. Each program focuses on an operational area of the road system but in doing so they address the strategic priorities of Austrroads by undertaking a range of projects and contribute to improving transport in Australia and New Zealand.

Program Managers are responsible for the development and management of annual work programs and provide reports to the Board. The Task Forces identify areas of interest and develop project proposals, oversee projects, promote the dissemination of results and provide a forum for the exchange of information between Austrroads' member and related organisations.



Work Program

Austrroads tracks progress on all projects and reports to the Board at each meeting on the overall delivery of the work program. There were 125 projects approved in the 2016-17 work program, with 83 projects continuing from previous financial years and 42 new projects starting in 2016-17. There were 40 projects scheduled for completion in 2016-17. Fifteen were completed within that year and 10 of those were on schedule.

During 2016-17 a total of 46 projects were completed and one was cancelled making a total of 47. The table below provides a comparison of work program status figures as at 30 June for the last five financial years.

In 2017-18, 78 projects will carry over from 2016-17 and there are currently 24 new projects making a total of 102.

Status of Austrroads work program

Year	Number of projects						Total
	Completed	Cancelled/Deferred	12 months + late	6-12 months late	< 6 months late	On time	
2012-13	46	7	6	0	6	101	166
2013-14	39	6	7	11	17	93	173
2014-15	59	8	11	4	26	58	166
2015-16	62	3	2	1	22	58	148
2016-17	46	1	1	3	14	60	125

Awards

Each year Austrroads Awards recognise the contribution of individuals to our work program. The people managing Austrroads projects and serving on Task Forces and Working Groups often undertake that work in addition to their regular work for member organisations. The awards acknowledge their efforts and commitment on which our success depends. In 2016-17 Austrroads recognised the following people for their exceptional service.

Austrroads Outstanding Service Award

Rifaat Shoukrallah – ex Transport Canberra and City Services, ACT

Rifaat Shoukrallah has been an active contributor to Austrroads for more than 20 years as a member of the Traffic Management Working Group and, for the past 10 years, a member of the Network Task Force.

In recent years he has been a Project Working Group member on 14 Network projects including projects which:

- updated Parts 1, 2, 3, 4 of Guide to Traffic Management
- developed the award winning Pedestrian Facility Selection Tool
- provided a detailed governance framework to support operationalising the national ITS product approval process
- published the National ITS Architecture Roadmap which provides an overview of Austrroads' activities and timeframes to progress the development and implementation of the National ITS Architecture
- will facilitate the introduction of a harmonised approach to temporary traffic control at road worksites across Australia.

In 2017 Rifaat announced his retirement and the award is in recognition of his outstanding contribution to Austrroads and its activities over many years.

Austrroads Special Commendation

Cheryl Richey – Transport for New South Wales

Cheryl Richey has made a significant contribution to the work and objectives of Austrroads for more than 12 years including:

- successfully leading a number of Registration and Licensing projects and contributing to the Program in general.
- representing Austrroads on various committees including the Commonwealth Document Verification Advisory Board and the National Identity Security Coordination Group.
- the development of the business case for the National Driver Licence Facial Recognition System (NDLFRS). Information from the business case is being used to pilot a NDLFRS with multiple jurisdictions and the Commonwealth. This project illustrates how the strategic intent of Austrroads to improve consistency and harmonisation across jurisdictions contributes to the broader national reform agenda - in this case National identity security. The outcomes from this project have provided a pathway for road agencies to augment existing processes used to identify clients at the time of enrolment for access to government services through a national facial recognition system.



VicRoads Austroads Awards presentation: Peter Frauenfelder, Andy Ng, Bruce Hawkins, Richard Yeo, Lisa Hauth, Peter Todd, Nigel Powers, Andrew Wall and Ye-Chin Koay.

Austroads Achievement Awards: Assets Program

Nigel Powers – VicRoads

For his leadership of the highly successful Austroads Bridge Conference 2017 as Organising Committee Co-chair and as Project Manager for a number of successful Austroads projects.

Andy Ng – VicRoads

For his leadership of the highly successful Austroads Bridge Conference 2017 as Organising Committee Co-Chair and as Project Manager for a number of successful Austroads projects.

Lisa Hauth – VicRoads

For her leadership of the highly successful Austroads Bridge Conference 2017 as a key member of the Organising Committee.

Yew-Chin Koay – VicRoads

For his leadership of the highly successful Austroads Bridge Conference 2017 as Chair of the Scientific Committee.

Michelle Baran – Queensland Department of Transport and Main Roads

Project Management and leadership of the highly regarded project: AT1920 Developing the information to support the Heavy Vehicle Road Reform (HVRR).

Nicola Boyd – Queensland Department of Transport and Main Roads

For her significant contribution over a number of years as Chair of the Utilities in Road Reserves Working Group which has assisted member agencies in taking a national approach to liaising with utilities providers, such as the NBN.

John Cunningham – Roads and Maritime Services, NSW

For his long term technical contributions to the work of the Bituminous Surfacing Working Group (BSWG) and related research projects.

Richard Edwards – Department of Planning, Transport and Infrastructure, SA

For his significant contribution over a number of years as Chair of the Contracts and Prequalification Working Group which has led the development and maintenance of the Austroads national prequalification scheme and associated projects.

John Lysenko – Fulton Hogan

For his long term technical contributions to the work of the Bituminous Surfacing Working Group (BSWG) and related research projects.

Austroads Achievement Awards: Network Program

Brett Clifford – Department of Infrastructure Planning and Logistics, NT

In recognition of his management of an important strategic project for Austroads, Funding and Financing Options for Remote and Regional Roads, [Including Developer Contributions] (BF2041) and for his ongoing contribution to the Freight Task Force.

Geoff McMillan – Queensland Department of Transport and Main Roads

In recognition of his management of an important project for the Network Program and Freight Task Force, Life Lines Routes Risk Indicator (FS2029).

Julian Breheny – Department of Infrastructure and Regional Development, Commonwealth

In recognition of his management of an important project for the Network Program and Freight Task Force, Investigating the Potential Benefits of Enhanced End-to-End Supply Chain Visibility (FS2000).

Peter Frauenfelder – ECODEV, Victoria

In recognition of his management of two important projects for the Network Program and Freight Task Force, Development of a Policy Framework to Support Safety, Efficiency and Productivity of Light Freight in the Urban Context (FS1806) and Publish a Roadmap for Austroads Jurisdictions in Bridge Assessment Processes (FS1814).

Jason Venz – Queensland Department of Transport and Main Roads

In recognition of his management of an important project for the Network Program and Network Task Force, Harmonisation of ITS Technical Specifications (NS2022).

Ronald Elunai – Queensland Department of Transport and Main Roads

In recognition of his management of an important project for the Network Program and Network Task Force, Operationalising the Product Acceptance Process (NS2049).

Fergus Tate – New Zealand Transport Agency

In recognition of his management of an important project for the Network Program and Network Task Force, Revision of Guide to Traffic Management Part 10: Traffic Control and Communication Devices (NT1799).

Andrew Wall – VicRoads

In recognition of his management of an important project for the Network Program and Network Task Force, Revision of Guide to Traffic Management Part 4: Network Management (NT2013).

Austrroads Achievement Awards: Safety Program

Gerry Arthur – Department of Transport, WA

For his excellent project management and administration of the Car and Motor Cycle Hazard Perception Test project (RS1911) over the last four years. This has been a unique and challenging project for Austrroads which includes a world-first in the development of HPT clips for motorcycles and Gerry's outstanding contribution to the success of this project is recognised.

Natalie Di Florio – Department of Transport, WA

For her excellent management and administration of the Car and Motor Cycle Hazard Perception Test project (RS1911) over the last four years. This has been a unique and challenging project for Austrroads which includes a world-first in the development of HPT clips for motorcycles and Natalie's outstanding contribution to the success of this project is recognised.

Natalie Lockwood – Austrroads

For her work in managing the Delivery of Safe System Infrastructure Workshops (SO2061). This project has involved a significant amount of organisation with workshops held in Australia and New Zealand including Adelaide, Hamilton, NZ Wellington, NZ, Parramatta, Sydney CBD, Brisbane and Hobart, and promoted by Austrroads on social media and LinkedIn.

Bruce Hawkins – VicRoads

For the development of the business case for the National Driver Licence Facial Recognition System (NDLFRS), contributing to the Commonwealth National Identity Security Strategy. This was a joint NSW / VIC led project involving cross-jurisdictional collaboration in delivering positive national outcomes. Information from that project is being used to pilot a NDLFRS with multiple jurisdictions and the Commonwealth.

Michael Skinner – Queensland Department of Transport and Main Roads

For his work on the "Alternative Vehicles Motorised Mobility Devices (MMDs) – Australian Standard" project. He has driven this project since its inception in 2013, with the aim of reducing the number of crashes involving MMDs by improving the construction and performance requirements for MMDs. The development of an agreed Standard will also support MMD users to be informed at the point of purchase about the suitability of the device, particularly in terms of its safety for use on public infrastructure (footpaths etc) and its suitability for accessing passenger transport.

World Road Association

The World Road Association (WRA) held its first round of meetings of the new Executive Committee, the Strategic Planning Committee and the Communications Commission in Abu Dhabi in the week of 27 February 2017.

Neil Scales, First Delegate Australia and Austrroads Chair, was appointed to the Executive Committee and the Strategic Planning Committee and Nick Koukoulas, Austrroads Chief Executive, was appointed as a member to the Communications Commission.

The 2016-2020 Strategic Plan was formally agreed at the 2015 World Road Congress in Seoul and it has five strategic themes covering:

- Management and Finance
- Access and Mobility
- Safety
- Infrastructure
- Climate Change and Environment.

These themes represent the continuation of the work that remains at the core of road agencies interests and fits well into the program areas in the Austrroads 2016-2020 Strategic Plan. Austrroads has appointed 14 corresponding members and 15 full members on the 17 technical committees and three Task Forces.

Zara Fox from VicRoads was appointed as the English-Speaking Secretary for the Task Force Committee TF A.1 Performance of Transport Administrators.

World Road Congress 2023

The World Road Congress is held every four years and attracts around 3,000 representatives from around the globe. The bid process for the 2023 Congress is now underway and there is significant interest in hosting the Congress.

Austrroads received Expressions of Interest from five Australian cities, vying for selection to launch an Australasian bid: Sydney, Melbourne, Brisbane, Adelaide and Perth. The Austrroads Board has selected Sydney as the city to progress the Australasian bid for the 2023 World Road Congress. We will be working with all Austrroads members and stakeholders to give the Sydney bid the best opportunity of success.

The bid process formally opens in late 2017 and at this stage bids are also expected from the United Kingdom for London, Malaysia for Kuala Lumpur and the Czech Republic for Prague.

NEVDIS

enabling secure licence and vehicle information exchange



Overview

The National Exchange of Vehicle and Driver Information System (NEVDIS) was established in 1998 and is owned by Austroads on behalf of the eight states and territory jurisdictions who contribute information.

NEVDIS is a unique national system which enables road authorities to interact across state borders and directly supports the transport and automotive industries. Australia's automotive industry employs more than 312,000 people comprising over 50,000 businesses with revenue in excess of \$162 billion.

This essential customer service system exchanges national information about vehicles and driver licenses. Its primary purpose is to prevent fraud and theft by ensuring 'one vehicle, one Vehicle Identification Number (VIN)' and 'one person, one driver licence'.

In addition to information supplied by road agencies, NEVDIS collects VIN data for compliance from vehicle wholesalers and stolen information from police. It also provides information to public and private sector organisations to facilitate provenance checking on vehicles, matching of biographic details on licenses, motor insurance underwriting and vehicle safety recalls.

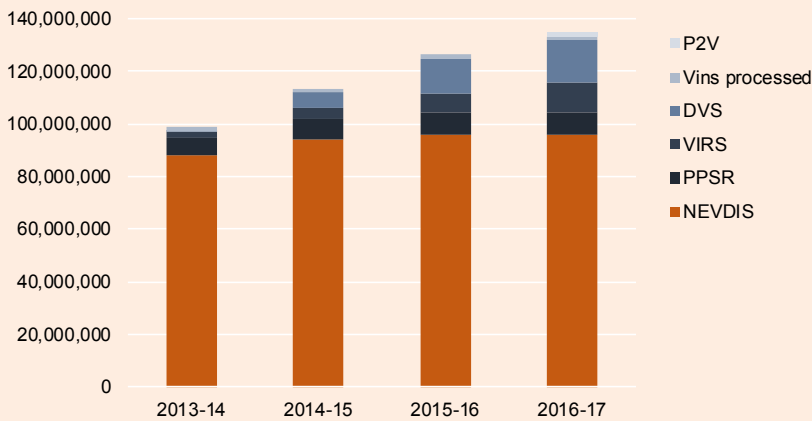
2016-17 Highlights

The NEVDIS system processed 134.6 million transactions in 2016-17, a 6.6% increase in comparison to 2015-16. The NEVDIS team continue to maintain a high standard of service to stakeholders with a reliability uptime of 99.9% in 2016-17.

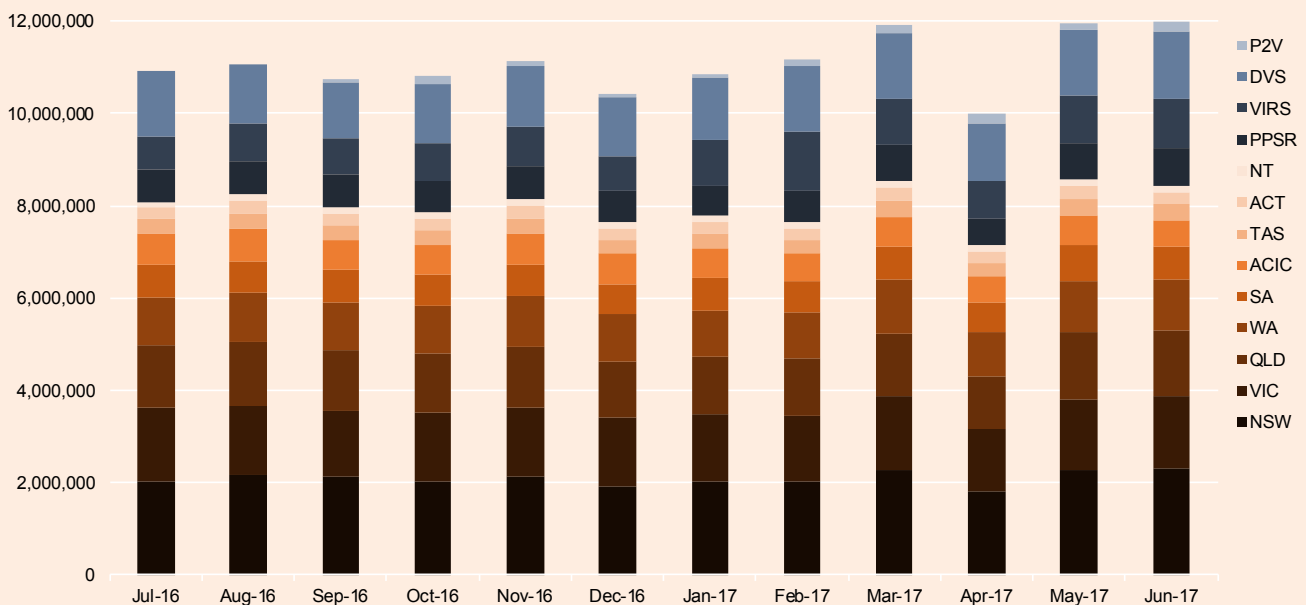
NEVDIS is currently progressing with two significant projects, to modernise all aspects of NEVDIS.

The NEVDIS re-platform project will facilitate the migration of NEVDIS and ancillary systems to a 'Platform as a Service' (PaaS) cloud computing model.

NEVDIS transactions four year comparison



NEVDIS transactions 2016-17



The NEVDIS Re-Write project will re-develop the NEVDIS core application on to a service-oriented architecture using current best of breed enterprise applications. The project will deliver the following benefits:

- Future consolidation of all Austroads business applications on to a single development platform allowing for re-use of generic application code.
- Greater agility in developing and delivering business applications aligned to business objectives.
- The use of industry standard technologies and frameworks will enable the adoption of a tender based development strategy.
- The ability to implement multiple versions of applications will remove the need for global adoption by our client organisations.

Takata related safety recalls continue to be of significant concern for consumers, manufactures and the Federal Government. To assist with this safety issue, NEVDIS has introduced a policy which allows manufactures to receive Takata airbag related safety recalls extracts fee-free until 30 June 2018. NEVDIS has also enhanced the Safety Recall extract to include the registered owner’s Postal addresses to increase the effectiveness of communication success rates.

NEVDIS is also involved in several initiatives to facilitate information exchanges between States and Territories and The National Heavy Vehicle Regulator, an independent regulator for all vehicles over 4.5 tonnes gross vehicle mass.

NEVDIS continues to generate revenue from corporate and public sector entities through Plate-to-VIN (P2V), the Personal Property Security Register (PPSR), the Document Verification Service (DVS), Vehicle Information Request System (VIRS), safety recall and data extract products.

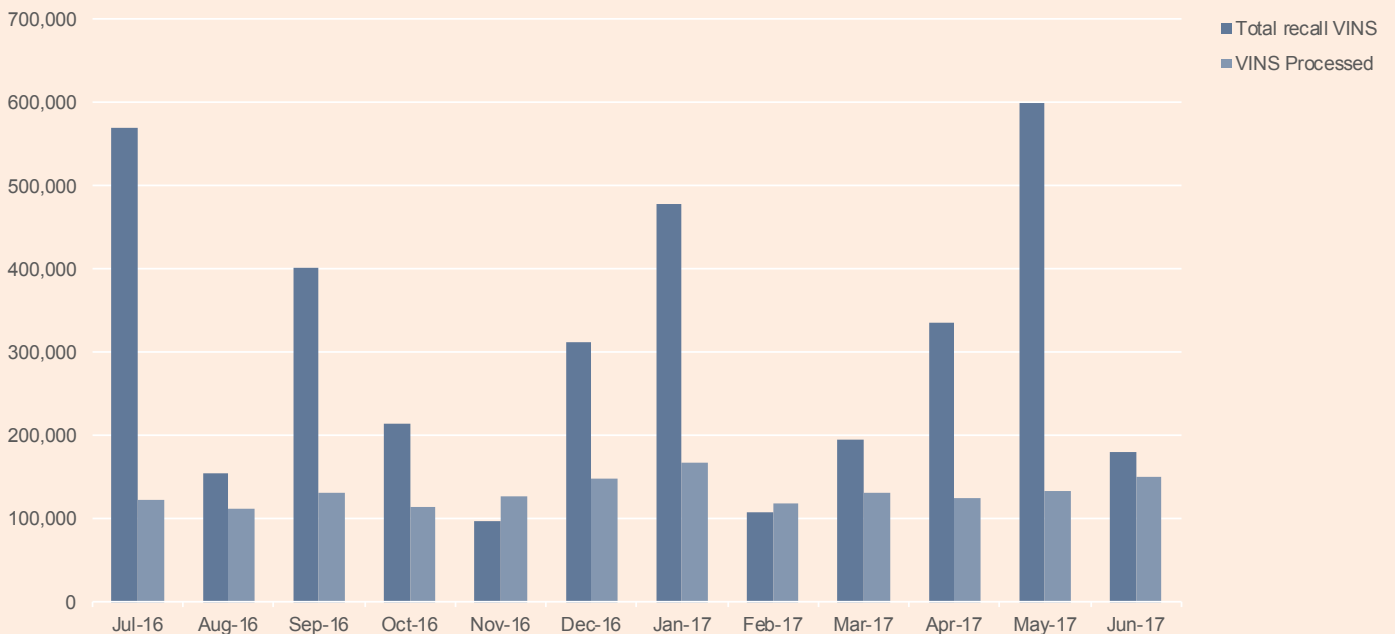
Additional Written Off Vehicle Record Codes have been made available to participating jurisdictions through the PPSR to allow members of the public to make informed decisions with regards to the purchase of a vehicle. Currently, they are only informed of whether the vehicle was written off, not the nature of the damage sustained.

All services continue to increase year-on-year.

Future Focus

NEVDIS intends to remain a not-for-profit entity but analysis has identified a number of additional opportunities that have the potential to generate sufficient surplus to fund NEVDIS’ future investment requirements as well as partially or fully negate the need for future funding of NEVDIS by jurisdictions.

NEVDIS VIN transactions 2016-17



A close-up photograph of a yellow and green road roller paving a road surface. The roller is positioned on a layer of dark aggregate, with a smooth concrete surface visible in the foreground. The machine's large, ribbed drum is the central focus, and the operator's cab is visible in the upper left. A dark teal overlay is present in the upper right corner, containing the title and subtitle.

Assets Program

extending the life and performance of infrastructure to ensure the effective and sustainable maintenance of the road network

People

Dr Richard Yeo, Program Manager Assets

Dr Richard Yeo has extensive research and management experience in the roads sector. Prior to joining Austroads he was Executive Manager National Interest Services with the Australian Road Research Board where he had oversight of the delivery of in-depth research and portfolio management for national research and information programs. Richard's technical expertise is based in pavement technology and road infrastructure disciplines and he has worked across asset management and network operations areas.



"My role is to work with and lead five Australasian Task Forces covering asset management (which is overarching) and the more specific technical disciplines of bridges, tunnels, pavements and surfacings, and project delivery. With strategic direction from Austroads Board, these Task Forces drive the research and knowledge sharing activities which support Austroads key purpose - improving safety, productivity and sustainability of the road networks managed by member agencies. All three Austroads programs work in a coordinated and collaborative manner seeking to apply multi-disciplinary approaches to address strategic issues identified and prioritised to derive maximum benefits for member agencies.

National harmonisation and consistency is a key focus area.

Program coordinator: An Nguyen (July 2016-February 2017) and Jo Hill (January 2017 ongoing).

Assets Task Force

Karl Cloos, TCCS ACT	Tom McHugh, MR WA	Ramon Staheli, NTC
David Darwin, NZTA	Janey Mitson, DPTI SA	Riaz UI-Islam, RMS NSW
Catherine Dear, VicRoads	Greg Moxon, DIRD	Shane Tepper, DIPL NT
Andrew Golding, TMR Qld	Mick Savage, IPWEA	Dr Tim Martin, ARRB
Andrew Hargrave, DSG TAS		

Pavements Task Force

Erik Denneman, AAPA	Bryan Matyorauta, DIPL NT	Mike Pickering, DTMR Qld
John Donbavand, NZTA	Dr Michael Moffatt, ARRB	Bryan Pidwerbesky, CC NZ
Graham Hennessy, AustStab	Kym Neaylon, Opus International	Dr Robert Urquhart ARRB
Sam Henwood, RMS NSW	John Nichols, CCAA	Hugo Van Loon, DPTI SA
Paul Keech, ALGA	Andrew Papacostas, VicRoads	Barry Walker, DSG Tas
Les Marchant, MR WA		

Bridge Task Force

Adam Lim, MR WA	Anthony Rooke, ARRB	Richard Underhill, DIPL NT
Phil Molloy, DPTI SA	Parvez Shah, RMS NSW	Neil Wong, NTC
Andy Ng, VicRoads	Vincent Tang, DSG Tas	Barry Wright, NZTA
Angela Ransom, DTMR Qld		

Road Tunnels Task Force

Bob Allen, ATOG	Geoff McKernan, Transurban	Greg Pipikios, Transurban
Nigel Casey, RMS NSW	Nooru Mohamed, DTMR Qld	Georgia Stylianos, VicRoads
Mark Castelli, AFAC	Kingsley Noble, DPTI SA	John Venables, MR WA
Nigel Lloyd, NZTA	Tony Peglas, ATS	Michael Tziotis, ARRB

Project Delivery Task Force

Peter Bishton, RMS NSW	Graham Hobbs, DTMR Qld	Shalendra Ranasinghe, RMS NSW
Leo Coci, MR WA	Adil Jamil, DSG TAS	Richard Underhill, DIPL NT
Richard Edwards, DPTI SA	Colin MacKay, NZTA	Andrew Williams, VicRoads
Denise Hatzi, DPTI SA		

Other technical working groups

- **Bituminous Surfacing Working Group** This group is chaired by a member agency representative and it is composed of road agency staff, ARRB and industry practitioners who have an interest and expertise in projects related to bituminous sprayed seals and the performance of bitumen and polymer modified binders.
- **Asphalt Research Working Group** This group is chaired by a member agency representative and is generally composed of road agency practitioners, ARRB and AAPA representatives.
- **Pavement Structures Working Group** This group is comprised of member agency representatives, AAPA, AustStab and ARRB and reviews in detail, projects relating to pavement design and performance.
- **Road Authority Pavement Marking Working Group** This group comprises road agency and industry practitioners who are working towards national harmonisation of pavement markings, performance based requirements and test methods and updating national standards. This work is key as consistency in pavement markings will support future connected and automated vehicle operations.
- **Utilities in Road Reserves Working Group** This group ensures a united position for road agencies in response to the ever growing and complex arrangements related to utilities in road reserves. The group is currently working with the Communications Alliance to update the G591:2006 Telecommunications Operational Guidelines for Installations. With the national broadband network roll-out, other telecommunications providers, gas, electricity, water and other utilities all occupying and seeking access to critical road and bridge infrastructure, the role of this working group has never been more important.

Overview

The strategic priority of the Assets Program is to extend the life and performance of infrastructure to ensure the effective and sustainable maintenance of the road network.

Rapid change in the operating environment for the Assets Program continues. Areas of change include digitisation, big data, connected and automated vehicles, road user expectations, financial capacity and adverse weather events. Roads sector asset management is evolving to align with international practices including the ISO 55000 asset management standards. Austroads Guides need continual review and update to ensure they continue to provide informed support to member agencies and the broader roads industry and this has been a key focus for 2016-17. The research programs involving over 40 projects seek to provide the new knowledge and information necessary to enable the revision of the Austroads Guides.

Work Streams

- Emerging technology – materials development
- Strategic management of road infrastructure
- Managing loading impacts
- Pavement management
- Bridge management
- Managing for climate change
- Sustainable roads and roadsides
- Managing rural and remote roads

Agreed Practice Outputs

- Guide to Asset Management
- Guide to Pavement Technology
- Guide to Bridge Technology
- Guide to Road Tunnels
- Guide to Project Delivery
- Test Methods
- Work Tips and Technical Notes

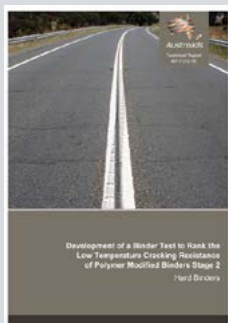


2016-17 Program Activities

Materials Development

The road network has traditionally been constructed of a wide range of local and manufactured materials as cost effectively as possible to meet road user needs. As level of service expectations grow and with rapid technology change, it is important to undertake materials research to encourage fit for purpose and sustainable use of available materials for roads.

Bituminous binders are a key component in the performance and service life of bituminous surfacings and pavements. Increased traffic stresses, demands from road users for improved surface characteristics, and changing binder procurement processes mean that continued efforts are needed to ensure binders perform as expected in the field and practitioners select binders appropriately.



In August 2016, Austroads published the results of the second year of work into the development of a binder test that can rank the low temperature cracking performance of Polymer Modified Binders (PMB).

The project (TT1823), led by the Pavements Task Force and managed by John Esnouf, Principal Engineer, Spray Seal Technology at VicRoads, will also investigate the effects of

polymer degradation and segregation on the performance of PMBs on the road.

The research found that dynamic shear rheometer stress ratio tests appear to be suitable for ranking the low temperature cracking performance of all 13 binder grades which are included in the Australian PMB specification.

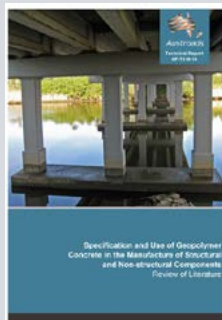
Geopolymer describes a wide range of synthetic aluminosilicate materials that have the potential to replace Portland cement in the production of structural and non-structural concretes. Their use of waste materials and the fact that they do not require firing, makes geopolymers more environmentally friendly than Portland cement-based materials and products.

Geopolymer concretes are marketed as proprietary products. Producers encourage their use in various field applications but will not reveal the formulation of the concrete, which they consider to be commercially sensitive.

To overcome the lack of information about these products the Bridge Task Force commissioned a research project (TS1835) to investigate and develop the use of geopolymer concrete in the manufacture of bridge and road related structural and non-structural components. The project was most recently managed by Fred Andrews-Phaedonos, Principal Engineer Concrete Technology from VicRoads.



In November 2016, Austroads published a general guide to the constituents, manufacture and the status of geopolymer concrete as a construction material. The guide compares the differences and similarities between the specification of geopolymer concrete and concrete made with Portland cement.



In December 2016, Austroads published a review of information on the formulation, manufacture, and properties of geopolymer binders and concretes. The report will inform the manufacture of geopolymer concrete components for structural and non-structural bridge components and other road related infrastructure.

VicRoads has updated its standard specifications to allow for use of geopolymer binders for concrete and already this material has been used in a range of applications in place of conventional concrete.



In July 2017 Austroads completed a project (TT1908) to assist industry in the successful transfer of French Enrobés à Module Elevé Class 2 (EME2) technology to Australia. Over the life of the project more than 28,000 tonnes of EME2 have been laid in Australia.

EME2 mixes are produced using a hard paving grade bitumen applied at a high binder content (approximately 6%). Compared to conventional asphalt bases with unmodified binders, EME2 asphalt is characterised by high stiffness, high durability, superior resistance to permanent deformation and good fatigue resistance. International and Australian experience indicates that significant pavement thickness reductions can be achieved using EME2.

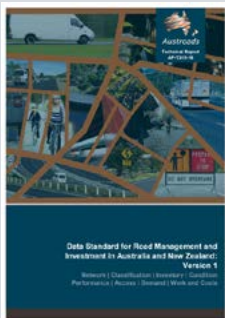
As part of the project, an Australian specification framework for EME2 mixes was developed and the requirements for manufacturing, paving and compliance were also provided. Demonstration trials were also carried out as part of the validation process.

Strategic Management of Road Infrastructure

The focus on strategic asset management has grown internationally with a range of guidance materials emerging such as the ISO 55000 standards series, the international infrastructure management manual and similar. Road agencies are responding to these developments and aligning with world's best practice. Austroads is supporting this through a number of national projects.

The Data Standard for Road Management and Investment is being developed to provide Australian and New Zealand road agencies and their suppliers with a common approach to the specification of operational data.

The strategic priority project (Stage I AB1935, Stage II BA2057, Stage III ASP2112) is being led by Assets Task Force. Due to its complexity, the project is being managed by an external consultant, Angus Draheim.



The Standard will establish agreed definitions of data to ensure it is collected, used and interpreted appropriately and consistently. The Standard provides guidance for road managers with different levels of sophistication in inventory and asset planning, and will benefit anyone who uses road related data for research, policy development, expenditure comparisons, funding approvals,

national reporting, shared services and inter-organisation communications. It will also benefit innovation and national reforms.

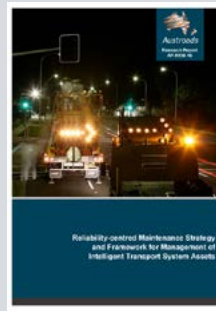
In November 2016, a first version of the Standard was published to provide information for road managers and the wider road sector.

In December stakeholders were invited to provide feedback on a draft of the second version of the Data Standard. The draft builds on the first version and included:

- improvements to the Works and Costs, Performance and Condition function groups
- new function groups for Risk, Resilience, Utilisation and Criticality.

On 1 June 2017, Austroads held a webinar explaining the design of the Austroads Data Standard is designed; how harmonised data sets are being used to promote benefits at the local and national levels through case studies; and the plans to support data standard adoption through a range of tools and data collaboration ventures. More than 250 people registered for the live broadcast and another 200 viewed the presentation recording.

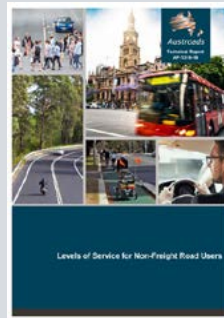
In December 2016, Austroads published a reliability-centred maintenance (RCM) strategy and framework to better manage intelligent transport system (ITS) assets.



The project was managed by Qudus Wazirzada, Asset Engineer, Roads and Maritime Services NSW with oversight provided by the Assets Task Force.

ITS assets play a key role optimising efficiency and minimising crash risk in modern road network operations. They include traffic signals, pedestrian operated systems, variable message signs, electronic school zone signs,

variable speed limits systems, over height vehicle warning systems, ramp meters, lane use management systems, automatic incident detection systems, black ice warning, automatic truck rollover warning systems, hazard warning systems (e.g. high wind), traveller information systems, vehicle data stations and bus priority systems.



In November 2016, Austroads published the results of a project to identify the asset management needs and level of service (LOS) requirements of future non-freight road users.

Levels of service for asset management generally refers to the condition of roadways and roadside assets.

Preliminary work reviewed overseas and Australian work in the area, and established definitions and terminology. A survey, conducted in Australia and New Zealand with 1,920 participants, identified key issues that should be considered when defining a LOS for non-freight customers.

The project (AT1737) was led by the Assets Task Force and managed by Andrew Golding, Director (Road Asset Management), Queensland Department of Transport and Main Roads.

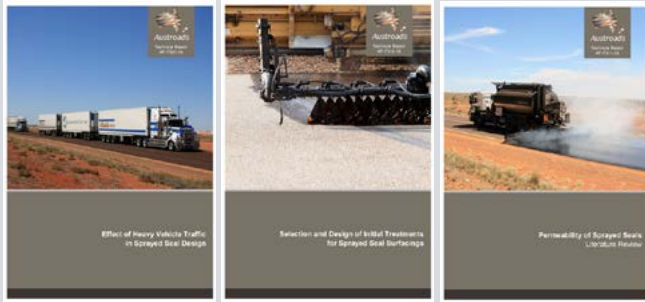
The report provides a guide to develop a customer focussed LOS and provides steps for individual agencies and collective activities that would benefit from a unified approach.

Managing Loading Impacts

Increasing road network freight productivity is not an option with the growing freight task demanding more from road and bridge assets. High productivity innovative freight vehicles with telematics technologies are leading the way and road agencies are responding by better matching the asset capacity to demand.

Sprayed seal surfacings on unbound granular pavements are used on around 90% of all surfaced roads in Australia. This type of pavement structure is extensively used due to its low initial cost but its continued use is challenged by increasing impacts of heavy vehicles, weather extremes and limited maintenance budgets.

The Pavements Task Force project (TT1820), to maintain sprayed sealing as a viable low cost surfacing treatment, is being managed by John Esnouf, Principal Engineer, Spray Seal Technology at VicRoads.



In July 2016, Austroads published three reports from the project:

- **Effect of Heavy Vehicle Traffic in Sprayed Seal Design** | The principal aim of this work was to examine the effect of heavy vehicle loading on sprayed seals, to incorporate loading impacts into the Austroads sprayed seal design method.
- **Selection and Design of Initial Treatments for Sprayed Seal Surfacing** | An update of the design of initial treatments for sprayed seal surfacing.
- **Permeability of Sprayed Seals: Literature Review** | This review work was conducted to explore the permeability limits of sprayed seal surfacings, and to determine the influencing factors which allow seals to remain sufficiently waterproof.

Pavement Management

In the context of the freight task and international best practice in road asset management, Austroads supports its member agencies in harmonisation and improvement in pavement management.

The Austroads Asset Management Specifications and Test Methods provide asset managers with uniform methods for measuring and reporting road condition.

The Assets Task Force has led a four-year project (BA1907) to ensure technical specifications are kept up to date, reflect technical change, and can be applied across all jurisdictions and road classes. David Svolos, Senior Materials Technologist Roads and Maritime Services NSW, managed the project.

Over the life of the project, 19 specifications and test methods were updated. Four were published in September:

- [AG:AM/S006](#) Specification for Pavement Deflection Measurement with a Traffic Speed Deflectometer (TSD) Device
- [AG:AM/S007](#) Specification for Pavement Crack Measurement with an Automatic Crack Detection System
- [AG:AM/T017](#) Pavement Data Collection with a Traffic Speed Deflectometer (TSD) Device
- [AG:AM/T018](#) Pavement Crack Measurement with an Automated Crack Detection System.



In December 2016, Austroads published a technical report examining the introduction of endurance limit concepts into Australasian asphalt design.

The fatigue based design approach in the *Guide to Pavement Technology Part 2: Pavement Structural Design* will result in continual increases in asphalt design thickness due to ever increasing traffic loadings and the low asphalt moduli in some areas of Australia due to the warm climate. Some heavy duty full depth asphalt pavements in Australia's hotter climates are more than 400 mm thick. There is concern that such designs are overly conservative.

A number of research projects have investigated field pavement performance to assess the evidence for an endurance limit. At this limit, additional asphalt thickness provides no additional benefit to fatigue life.

The report describes ways endurance limit concepts could be included in the Guide. These options were discussed at Austroads Pavement Structures Working Group and Pavements Task Force meeting and it was agreed to place limits on design traffic loadings.

Based on these discussions, the report provides text for the revision of Guide to Pavement Technology Part 2.

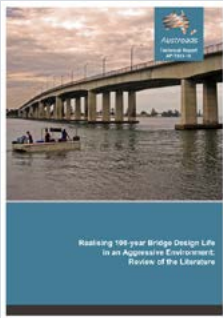
The project (TT2044) is designed to ensure that appropriate innovative and lower cost pavement technology practices are permitted and incorporated into Australian/New Zealand practice. The project, due for completion in 2019, is being led by the Pavements Task Force and managed by Mike Pickering, Director, Pavements, Research and Innovation, Engineering, Queensland Department of Transport and Main Roads.

Austroads is a foundation member of the Centre for Pavement Engineering Education (CPEE) and funds the ongoing development of pavement technology units. In 2016 this included:

- minor reviews of the distance learning units: 'Pavement Management', 'Fundamentals of Road Construction', 'Road Maintenance', and 'Construction Contract Law/Risk'
- a major review of the distance learning unit 'Introduction to Pavements'
- development of materials to support undergraduate pavement engineering education for students throughout Australia.

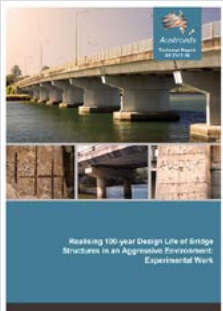
Bridge Management

Bridges form a key enabling component of the transport network. Road agencies manage large portfolios of bridge stock with a range of ages, capacities, conditions and traffic demands. Bridge management is a key focus area for Austroads.



In November 2016, Austroads published the results of project (TS1834) investigating durability issues that affect the service life of reinforced concrete bridges located on the coast or in saline soils.

Reinforced concrete bridges in these aggressive environments are designed for a 100-year service life, but they start to deteriorate after only 30 years.



Bridge elements such as piles, pile caps and columns, are very expensive and sometimes impractical to replace once they suffer major deterioration.

Therefore, ensuring their long-term durability beyond 100 years is crucial.

The project is detailed in two reports; an extensive literature review and the results of experimental work.

In collaboration with Austroads, Standards Australia's technical committee BD-090, Bridge Design, revised all seven parts of the 2004 Bridge design series, also known as the 'Bridge Code'. The highly anticipated AS/(NZS) 5100:2017, Bridge Design series was published in March.

The 2017 series addresses areas such as changes in the Australian climate, sustainability and safety-in-design. New bridge design loads such as light rail, fire, ship impact and loads from natural disasters including urban flooding were also introduced to reflect the needs of bridge designers. Rail loading provisions have been extensively revised to align with accepted international practice.

Material in the 2004 version was strongly focussed on steel and concrete. The 2017 revision extended this to include composite, rehabilitation material and engineered timber. Other changes to note, Part 6 has become a joint document with Standards New Zealand. Parts 8 and 9 are two new documents to the series, which cover rehabilitation and strengthening of existing bridges and timber bridges.

In response to the new Bridge Design Standard, Austroads is updating the Guide to Bridge Technology. A new Part will be added to the Guide titled *Waterway Design of Road Structures*. The full Guide will be published in late 2017.

The 10th Austroads Bridge Conference was held in Melbourne from 3-6 April 2017. Australia's premier bridge conference, the event provides a great opportunity for local and international specialists in the field of bridge engineering to share experiences, innovations, achievements and knowledge.

Keynote speakers included:

- Adjunct Professor Wije Ariyaratne | Bridges - Connecting Communities
- Professor Eugene OBrien | Site-specific Characteristic Bridge Load Assessment
- Distinguished Professor Sami Rizkalla | Innovative use of FRP for Precast Concrete
- Dr Man-Chung Tang | A Conceptual Study of the Taiwan Strait Crossing

Sessions included:

- Bridge Analysis, Design and Assessment
- Feature Projects
- Lessons Learnt from Bridge Damages and Failures
- Innovative Bridge Constructions + Sustainability and Life Cycle Cost
- Bridge Asset Management
- Field Applications and Case Studies
- Bridge Load Assessment
- Codes and Standards
- Bridge Technology + Material Technology.

Austroads is grateful to VicRoads for their support in organising and hosting ABC 2017.

Managing for Climate Change

With road assets used by everyone on a daily basis, assessing and planning for impacts of climate change, adverse weather and natural disasters on the infrastructure is a key consideration. Infrastructure resilience and adaptation to a changing climate has been a key factor for member agencies with recent major flooding in Queensland and Victoria. Austroads is responding to these challenges and supporting member agencies with updated Guide materials and other initiatives.

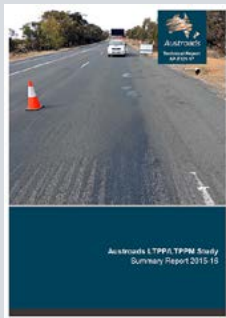
With population growth and significant investments in road infrastructure, it is clear that the magnitude of the economic risk to road infrastructure is increasing from exposure to either one-off events or global trends such as climate change. Given this increasing risk, asset managers need to think strategically about the resilience of road networks and the organisations and systems that support them. Austroads has undertaken a number of projects to revise and update its Guides to address this issue. The review and update of the Guide to Asset Management, undertaken over the past three years was project managed by David Darwin of the New Zealand Transport Agency. The revised Guide includes a range of material in the area of climate change for example, Section 11 covers maintenance techniques to reduce social and environmental impacts.

Sustainable Roads and Roadsides

The Australasian road network is one of the most extensive per head of population. Sustainability of this road network is a key objective for road agencies as road user expectations and freight demands grow. Making optimal use of available resources to sustain the road network and understanding how the network changes over time in response to various traffic and environmental impacts is a key objective.

Austrroads has funded the long-term pavement performance study since late 1994.

The project monitors the structural and functional performance of in service pavement test sites across Australia, including 27 long term pavement performance (LTPP) and eight LTPP for maintenance (LTPPM) sites.



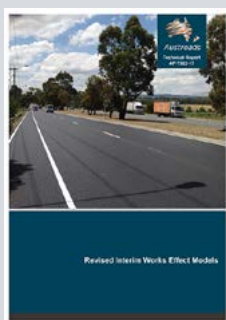
Data collected from all LTPP and LTPPM sites is stored in a single database, which is updated annually. The LTPP/LTPPM data has been used as an input to a number of related Austrroads studies in the asset management and pavement areas.

In May 2017, Austrroads published two reports related to the project.

The first details work which sought to extend the understanding of pavement works effects (WE) by extending the scope of WE treatments and evaluation measures previously used. The study was based on data extracted from Austrroads LTPP and LTPPM sites.

This produced a relatively small sample size of 47 sample sites spread across seven WE treatments. Modelling was applied to five WE treatments: asphaltic overlays, patching, mill and replace, resealing and resheeting.

The evaluation measures included roughness, rutting and deflection and yielded acceptable, and where sub sample numbers were adequate, robust findings for WE modelling.



The second provides a summary of project activities completed during 2015–16.

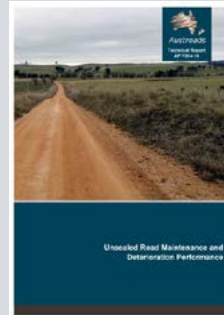
This report presents a summary of the LTPP/LTPPM current conditions, performance trends over the monitoring period, a brief summary of the maintenance activities undertaken during the period and the proposed work plan for 2016–17.

The project (AT1064) due for completion in 2018, is being overseen by the Assets Task Force and managed by Shane Tepper, Manager Assets, Department of Infrastructure, Planning and Logistics, Northern Territory.

Managing Rural and Remote Roads

While much of the population resides in major urban centres, the road network must also deliver on community service obligations and accessibility in rural and remote areas.

Grading and compaction play an important role in the maintenance and management of Australia's 400,000 km unsealed road network but there are no models for predicting the impact of these practices on roughness.



In November 2016, Austrroads published the results of a two-year study (AT1933) designed to quantify the immediate and longer-term maintenance impact of grader blading and surface re-sheeting on unsealed roads.

The Assets Task Force project, managed by Mick Savage from IPWEA, assembled and analysed roughness

data collected by Cassowary Coast Regional Council in Queensland, Blayney Shire Council in New South Wales and Moorabool Shire Council in central Victoria to expand the current works effects (WE) models to cover a wider range of traffic and climatic conditions and to validate the existing unsealed road roughness deterioration (RD) model.

WE models were developed for light blading, medium blading and granular re-sheeting maintenance works and a RD model was developed for roughness progression between maintenance activities.

The suggested modifications to the RD and WE models should assist local government asset managers in their management of unsealed roads. It is expected that the models could be adapted to the varying local conditions of unsealed roads in other locations.

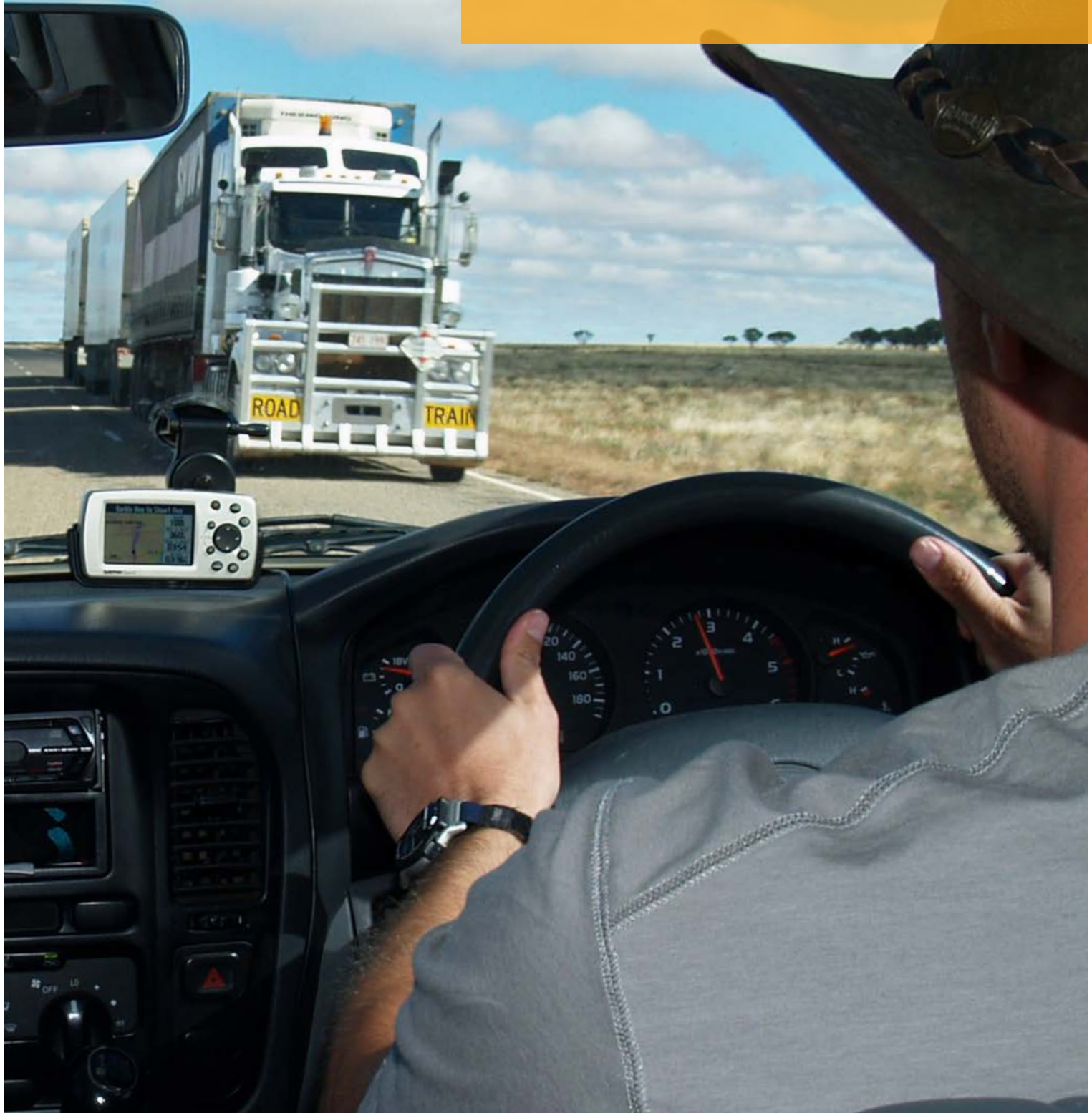
Future Focus

The Assets Program will continue to deliver on the Austrroads strategic plan objective of extending the life and performance of infrastructure to ensure the effective and sustainable maintenance of the road network. Emerging focus areas will likely include:

- harmonisation in areas such as national technical specifications
- freight efficiency to drive economic outcomes – managing loading impacts
- strategic asset management – focussed on improved road user experience and journeys
- sustainable roads and roadsides
- connecting people and places – community service obligations, optimised levels of service, infrastructure needs for connected and automated vehicles.

Network Program

Improving mobility within the transport system



People

Natalie Lockwood, Program Manager Network

Natalie Lockwood has worked as a Civil Engineer for Main Roads Western Austroads for 13 years and has held Program Coordination and Project Management roles in Austroads since 2009. Natalie has experience in Program Management, Stakeholder Management, Asset Management, Road Safety and Materials Engineering and in 2013 managed the development of the Travel Wellbeing stream of the Main Roads WA 2020 Strategic Plan. Natalie was also awarded the Main Roads Managing Director's Professional Excellence Award in 2013.



"I recognise the significant depth of knowledge and experience in the Austroads Task Forces and Working Groups. Through working effectively and efficiently with our state and territory representatives, we will be able to provide strategic direction and leadership in network operations, freight management, active transport and Cooperative ITS " Natalie said.

"I acknowledge the challenges ahead, particularly with the growing congestion and productivity demands on our road networks. I look forward to working with Austroads member agencies and our stakeholders, to face these challenges together," Natalie said.

Program coordinator: Judi Jarvis

Network Task Force

Aftab Abro, DIPL NT	Glenn Bunting, NZTA	Robyn Hawkins, TCCS ACT*
Mark Beasley, MR WA	Marcus Burke, NTC	Sameem Moslih, VicRoads
Martin Blake, DSG Tas	Andrew Excell, DPTI SA	John Oppes, DTMR Qld

* Rifaat Shoukallah, TCCS ACT (up to his retirement – May 2017)

Freight Task Force

Michelle Bastian, MR WA	Marinus La Rooij, NZTA	Jeff Potter, NTC
Brett Clifford, DIPL NT	Susie Mackay, RMS NSW	Anthony Swan, DIRD
Kym Foster, ALGA	Isuru Neelagama, NHVR	Mike Wilde, DPTI SA
Eric Henderson, VicRoads	Andrew Poole, DSG Tas	Tim Wyatt, TCCS ACT
Russell Hoelzl, DTMR Qld		

Other technical working groups

- **Traffic Management Working Group** ensures that the Guide to Traffic Management and the Guide to Smart Motorways represents contemporary traffic management practice and is adopted by jurisdictions as the primary technical reference for Australia and New Zealand. The group is represented by each of the member organisations.
- **System Managers Working Group** ensures consistency and value for money in the transition of ITS research into operational practice and alignment with emerging technologies for example CAV. The group is represented by each of the member organisations.



Austroads joint Task Force meeting 2017

Overview

The strategic priority of the Network Program is to improve mobility within the transport system.

In alignment with the Austroads Strategic Plan 2016-20, the Network Program supports road and transport agencies to improve freight and network operations, understand and embrace emerging technologies and integrate across transport modes.

The Program engages with stakeholders in government, industry, academia and the private sector, to enable the provision of harmonised guidance and research, which includes the Guide to Traffic Management series and the Guide to Smart Motorways.

The 2016-17 work program explored how road agencies can optimise transport systems through managing freight and network operations. The program also considered the current and future technology needs for road agencies and what tools Austroads can develop or maintain to assist. The program provided improved guidance on traffic management and operations, with almost half of the Guide to Traffic Management series reviewed, updated and republished.

Work Streams

- Emerging technology
- Managing urban congestion
- Traffic management planning and infrastructure
- Freight transport/road productivity
- Active travel and integration with public transport
- Funding models

Agreed Practice Outputs

- Guide to Traffic Management
- Guide to Smart Motorways
- Cycling Aspects of Austroads Guides



2016-17 Program Activities

Emerging technology

With a range of new intelligent, cooperative and automated technologies currently in development and commencing early trials both overseas and in Australia, it is important that Governments assess these technologies against best practice and prepare for their implementation. The program is working to identify the technologies that may improve aspects of congestion and incident management and network and traffic signal operations.

Road agencies and industry are increasingly keen to realise the potential benefits that national harmonisation of ITS technical specifications could deliver, including increased efficiencies during specification development, device evaluation and project delivery.

The Network Task Force finalised two projects during the year working towards operationalising a harmonised process.

Jason Venz, Principal Engineer (ITS Standards), Queensland Department of Transport and Main Roads managed a 12-month project (NS2022) to develop an agreed process that delivers model, national harmonised technical specifications which reference agreed, best practice ITS standards and inform their development and/or review.

Ronald Elunai, Principal Engineer (ITS and Electrical), Queensland Department of Transport and Main Roads managed a project (NS2049) to operationalise the product acceptance process.

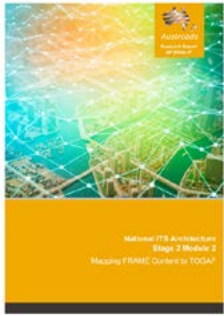


The project delivered a detailed governance framework to support operationalising the national ITS product approval process. Within the framework, a national ITS type approval committee (NITAC) would be established to review product testing results, and approve products. A single nationwide type approval certificate with acceptance conditions will be issued for successful ITS products. The

process will be administrated from a central office with the product assessment outsourced to prequalified third parties. The approval process workflow and results will be managed and maintained through a web register, which will also provide centralised access management and an information sharing mechanism for both road agencies and industry stakeholders.

The framework was endorsed by Australian state road agencies and Austroads will provide further funding to conduct industry consultations, set up initial working groups, develop a standard KPI template and develop a web register.

The National ITS Architecture provides a common approach for planning, defining, and integrating intelligent transportation systems and its development is listed as a priority action in the Policy Framework for ITS in Australia 2012 endorsed by Australia's Transport and Infrastructure Council.



The architecture will enable Australian transport agencies and industry to deploy ITS in a consistent, interoperable way and deliver road safety, mobility and environmental outcomes for road transport users including private, freight and public transport modes.

In June 2017, Austroads completed Stage 1 and 2 of the National ITS

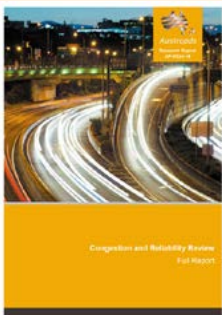
Architecture project by establishing Australia's reference National ITS Architecture (NIA), its associated Framework and Roadmap for its further development.

Austroads published a report that maps FRAME content (European ITS FRAMEwork architecture) into the National ITS Architecture TOGAF model based on the findings of the initial enabling work project. The Open Group Architecture Framework (TOGAF) is an industry standard enterprise architecture development methodology. On 20 June 2017, Austroads held a webinar providing an overview of the FRAME content.

This project was managed by Jason Venz, Principal Engineer (ITS Standards), Department of Transport and Main Roads, Queensland.

Managing Urban Congestion

Congestion results in significant costs to the community and industry through the interruption of traffic flow and lengthening of journey times, resulting in greater travel time variability (reliability) and less operational efficiency (productivity).



Austroads Congestion and Reliability project (BN2018) was identified as a strategic priority project in 2015. The project was established to progress research that provides Australian and New Zealand road agencies with a better understanding and quantification of the benefits of strategies that will improve the operational efficiency (productivity) of the road network, reduce congestion and improve the

reliability of customer journey times.

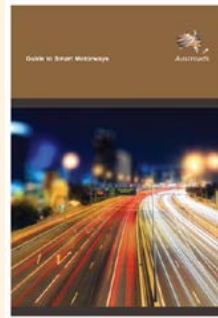
The project was led by the Network Task Force and Craig Moran, Roads and Maritime Services NSW, and managed by Bryan Willey, Manager, Urban Road Planning, Transport for NSW.

The Congestion and Reliability Review, published in December measures the levels and identifies the key causes of congestion across major cities in Australia and New Zealand.

The report proposes an approach to identifying and assessing congestion interventions and overlays the key areas of focus for road and transport agency capability development to assist agencies in developing a congestion mitigation roadmap.

A full and summary report were published. The project received extensive media coverage across Australia and New Zealand.

Traffic Management Planning and Infrastructure



'Smart motorways' (also referred to as managed motorways) is the term used to describe motorways that have information, communications and control systems incorporated in and alongside the road. These technology-based systems are deployed to actively manage traffic flows and improve road capacity and safety, as well as deliver other important outcomes for road users such as better travel reliability

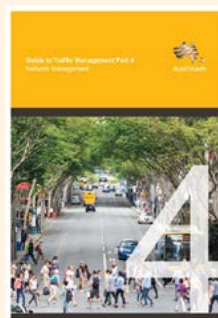
and real-time traveller information.

In December 2016, Austroads published the *Guide to Smart Motorways* to support the delivery of safe and efficient smart motorways. It primarily comprises guidance on the selection, design and layout of ITS elements within a smart motorway project.

The Transport and Infrastructure Council's *National Policy Framework for Land Transport Technology: Action Plan: 2016-2019* requires Australian Governments to explore the costs and benefits of the broader adoption of new safety and traffic management technologies, including managed motorways.

The Guide describes the benefits of investing in smart motorways and provides an overview of the core smart motorway elements. Its development (NP2025) was overseen by the Network Task Force and managed by Marco Morgante, Roads and Maritime Services, NSW.

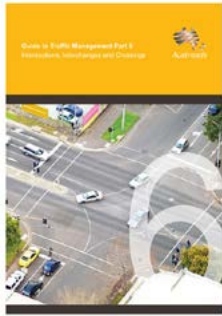
The 13-part Austroads Guide to Traffic Management series provides comprehensive coverage of traffic management guidance for practitioners, in the public and private sectors, involved in traffic engineering, road design and road safety. As contemporary practice in areas such as Safe System and network operations are evolving, the program is ensuring that Austroads continues to provide an agreed and consistent approach across Australasia. The Guide consists of 13 Parts and during the year six were updated.



The project (NT2013) to update *Guide to Traffic Management Part 4: Network Management* was managed by Andrew Wall, Director Network Policy and Standards, VicRoads.

Part 4 addresses network needs of the various categories of user, the characteristics of various types of network and, importantly, describes a planning process for balancing or prioritising the competing needs of different users based on a movement and place framework view of the road network.

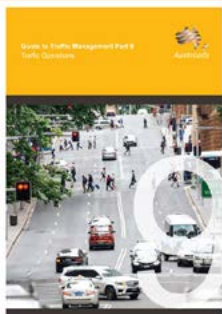
Major changes to this fourth edition of the Guide, published in August 2016, include: providing linkages to asset management and Safe Systems; introducing the movement and place framework; modification to the content and structure on movement and place considerations; and improved guidance on network operational plans.



Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings focuses on traffic management issues and treatments related to intersections, interchanges and crossings.

Part 6 describes the appropriate use of, and design of, the various intersection types and the techniques that need to be applied if efficient and safe intersections are to be provided to the road user. All categories of road use – including cars, trucks, public transport, motorcycles, cyclists and pedestrians, including people who have disability or mobility difficulty, are addressed in the Guide.

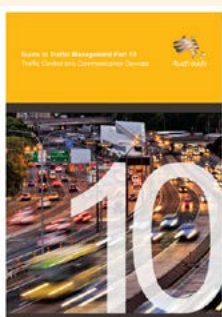
This third edition of the Guide (project NP2023) was managed by Dave Landmark, Manager Road and Traffic Engineering; Planning and Technical Services Directorate, Main Roads Western Australia.



Guide to Traffic Management Part 9: Traffic Operations provides practitioners with guidance on the day-to-day operations supporting the provision of services to road network users including traffic signal systems, congestion management, freeway/motorway management systems, incident management and traveller information systems.

The third edition the Guide, published in November 2016, has added materials on smart motorways, traffic signal techniques to support network operation planning and references to cooperative intelligent transportation systems (C-ITS). More specific amendments include pedestrian protection, pedestrian push buttons, single point urban intersections, diamond diverging interchanges, bicycle detection, pedestrian countdown timers, filtering through opposing traffic, and roundabouts.

The project (NP2010) to update this edition was managed by Philip Blake, Lead Engineer, Intelligent Transport Systems; Traffic Operations; Operational Services, Department of Planning, Transport and Infrastructure South Australia.



Guide to Traffic Management Part 10: Traffic Control and Communication Devices covers the various control devices used to regulate and guide traffic, including signs, signals, pavement markings, delineators, and traffic islands.

Fergus Tate, National Manager Traffic and Safety, NZ Transport Agency managed the project (NT1799) to update Part 10.

Significant changes to this second edition of the Guide, published in August 2016, include: linking guidance on traffic control and communication devices to the Safe System framework; updating guidance on variable message signs and electronic speed limit signs including collocation; updating guidance on traffic signals in accordance with the latest revision of AS 1742.14, providing guidance on radio and CB radio break-in; and providing detailed guidance on route planning and directional and wayfinding signage for bicyclists.



Guide to Traffic Management Part 11: Parking presents guidelines for determining the demand for and supply of parking. It includes the implementation of on-street and off-street parking for all road users including parking controls in urban centres, parking on rural roads and at park-and-ride facilities.

This second edition the Guide, published in January 2017, has additional information about shared space, risk, safety and best practice in permit parking management. Bicycle parking provision rates have been updated. New sections have been included covering Intelligent Transportation Systems (ITS), Parking Control and Payment Technologies, hybrid vehicles and self-driving vehicles.

Robyn Hawkins, Senior Manager, Transport Canberra and City Services Directorate ACT managed the project (NT1800) to update Part 11.



Guide to Traffic Management Part 12: Traffic Impacts of Developments is concerned with identifying and managing the impacts on the road system arising from land use developments. It provides guidance for planners and engineers associated with the design, development and management of a variety of land use developments.

This second edition includes: updates to include the Safe System approach and prioritise safety; updated traffic generation rates; additional information on rural projects; new information about link-and-place, electric vehicles, light rail and bus rapid transit systems, and network operating frameworks and plans.

The project (NT1791) to update Part 12 was managed by Andrew McIntyre, Manager Land Use Assessment, Roads and Maritime Services NSW.

Mitigating risk and improving safety at road worksites

Working on roads and roadsides poses significant risks to workers and motorists with changed roadway conditions, disrupted traffic flow, limited working space, and movement of construction and public vehicles in close proximity to workers and worksites.

The Safety at Road Worksites strategic priority project was initiated in 2015. The Austroads Board recognised that safety at roadworks was a significant issue for road agencies and industry. It was acknowledged that improvements are required to manage the risks associated with providing the optimal level of safety for employees and contractors working in or near traffic, combined with the need to provide a safe road environment for all road users.



One of the early research tasks for the project was to understand contemporary practice in managing safety at road worksites and to recommend practical guidance from learnings that would be applicable to Australia and New Zealand. This research was conducted by the Centre for Accident Research and Road Safety – Queensland (CARRS-Q).

In June 2017, Austroads published Safety at Road Worksites: Stage 1 Working Papers detailing contemporary practices to mitigate risk and improve safety at road worksites. This research, involved three study components:

- The safety performance at worksites in Australia and New Zealand was qualitatively benchmarked with comparable international jurisdictions.
- Best practice in road worksite safety management was identified through a comprehensive literature review, including manuals from international jurisdictions with comparable or better safety performance, and consultation with 13 international experts.
- The findings of the first two studies informed the development of recommendations for improving safety at Australian and New Zealand worksites.

The project, due for completion in 2019, is being overseen by the Network Task Force and managed by Dr Dan Sullivan, Managing Director, Solutions in Transport.

Freight transport and road productivity

The Network Program recognises the context of increasing freight demand, changing funding arrangements for infrastructure development and maintenance and recognises the need for better integration of modes across the transport sector.

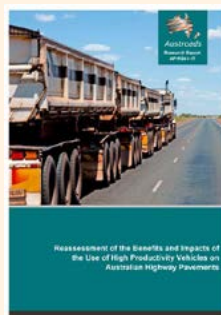


In September 2016, Austroads published a report summarising the work undertaken to develop a policy framework to enhance the productivity, safety and efficiency of urban freight movements. It found that gains are likely to be from the cumulative effect of many initiatives rather than a single isolated 'silver bullet' solution.

The Freight Task Force project reviewed international urban freight practices and identified a number of initiatives which could be relevant for Australasian urban freight operations. The report recommends an implementation plan highlighting lead organisations for each prioritised initiative, indicative time frames and relative cost.

The project (FS1806) was managed by Peter Frauenfelder, Senior Policy Officer, Freight Ports and Intermodal, Department of Economic Development, Jobs, Transport and Resources, Victoria.

Australia is the world leader in the use of High Performance Vehicles (HPVs) s, from B-doubles and road trains to innovative multi combination heavy vehicles.

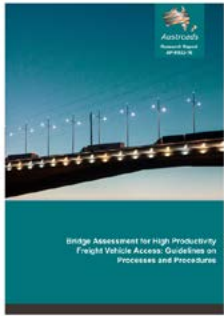


Austroads is developing a nationally consistent methodology to determine the impacts of High Productivity Vehicles (HPVs) on the Australian road network.

The project (FS2030), managed by Sri Kannan, Senior Policy Analyst, National Transport Commission, improves our understanding of pavement vertical loading and subsequent deterioration caused by HPVs. The project makes progress towards establishing a performance requirement for pavement vertical loading in Australia's Performance Based Standards (PBS) scheme.

The Freight Task Force project investigated the infrastructure impacts of HPVs, in particular pavement vertical loading, and considered axle configuration, gross combination and payload mass, as well as tyres used by these vehicles. These factors together with structural pavement data and existing literature, form the basis for a method of assessing and comparing pavement deterioration and the benefits of HPVs necessary to inform the access decision making process.

Further work is required to incorporate the report's contents into a PBS rule, particularly with regard to the creation of a pricing scheme capable of transferring a portion of productivity-related savings to road managers for the increased cost of road maintenance.



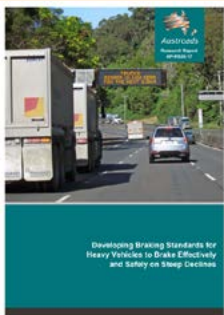
In November 2016, Austroads published a proposed process for assessing road bridge capacity for High Productivity Freight Vehicle (HPFV) access to the road network.

A HPFV is a truck-and-trailer combination that provides the ability to shift more freight more efficiently, and satisfies the Performance Based Standards (PBS) safety and infrastructure standards. HPFVs are granted access to the road network under the heavy vehicle access and approval process, administered by the National Heavy Vehicle Regulator (NHVR).

Assessing whether an HPFV can safely travel over an existing bridge is a key part of this process, often requiring road authorities to undertake detailed bridge investigations before the NHVR grants formal approval for an HPFV to access the road network.

This report considers a range of bridge assessment methods currently in use or in development across jurisdictions, evaluates these methods and provides recommendations and guidelines for consistent, transparent, and timely bridge assessment. It does not provide detail on the engineering / technical aspects of bridge assessment.

The project (FS1814) was led by the Freight Task Force and managed by Peter Taylor, VicRoads and Peter Frauenfelder, Department of Economic Development, Jobs, Transport and Resources, Victoria.



In March 2017, Austroads published a report that proposes a new rule in the Performance Based Standards scheme, adding a requirement for applicant vehicles to meet a minimum level of auxiliary braking performance. The purpose of the new rule is to ensure that PBS vehicles can maintain a safe speed on long, steep descents, without reliance on service brakes.

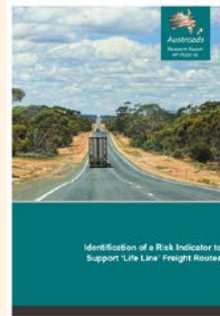
Auxiliary brakes are speed control devices that are able to slow a vehicle without using its service brakes. With the correct use of a suitable auxiliary brake on a long downhill run, it should be possible to minimise the use of a vehicle's service brakes and thereby maintain their capacity to stop the vehicle.

The principles and operational mechanisms of service brakes and auxiliary brakes are discussed as background information to the creation of the rule. Performance data on auxiliary brakes are used to calculate the theoretical capacity of such devices to aid in speed control during descents.

The project, (FS2002) managed by Michael Wills, Senior Manager Network Management, Freight Branch, Regional and Freight Division, Roads and Maritime Services NSW, for the Freight Task Force, determined that vehicles presented for inclusion in the PBS scheme are generally available with sufficient auxiliary braking capacity to safely manage their speed on extended descents.

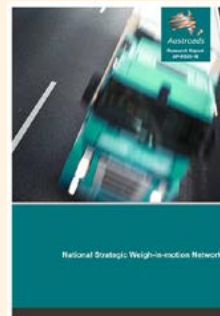
The proposed PBS rule aims to ensure that PBS vehicles are equipped with sufficient auxiliary brake capacity to:

- maintain speed without accelerating on a 7% downhill grade
- achieve certain minimum speeds on a 7% downhill grade, dependent on the requested level of PBS network access.



'Life Line' routes may not be high-volume routes but they are of high value to the community and region they service and provide a necessary function particularly during emergency situations.

Geoff McMillan; Manager, Freight and Partnerships Queensland Department of Transport and Main Roads managed the Freight Task Force 12-month project (FS2029) to identify freight routes that provide 'Life Line' access to communities and freight generating regions. The project delivered the Risk Indicator, a tool designed to support investment in 'Life Line' freight routes. A research report, which included instructions for using the tool, was published in August 2016. In February 2017, Austroads held a webinar providing an overview of the concept of 'Life Line' freight routes and demonstrating the tool.



In 2015 the Freight Task Force established a project (FS1896) to establish a national weigh in motion (WIM) network for Australia and New Zealand where data can be shared across jurisdictions to better manage and plan for the impact of the growing freight task.

WIM devices determine the gross vehicle mass of a vehicle as it is moving. WIM systems fall into two broad groups: low speed, typically used at weighbridges; or high speed, where vehicles are weighed in the traffic stream.

Current practice in Australia and New Zealand is to locate WIM devices on major freight, interstate and interregional routes, and on roads providing access to major ports and cities. However, there are a disparate number of WIM devices throughout jurisdictions resulting in varied data capture and analysis.

Strategically placed WIM sites and coordinated data collection and analysis on a national basis could meet the needs of all stakeholders, while optimising the use of limited resources.

The project was managed by Ellen Ellis, Senior Policy Officer (Heavy Vehicle Productivity) VicRoads and in December 2016 Austroads published a methodology which will ensure a consistent approach across WIM networks and enable accurate data sharing and analysis to plan for future freight movements.



In March 2017, Austroads published the results of the project that quantified the benefits of improving multi-modal supply chain efficiencies through improved tracking and associated supply chain initiatives.

The project (FS2000) was undertaken with the Australian Logistics Council Supply Chain Standards Working Group and GS1 Australia and used real

time industry pilots with TOLL, Arrium OneSteel and Nestlé to assess the impact of using end to end supply chain visibility technology. The technology uses Global Data Standards (GDS) and enables all stakeholders in a supply chain to keep track of freight.

Increasingly GDS-enabled traceability systems record and follow the trail as products, parts, and materials come from a range of suppliers and are processed and ultimately distributed as end products to various consumers/users.

Transport assets such as vehicles, containers or pallets can also be tracked and associated with the freight occupying the asset, the location and the current operational status. Multiple attributes such as weight, temperature and inspection data can be associated with the vehicle, container, pallet, as well as to the individual items of freight, providing assurance for customers.

The pilots measured benefits of efficiency, integrity, visibility and innovation. Costs were assessed across the variables of preparation, development and implementation.

Minister for Infrastructure and Transport Darren Chester said the findings of Austroads' report are in line with the Government's commitment to develop a comprehensive national freight and supply chain strategy.

Julian Breheny Policy Officer, Department of Infrastructure and Regional Development managed the project for the Freight Task Force.

Active Travel and Integration with Public Transport

The Network Program provides comprehensive coverage of traffic management principles, including the areas where vehicles interact with active transport modes and public transport. As contemporary practice evolves, the program ensures that Austroads continues to provide an agreed and consistent approach across Australasia.

Austroads' Pedestrian Facility Selection Tool is designed to help Australian and New Zealand practitioners select the most appropriate type of pedestrian crossing based on walkability, safety and economic outcomes.

In April 2017, the tool was enhanced with more functionality and updated with the most recent economic evaluation parameters for Australia and New Zealand. On 16 May 2017, Austroads held a webinar providing an introduction to the tool and demonstrate how to use it with a fully worked example.

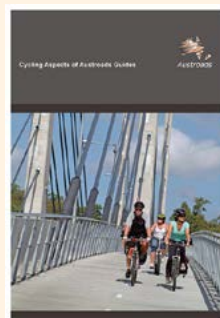
The tool was a finalist in the Golden Foot Awards 'Best Walking Initiative' category in 2016.



When executed well, bicycle parking investment not only meets current demand, but can stimulate an increase in cycling use.

In 2015 the Network Task Force undertook a project (NS1996) to improve the guidance on bicycle parking and end-of-trip facilities.

The project, managed by Tony Arnold, Executive Officer, Australian Bicycle Council, produced reports on the design and installation of bicycle parking facilities and end-of-trip facilities, and recommended updates to the *Guide to Traffic Management Part 11: Parking*.



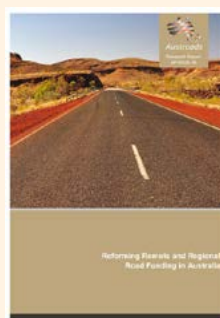
In June 2017, Austroads published the third edition of the popular Cycling Aspects of Austroads Guides.

The publication contains information that relates to the planning, design and traffic management of cycling facilities and is sourced from Austroads Guides, primarily the Guide to Road Design, the Guide to Traffic Management and the Guide to Road Safety.

This edition has been revised to ensure its currency and to clarify and highlight links to other Austroads Guides. The production was project managed by Tony Arnold, Executive Officer, Australian Bicycle Council

Funding Models

Government investments in roads are influenced and guided by a range of policy objectives, including a range of economic and social policy objectives. The program seeks to inform government decision making through the provision of focused research on funding, financing and charging scenarios.



In 2015, the Freight Task Force commenced a project to examine the current funding and financing arrangements for regional and remote roads in Australia and consider the implications of road funding reforms.

The project, which sought to identify alternative funding and financing options for remote and regional roads, was undertaken in three stages:

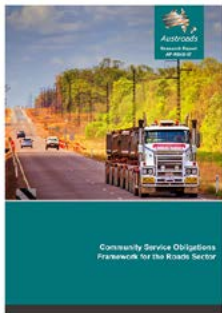
- Stage 1 developed a snap shot of current and historic road related revenue, expenditure and funding
- Stage 2 assessed the limitations of current funding arrangements for remote and regional roads, highlighted by a number of case studies

- Stage 3 analysed a number of alternative remote and regional road funding options.

The project considered the practice of economic evaluations as applied to remote and regional roads, and the implications of possible heavy vehicle charging reform for regional and remote road funding.

Two broad categories of alternative funding options were considered: improving the targeting of road charging to the ultimate beneficiaries of remote and regional roads; and introducing dedicated funding for remote and regional roads. Policy options that could be introduced as part of a direct user charging reform, to address likely revenue insufficiency problems for remote and regional roads.

The project (BF2041) was managed by Brett Clifford, Director, Strategic Policy (Strategy, Policy and Legislation), Department of Infrastructure, Planning and Logistics Northern Territory and in August 2016 the results of the project were published which will help support road agencies to ensure that future road reforms address the funding issues of regional and remote areas.



In June 2017, Austroads published the results of a Freight Task Force 12-month project (BF2042) examining the application of community service obligations (CSOs) to the roads sector and providing an overview of CSO framework.

A road is defined as being subject to a CSO when government obliges a public or private road infrastructure service provider to provide a minimum level of service, associated with specific government policy objectives, that it would not otherwise provide on a commercial basis.

The method proposed to estimate a net CSO cost is via a net avoidable cost approach based on the additional or incremental costs and revenues associated with the requirement to achieve a higher level of service than would be provided commercially. A key implementation issue is the level of disaggregation of road categories for estimating profits and losses. Two potential options are to estimate profits/losses for each road or road segment or to base the estimate on road-use data and expenditures/ costs for defined road categories.

Merrick Peisley, Lyle O'Sullivan and Margot Bell, Department of Infrastructure and Regional Development managed the project.

On 29 June 2017, Austroads held a webinar providing an overview of how CSOs could be applied to the roads sector and how establishing a CSO framework could help clarify road funding arrangements.

Future Focus

The 2017-18 work program will explore how existing and emerging technologies can support both productivity and safety objectives, in urban, rural and remote areas across Australia and New Zealand.

As well as undertaking a rigorous project scoping process, an assessment of strategic, stakeholder and content linkages was also completed during the development of the work program. Each project will engage with a broad stakeholder group, including industry and the other Austroads Programs, to deliver research outcomes that will inform increased mobility and reliability, decrease congestion and maximise safety in the transport system.

Next year's forward program aligns with the nominated work streams and priorities identified by the Board.

- **Safe System in Austroads Guide to Traffic Management** (NTM6021) will determine whether there is opportunity to further embed Safe System into the Austroads Guide to Traffic Management series, in collaboration with the Safety and Road Design Task Forces.
- **C-ITS and freight productivity** (NEF6023) will study how Co-operative Intelligent Transport Systems (C-ITS) provide efficiency and productivity benefits for heavy vehicles.
- **Standardisation of ITS technology asset management datasets** (NEG6026) will develop a standardised operational and performance dataset for critical ITS assets that contribute to journey planning, congestion management, and traffic control.
- A project to **update the National Guidelines on Rest Areas for Heavy Vehicles** (NEF6027) will include improved rest area designs and diagrams and the 3-2-1 Green Reflectors scheme for informal rest areas.
- **Passing lanes – safety and performance** (NTM6025) will investigate the performance of passing lanes in terms of corridor safety, journey performance, and customer desires and expectations.
- **Operations of automated heavy vehicles in remote and regional areas** (NEF6029) will identify operational boundaries and opportunities associated with future automated heavy vehicle operations in regional and remote areas.
- **Congestion Management and Network Operations Opportunities: Technology, Data, Mobility and Guidance** (NSP6090) will build on Austroads' previous congestion studies.

Safety Program

*improving the efficient, reliable and safe operation
of the road network*



People

David Bobbermen, Program Manager Safety

David Bobbermen has worked in a variety of road infrastructure disciplines for more than 35 years and held senior engineering, policy, operational and management positions for Transport and Main Roads Queensland. David led the planning and rapid implementation of an affordable network-wide response to one of the worst performing highways in Australia. This resulted in reducing fatalities by 40% within two years which was recognised by the 3M Australasian College of Road Safety Diamond Award for 2015.

David is working with practitioners across all jurisdictions to share best practice and make a significant change to improve road safety performance across Australia and New Zealand. "This is important as Austroads adopts and implements safe system thinking', and updates the Road Safety Action Plan to meet commitments of the National Road Safety Strategy 2011-2020 and. I want to develop a culture where no stone is unturned in the endeavour to save lives," David said.



Program coordinator: Leonie Pattinson

Road Safety Task Force

Chris Brennan, Transport for Victoria	Bev Driscoll, MoT NZ	David Moyses, MR WA
Colin Brodie, NZTA	Kym Foster, ALGA	Sharon Nyakuengama, DIRD
Bernard Carlon, TfNSW	Doug Fryer, Victoria Police	Jeff Potter, NTC
Fiona Cartwright, DPTI SA	Craig Hoey, DSG Tas	Jane Richards, DTMR Qld
Brett Clifford, DIPL NT	Marcus James, DIRD	Melissa Watts, RSC WA
Geoff Davidson, JACSD ACT	Brent Johnston, MoT NZ	Harry Wilson, NZTA

Road Design Task Force

Geoff Armstrong, Eurobodalla Shire Council	Richard Fanning, VicRoads	Tony Napoli, Blacktown City Council
Andrew Baker, GHD Pty Ltd	James Hughes, NZTA	Michael Tziotis, ARRB
Tom Brock, GHD Pty Ltd	Gemma Kernich, DPTI SA	Mike Whitehead, DTMR Qld
Peter Ellis, RMS NSW	Ben McHugh, Roads ACT	Albert Wong, MR WA

Registration and Licensing Task Force

Martin Crane, DSG Tas	Andrew Lee, WA DoT	Cate Quinn, NZTA
Geoff Davidson, JACSD ACT	Helen Lindner, VicRoads	Cheryl Richey, TfNSW
Paul Davies, NTC	Andrew Mahon, DTMR Qld	Matthew Squire, DIRD
Emma Kokar, DPTI SA	Tim Matthews, NEVDIS	Glenda Thornton, DIPL NT
Geoff Hughes, NMVTRC	Tanya McDonald, NHVR	Edi Winkler, DPTI SA

Other technical working groups

- **Safe System Theme Groups** are comprised of representatives from state and territory government agencies and the Commonwealth, and are aligned with the four Safe System elements:
 1. Safe roads and roadsides
 2. Safe speeds
 3. Safe vehicles
 4. Safe people.
- **Austroads Safety Barrier Assessment Panel** uses a structured system to assess products proposed for deployment in Australia and New Zealand. Products are evaluated in accordance with the Safe Design of Structures Code of Practice published by Safe Work Australia, and the Safety in Design requirements of the Work Health and Safety Acts enacted by Australian State governments.

Overview

The strategic priority of the Safety Program is to design, build and manage road transport systems that will protect road users and reduce the number of deaths and serious injuries.

Road safety performance in Australia continues to be closely watched due to the slow-down in the reduction of serious road trauma over the last two years. This is a trend around the world and within Australia and New Zealand. However, there have been recent reports of improvement in road safety performance by some Australian states which is being monitored.

Austroads is committed to progressing the Safe System approach, building on existing countermeasures which have been shown to be effective, and to progress further improvements in reducing deaths and serious injuries

Work Streams

- Emerging technology
- National Road Safety Strategy Priorities
- Understanding emerging crashes and risks
- Safe Systems incorporating safer road and roadside infrastructure, safer speeds and safer vehicles
- Driver licensing and vehicle registration
- Vulnerable road users including pedestrians, bicycle riders, motorcycle riders, older people and indigenous people

Agreed Practice Outputs

- Guide to Road Safety
- Guide to Road Design
- Assessing Fitness to Drive



2016-17 Program Activities

National Road Safety Strategy Priorities

Ambitious trauma targets have been set through the United Nations Decade of Action for Road Safety 2011-2020, with a global goal of stabilising and then reducing the forecasted level of global road fatalities by increasing activities conducted at national, regional and global levels.

Australian Governments support the UN Decade of Action and are committed to the National Road Safety Strategy (NRSS) 2011-2020 to achieve those targets by 2020.

Austroads together with the Federal Government, through the Road Safety Task Force, oversees the development of the National Road Safety Action Plans which support the NRSS. Austroads is working cooperatively with the Commonwealth, and state and territory road agencies to develop the National Road Safety Action Plan 2018-2020.

Understanding Crashes and Risks

By focussing on key crash types that contribute to fatal and serious injury on our road networks, Austroads has developed research programs to support both system-wide and targeted responses for the highest trauma risks identified by road and transport authorities.

Motorcycle crashes are a significant contributor to deaths and serious injury on our roads. In Australia in 2012, motorcycle riders made up 16% of all fatalities and 22% of serious injury casualties despite representing only a small percentage of total traffic volume.



In 2013, the Road Safety Task Force established a project which sought to identify infrastructure improvements to reduce motorcycle crash risk and crash severity.

The investigation included: a comprehensive literature review, crash analysis, the identification of road infrastructure elements as crash factors, the identification of effective mitigation measures and their likely safety benefit; and consultations with stakeholders.

The three-year study was managed by Melvin Eveleigh, Manager (Safer Roads) from Transport for NSW and in July 2016 Austroads published the findings of the study which highlights the relationship between motorcycle crashes and road infrastructure, and specifically, how road infrastructure influences both the likelihood of a crash occurring or the resulting severity of a crash.

The project will contribute to several of the objectives within the Australian National Road Safety Strategy 2011 2020, including safety improvements on popular motorcycle routes (a specific action for the first three years of the strategy) and providing advice ahead of plans to introduce motorcycle black spot/black length programs in all jurisdictions (a 'future' action).

Embedding Safe Systems

Embedding the Safe System approach to improving road safety in its work program is a key focus for the Austroads Safety Program.

The Safe System approach has been endorsed by the OECD and adopted in the National Road Safety Strategy 2011-2020 and the supporting National Road Safety Action Plans. It recognises that people make mistakes that can lead to road crashes. Further, while all road users (pedestrians, passengers, drivers, motorcyclists and cyclists) have a responsibility to act with care and within traffic laws, a shared responsibility exists with those who design, build, manage and use roads and vehicles to prevent crashes resulting in serious injury or death and to provide post-crash care.



Safe System Infrastructure workshop.

Throughout the year Austroads ran a series of 13 two-day Safe System Infrastructure workshops across Australia and New Zealand.

The workshops discussed the safety aspects of road infrastructure, from local roads right through to arterials of national significance. Expert facilitators and presenters explored the translation of the Safe System approach into practice, enabling attendees to consider the application of the theories onto their own road networks.

The workshops have received very positive feedback from participants who have included transport and urban planners, traffic engineers, network managers, road designers, road safety managers, road planners, asset managers, project managers, local government practitioners and consultants and those involved with or responsible for active transport or environmental management.

As a result of numerous requests to extend the workshop series, Austroads will deliver three more workshops for ongoing training, plus a webinar and leader's pack.



In May 2017, Austroads published a compendium of recent evidence on the relationships between 20 key geometric road design criteria and safety outcomes.

The project reviewed quality research sources such as Austroads, National Cooperative Highway Research Program (NCHRP) and American Association of State Highway and Transportation Officials (AASHTO) programs, and selected references based on the robustness of their methods and their applicability to the project.

The authors selected and reviewed crash modification factors for road design criteria such as horizontal curvature, lane and sealed shoulder widths, sag and crest design values and various longitudinal sight distance requirements.

The review of findings by the Project Advisory Group largely verified the current design criteria values as published in the *Guide to Road Design Part 3: Geometric Design*.

The report highlights areas for further investigation to refine the current understanding or to enable economic appraisal of potential future changes including economic analysis of the provision of wider shoulders on curves, values of the sideways friction coefficient for curves, and human factors associated with longitudinal sight distance.

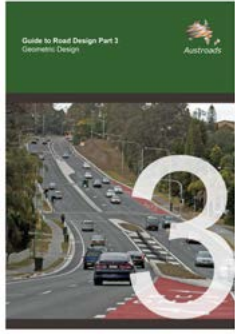
The study reviewed potential for detailed design applications of the Australian National Road Assessment Model (ANRAM) and Interactive Highway Safety Design Model (IHSDM) in Australia and New Zealand. The review found both to be feasible but would require further adaptations.

The project, managed by David Gough, Principal Engineer, Queensland Department of Transport and Main Roads will contribute to Austroads' strategic Road Safety priority by providing quality safety evidence to the Austroads Road Design Task Force on the relationships between geometric parameters and crash rates.

The findings will help the Task Force to make recommendations on geometric standards throughout Australia and New Zealand. It will also assist in determining the validity and suitability of design exceptions associated with the selected geometric design criteria.

The Guide to Road Design is one of a set of comprehensive Austroads Guides developed to provide a primary national reference for the development of safe, economical and efficient road design solutions.

The Guide is comprised of 15 parts and during the year four were updated.



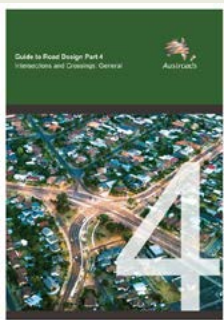
The project to update *Guide to Road Design Part 3: Geometric Design* was managed by Richard Fanning, VicRoads and John Spathonis, Queensland Department of Transport and Main Roads.

Part 3 provides practitioners with information about the geometric design of road alignments. Nearly 8,000 copies have been downloaded since it was published in September.

Changes to this edition of the Guide include:

- expanded information on the design objectives
- additional information on vulnerable road users (particularly motorcyclists), crown line and rural road lane and shoulder widths, shoulder widths and sealing, verge slopes and rounding, providing bicycle lanes, and selecting a starting and terminating point of an auxiliary lane
- new information on emergency aircraft runway strips
- new guidance on determining desired speed for rural roads and on steep grades, procedures for designing superelevation and development of superelevation on shoulders, and for checking critical vertical clearance points
- new appendices detailing emergency aircraft runway strips, narrow median treatments with wire rope safety barrier, wide centreline treatments, and determining stopping sight distance requirements for curves with barriers.

The projects to update *Guide to Road Design Part 4: Intersections and Crossings – General* and *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* were managed by Mike Whitehead, Queensland Department of Transport and Main Roads.



Part 4 provides road designers and other practitioners with information that is common to the geometric design of all at-grade intersections.

This includes information on the types of intersections, road design considerations for intersections and the design process for the development of an intersection layout. Guidance is also provided for pedestrian, cyclist, and rail crossings.

Changes to this second edition include:

- updates to road safety including the Safe System principles, information on design vehicles to align with the revised Austroads vehicle turning path templates, and to accommodate buses at intersections
- additional information relating to the types of intersection and their selection, and on types of pedestrian crossings.



Part 4A provides road designers and other practitioners with guidance on the detailed geometric design of all at grade intersections (excluding roundabouts).

Updates have been made throughout this third edition to include new and updated reference material and cross references to other Guides. Most figures have been redrawn to provide a consistent appearance.

The major changes include:

- updates to road safety, including the Safe System principles
- additional information relating to safe intersection sight distance and on auxiliary lanes including turning radii, vehicle speeds, and acceleration lane lengths.



Guide to Road Design Part 6A: Paths for Walking and Cycling provides advice on the design of paths for safe and efficient walking and cycling, both within and outside the road corridor, including pedestrian paths, bicycle paths or cycle tracks, shared paths, and separated paths.

This second edition has been restructured and contains editorial and technical changes. The title was amended to better reflect the information on the functions and types of paths covered in this edition.

Updated and new information includes:

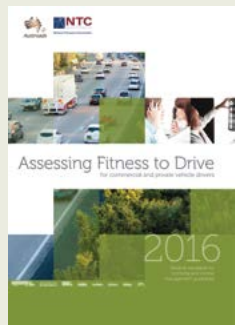
- additional information on providing universal access, path widths based on volumes, path user considerations and bituminous surfaces
- new information on levels of service, mobility scooters, path terminal treatments, providing paths through culverts
- additional commentary on pedestrian needs and sight distance, and a new equation to determine stopping sight distance
- new sections on consolidating special treatments for intersections of paths with paths, and life cycle costing
- a new appendix providing information on speed limiting treatments on paths.

This edition was project managed by Gemma Kernich, Acting Manager, Cycling and Walking from the Department of Planning, Transport and Infrastructure, South Australia.

Driver Licensing and Vehicle Registration

The Registration and Licensing work program is continuing its focus on driver licence harmonisation, better management of end of life vehicles, and access to driver licensing by Indigenous and other road users and other road users experiencing barriers to obtaining and retaining driver licences.

While many factors contribute to safety on the road, driver health and fitness to drive is an important consideration. Drivers must meet certain medical standards to ensure their health status does not unduly increase their crash risk.



Assessing Fitness to Drive is a joint publication of the National Transport Commission (NTC) and Austroads, and includes standards for private and commercial drivers of heavy vehicles, light vehicles and motor bikes.

On 1 October 2016, the latest edition of Assessing Fitness to Drive came into effect. This edition includes new features such as flow charts to guide

assessment of conditions such as epilepsy and dementia, a questionnaire to assist assessment of drivers with diabetes and more detailed information about determining and supporting functional driver capacity.

Young drivers are over-represented in crashes and there is strong evidence that poor hazard perception skill contributes to novice driver crash involvement. Computer based Hazard Perception Tests assess whether a driver has achieved a minimum competency in hazard perception to proceed to the next stage of their licence. Austroads has funded the development of a library of modern hazard perception test videos using computer-generated imagery. Australasian licensing agencies may use the videos to update their existing car Hazard Perception Test or to implement the test in the future. The project will also allow jurisdictions to introduce a Hazard Perception Test specifically designed for motorcyclists, a world first road safety initiative.



The Forrest Review recommends that all Australian State and Territory Governments “introduce a consistent approach to issuing ‘provisional’ locked licences for people who are unable to drive due to unpaid fines or other traffic infringements, so that they can get and keep a job by being able to drive.”

In February 2017, Austroads published a report that found the States and Territories already have measures

allowing people whose licences are subject to suspension to keep their licences, either for employment or any other purpose, including the:

- ‘Period of Good Behaviour’ option (under which a driver who has lost all of their demerit points can continue to drive, subject to good behaviour conditions)
- ‘Time to Pay’ option (under which a driver can continue to drive while outstanding fines are repaid by instalments).

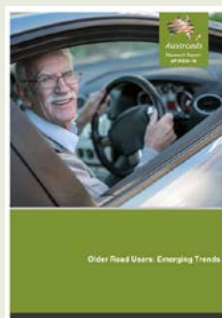
These options are already offered in a relatively uniform manner across all of the State and Territory jurisdictions and appear to largely achieve the objectives of this recommendation of the Forrest Review.

The report finds that there may be scope for State and Territory Governments to raise awareness and improve access for Indigenous people to these options. It also finds that States and Territories should work together to develop national policy principles for Indigenous driver licence service delivery and seek authority for these national policy principles from the Transport and Infrastructure Council.

The report also documents general programs and initiatives in place at State and Territory level to promote Indigenous access to driver licences.

The Registration and Licensing Working Group project was managed by Asa Masterman, Assistant Director Road Safety Policy, Department of Infrastructure and Regional Development, Canberra.

Vulnerable Road Users



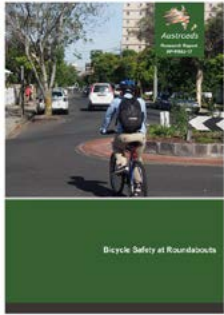
With the combined effects of an ageing population and increasing travel demand and activity levels, it is important to understand the key issues relating to the safety of older road users. In October 2016, Austroads published results of a study identifying trends in crashes involving road users aged over 75.

The project was managed by Raluca Raicu, Senior Policy Analyst from the Department of Planning, Transport and Infrastructure South Australia managed the project and with oversight provided by the Road Safety Task Force.

The report provides policy recommendations and describes crash countermeasures relevant to older road users.

To maximise the benefits of policies for older road users, the report recommends that different groups within government collaborate on developing a more holistic approach to ageing and transport.

On 24 November 2016, Austroads held a webinar providing an overview of the project and emerging trends in crash involvement among older road users.



National, state and local government strategies are being developed to get more people cycling for their improved health and other economic and social benefits.

Providing more separated, safe and attractive facilities help encourage people to ride bicycles, however there are some treatments, in particular some roundabout layouts and alignments,

that pose both a real and perceived crash risk and deter people from taking up cycling.

Attempts to accommodate or attract cyclists with marked bicycle lanes in the circulatory lanes at roundabouts have been found to be counterproductive in terms of increased crash risk, and therefore methods must be found to better cater for cycling where roundabouts have been or are to be constructed.

Each year, on average about 37 cyclists are killed and about 5200 hospitalised on roads across Australia.

In May 2017, Austroads published a report that investigates how the geometric design components of a roundabout may contribute to bicycle crashes.

This two-year study included an Australian and New Zealand crash analysis which found that most of the crashes at roundabouts occurred at urban local road roundabouts, in 50 km/h speed limit zones. The crashes predominantly occurred on the circulating lane near the entry for an approach road and were right-adjacent type crashes.

The report suggests amendments to Austroads Guides and recommends further investigation into motor vehicle/cyclist crash outcomes, the effect of restricting sight distance on the approaches to a roundabout, and the development of design guidance for urban local road roundabouts.

The project was overseen by the Road Design Task Force and managed by Gemma Kernich, Acting Manager, Cycling and Walking, Department of Planning, Transport and Infrastructure South Australia.

Future Focus

The Safety Program will continue to work towards preventing death and serious injuries on our roads using a Safe System approach. The key focus of the 2017-18 Safety Program is to:

- build on current work with jurisdictions to address current and emerging safety challenges to reduce serious road trauma
- support development and implementation of the National Road Safety Strategy and Action Plan 2018-2020
- promote harmonisation of road design practice, adoption of emerging technology and incorporation of the safe systems approach in our Guides in a practical and user-friendly way
- increase consistency and efficiency in registration and licensing across jurisdictions, improve registration and licensing service delivery to enable more convenient and accessible services, and improve access to driver licences for Indigenous Australians and those Australians experiencing disadvantage.

Work continuing in 2017 on project SSP2068 is expected to deliver a world-first performance-based road design standard by providing logical combinations of road attributes aligned to crash risk metrics such as star ratings

Projects planned for 2017-18 will:

- identify key initiatives that will assist in achieving the 2020 road safety targets of Australia and New Zealand and inform the content of the next *National Road Safety Action Plan 2018-2020* (SSP6038)
- mitigate the growing drug driving and driver distraction risk (SSP6081)
- further develop the Australian National Risk Assessment Model (ANRAM) (SAG6041)
- produce a compendium of effective speed countermeasures and strategies (SAG6043)
- collate road safety (SAG6050) and registration and licensing practices (SRL6046) across Australia and New Zealand
- review the National Heavy Vehicle Driver Competency Framework (SRL2076)
- improve driver licensing programs for Indigenous road users and transitioning learnings to other user groups (SRL6042)
- develop a damage assessment criteria for a National Written-Off Heavy Vehicle Register (SRL6083)
- identify road design risk factors and infrastructure solutions to reduce rollover crashes (SRD6070)
- update *Guide to Road Design Part 7: Geotechnical Investigations and Design* (SRD6071) and include recent road safety research in the *Guide to Road Design* (SRD6045).

Connected and Automated Vehicle Program

Optimising the societal benefits of new technologies

Testing in progress

RAC

For the better

RAC Intellibus™

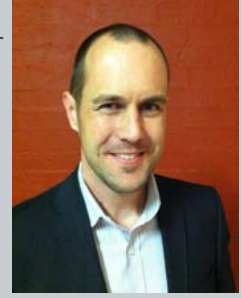
navya

TICKETS

People

Stuart Ballingall, Program Director Connected and Automated Vehicles

Stuart Ballingall has a leading role preparing for emerging transport technologies in his role as Director Transport Futures at VicRoads, and as a member of the Australasian New Car Assessment Program (ANCAP) board of directors, and the National Positioning Infrastructure Advisory Board. Stuart has significant experience leading technical programs that span across the transport, automotive, and ICT industries, including with General Motors Holden, the Royal Automobile Club of Victoria (RACV), and VicRoads. Stuart is also an active member on numerous government and industry forums, both at the national and international level. Qualifications held by Stuart include a Bachelor of Engineering (honours) and a Master of Business Administration (MBA).



Project Manager CAV: Chris Jones

Technical Support CAV: Richard Zou

Project Manager C-ITS: Niko Limans

Technical Support C-ITS: Geoff McDonald

CAV Steering Committee

Stuart Ballingall, Austroads	Peter Hubble, DSG Tas	Dirk Van Der Walt, NZTA
Phillip Blake, DIPTI SA	Geoffrey McDonald, DTMR Qld	John Wall, TfNSW
Marcus Burke, NTC	Iain McGlinchy, MoT NZ	Dennis Walsh, DTMR Qld
Wayne Harvey, VicRoads	Craig Moran, RMS NSW	Kamal Weeratunga, MR WA
Robyn Hawkins, TCCS ACT	Steven Shaw, RMS NSW	Donna Wieland, DIRD

Other technical working groups

- **Industry Reference Group** provides a forum to engage, consult, share knowledge, and seek guidance and direction. It comprises a large number of industry and government stakeholders across a wide range of relevant domains.

Overview

The next generation of motor vehicles are planned to include an increased level of wireless connectivity and automated driving capability. The convergence of these technologies has given rise to the term Connected and Automated Vehicles (CAV).

The potential societal benefits from these emerging technologies are significant, particularly with regard to road safety, transport efficiency and productivity, and environmental outcomes. To support deployment and optimise the benefits from these technologies, there is a need for regulatory and operational frameworks to be in place.

The Austroads CAV program is working closely with key government and industry stakeholders towards establishing the required supporting frameworks, and to optimise the potential societal benefits of CAVs.

Work Streams

The key focus areas for the CAV program are:

- Automated Vehicles
- Cooperative Intelligent Transport Systems (C-ITS).

2016-17 Program Activities

Automated vehicles

Automated Vehicles are vehicles that have one or more of the primary driving controls (steering, acceleration, braking) that are automated for a sustained period of time. Classification of automated driving levels, which consider what role the human driver has and whether the human is 'in-the-loop' or not, are often used to define the level of automation in motor vehicles. Levels of automation range from no automation of driving controls, through automated applications that assist the human with the driving task, through to fully and highly automated vehicles that can drive themselves.

Austrroads member agencies are undertaking an increasing number of CAV trial projects and initiatives. The Austrroads website provides an authoritative list of the key CAV trials that are occurring across the jurisdictions. Austrroads also plays a key role in ensure that knowledge sharing and collaboration is occurring across these trials. To support this, Austrroads has established a technology trial working group, which is coordinated by the CAV program.

In mid 2015 Austrroads instigated a project to investigate the potential changes needed to the way road networks are managed to consistently support and optimise the outcomes from the introduction of automated vehicles.

The two-year project reviewed international and local documents and initiatives and consulted a range of stakeholders to determine the emerging requirements for AVs to operate on public and private road networks (including urban and rural areas).

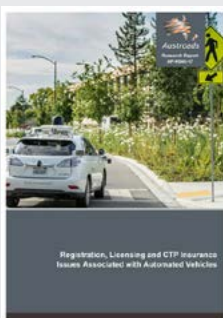


The report captures key issues in three broad categories: physical infrastructure; digital infrastructure; and road operations.

The report concludes with high level guidance for road agencies and operators. There are obvious challenges in providing practical guidance to agencies in a still evolving and changing environment, and some

of the guidance, although still relevant, may be beyond the purview of individual road operators.

On 16 June 2017, Austrroads held a webinar providing an overview of the challenges posed by the operation of automated vehicles on public roads.



In March 2017, Austrroads published a report that considers the potential impacts on vehicle registration, driver licensing and compulsory third party (CTP) insurance arrangements that might arise from the introduction of automated vehicles (AVs) in Australia and New Zealand.

Increasing levels of automation are predicted to impact on current

arrangements for registering motor vehicles, licensing drivers, and administering CTP insurance schemes. Understanding these impacts is important as we prepare to support the trialling and testing of AVs in the short term and mass market deployment in the longer term.

The report examines the rules and processes put in place by overseas and local jurisdictions to facilitate the testing and deployment of AVs on public roads, and assesses their relevance and suitability to Australia and New Zealand. It concludes that the registration and driver licensing processes examined were generally suitable for supporting trials and deployment of AVs but that some amendments would be required as we progress towards supporting market deployment.

This study complements three other studies currently underway in Australia:

- one on the safety benefits of automated vehicles, commissioned by Austrroads
- another on the infrastructure requirements required to support and enhance the capabilities of automated vehicles, commissioned by Austrroads
- a discussion paper, released by the National Transport Commission (NTC), on regulatory barriers to the introduction of automated road and rail vehicles.

The project was managed by Stuart Ballingall and Andrew Lee, Director, Strategy, Policy and Governance at Department of Transport Western Australia.



Guidelines for trials of automated vehicles in Australia is a joint publication of the National Transport Commission (NTC) and Austrroads. Released in May 2017, the guidelines support state and territory road agencies in providing exemptions or permits for trials, and give greater certainty to industry on conditions for trials.

The guidelines are designed to support different technologies and applications as they emerge. Rather than embed trial requirements in legislation, the guidelines provide a performance-based framework that supports innovation and gives certainty to governments and industry alike.

National guidelines adopted and applied by all states and territories aim to ensure that trialling organisations have similar trial conditions, regardless of which state or territory the trial is conducted in. This supports cross-border or national trials. The national guidelines also aim to allow information sharing, where appropriate, about trial and research outcomes.

The release of these guidelines is the first stage of the NTC's reform roadmap to support the deployment of automated vehicles. Ministers agreed to this roadmap in November 2016, which includes a series of reforms to develop an end-to-end regulatory system for eventual commercial deployment of automated vehicles.

Cooperative Intelligent Transport Systems (C-ITS) and Automated Driving applications will also have a substantial impact on road trauma through the increased use of technology both to assist drivers with the driving task, as well as provide enhanced crash avoidance capabilities. Austroads project on the Safety Benefits of Cooperative ITS and Automated Driving aims to understand and assess their potential safety benefits for Australia and New Zealand.

Using an analysis of Australian serious injury real-world crashes, expert estimates were made of the potential effectiveness of the following light passenger vehicle applications, as well as estimates of the annual savings in serious injuries Australia and New Zealand-wide: Lane Keeping Assist, Automated Emergency Braking, Cooperative Forward Collision Warning, Curve Speed Warning, Intersection Movement Assist, Right Turn Assist. This project is due for release in third quarter 2017.

Cooperative Intelligent Transport Systems (C-ITS)

A connected vehicle ecosystem is emerging in which vehicles will share data wirelessly with other vehicles, with infrastructure, with transport management systems, and with mobile devices. Commonly referred to as Cooperative Intelligent Transport Systems (C-ITS), this ecosystem will enable a wide range of vehicle and transport applications to be deployed that cooperatively work together to deliver safety, mobility and environmental outcomes that are in addition to what many standalone systems can achieve.

The market deployment of C-ITS internationally has been delayed when compared with earlier forecasts. This has been due to a number of reasons, including the need to resolve outstanding issues with security and positioning services, and the authorisation of C-ITS equipment and services. European stakeholders have revised their anticipated date to commence C-ITS deployment to 2019 onwards.

The National Policy Framework for Land Transport Technology, as endorsed by the COAG Transport and Infrastructure Council in August 2016, includes a number of actions regarding C-ITS. This includes actions to develop a C-ITS statement of intent and infrastructure roadmap, a plan for addressing security with connected and automated vehicles, and options for providing enhanced positioning services to these vehicles. The Commonwealth is leading these actions, with input from Austroads and other key stakeholders,

Communications technology for C-ITS has also been an issue requiring further investigation. Previously the primary focus had been on Dedicated Short Range Communications (DSRC) using the 5.9 GHz band. There has been a shift globally towards supporting a hybrid communications approach, which would involve not just DSRC, but also other technologies including current and future cellular communications. This could potentially include cellular solutions using part of the 5.9 GHz band in some markets.

The Australian Communications and Media Authority (ACMA) undertook consultations in 2016 regarding the proposed allocation of the 5.9 GHz band for ITS use, during which the

issue of a hybrid communications approach was raised. The ACMA has been liaising with Austroads, the FCAI and other key stakeholders during 2017 to determine an appropriate band allocation and device licensing approach to address this issue.

Austroads has consulted widely with key stakeholders, who have confirmed a strong preference to align the operational arrangements for C-ITS in Australia with the relevant C-ITS deployment frameworks in Europe. Austroads is progressing several projects that are investigating the feasibility of aligning with various elements of the European approach including:

- an assessment of a Compliance Assessment Framework for standards assurance of C-ITS devices in vehicles, road side units, mobile devices and traffic management centres
- an initial assessment of a potential security management system for C-ITS
- a threat vulnerability and risk assessment for C-ITS.

The deployment of C-ITS in Australia is subject to the requirements of the Privacy Act 1988, including the Australian Privacy Principles (APPs) which came into force in March 2014. Parts of the deployment may be subject to additional State and Territory privacy legislation and relevant transport legislation.

In March 2017, Austroads published a high-level Privacy Impact Assessment (PIA) on data messages that will be wirelessly broadcast and received by vehicles and roadside units in a Cooperative Intelligent Transport Systems (C-ITS) deployment.

This Privacy Impact Assessment (PIA) considers the privacy issues raised by the standard data messages that will be wirelessly broadcast and received by vehicles and roadside units in a Cooperative Intelligent Transport Systems (C-ITS) deployment.

Future Focus

The focus of the CAV program going forward will increasingly be on operational arrangements to support the safe introduction and operation of CAVs on our road networks.

Key projects that will be undertaken in 2017-18 include:

- identification and assessment of automated vehicle on-road use cases
- assessment of vehicle traffic sign recognition systems
- infrastructure requirements to support automated vehicles on highways and freeways
- working with the ACMA to finalise allocation and licensing of ITS use of the 5.9 GHz band
- working with the Commonwealth and other key stakeholders to establish a security framework to support CAVs
- identify and assess options to assure compliance with agreed C-ITS standards.

Knowledge Sharing

Building capacity through exchange and collaboration



Overview

Knowledge sharing and capacity building are core activities for all Austroads Programs. The delivery of publications, tools, webinars and presentations is supported by a two-person communications team based in the Austroads national office.

2016-17 Activities

During the year 226 publications and papers were published including 11 Guides, 49 reports, four test methods, and 162 Austroads Bridge Conference papers.

More than 340,000 publications were downloaded or sold, a 12% increase on the previous year.

This year we expanded the Austroads webinar series and brought their coordination in-house. Nearly 800 people attended the live broadcasts and more than 3,500 watched recordings posted on the Austroads corporate website.

More than 400 people attended the 10th Austroads Bridge Conference hosted by VicRoads from 3-6 April 2017. Australia's premier bridge conference, the event provides an opportunity for local and international specialists in the field of bridge engineering to share experiences, innovations, achievements and knowledge. Austroads projects were featured in a number of presentations and Austroads sponsored the prizes for best papers and posters. The 162 conference papers were made freely available to all on the Austroads publications website, more than 29,000 were downloaded.

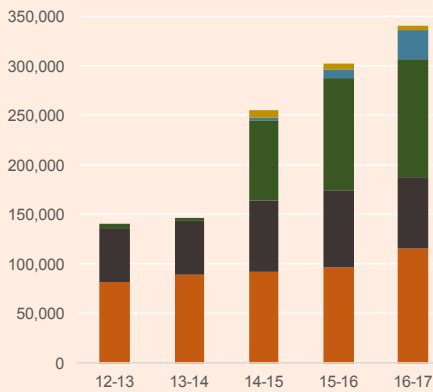
Austroads is a founding partner of the Australasian Road Safety Conference. The second conference was held 6-8 September 2016 in Canberra. Austroads projects were featured in a number of presentations and more than 600 delegates contributed ideas, processes and products to make specific improvements in the task of reducing road trauma.

Visits to Austroads website have substantially increased over the last two years. More than 433,000 users viewed 2.3 million pages on the corporate and publications website.

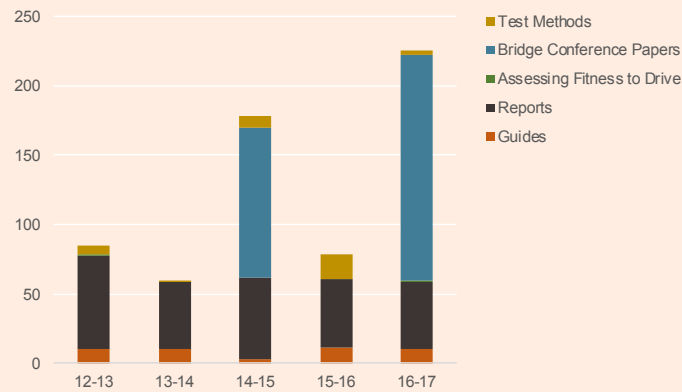
In 2017-18 we are embarking on a new project to consolidate our corporate and publications websites into a single site and provide the Austroads Guides as a digital resource. The new site will improve users' experience and knowledge sharing. When the site is completed, most Austroads Guides will no longer be available in hard copy but they will be freely available to all users online. During the transition, subscriptions to the Austroads publications website are being offered on a pro-rata basis.

Knowledge sharing outcomes

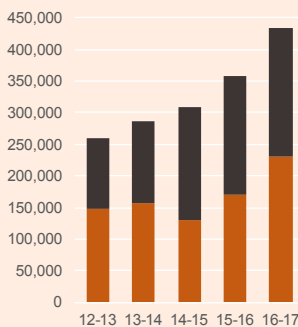
Publications accessed



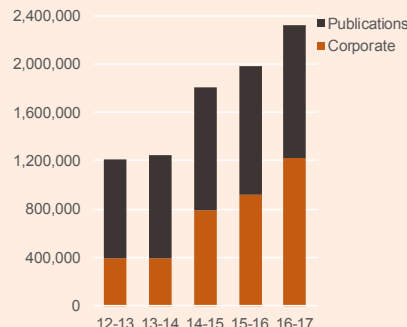
Publications produced



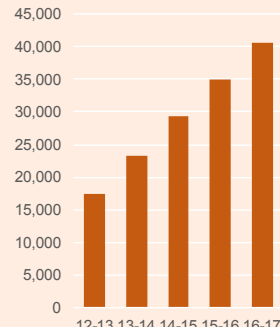
Website users



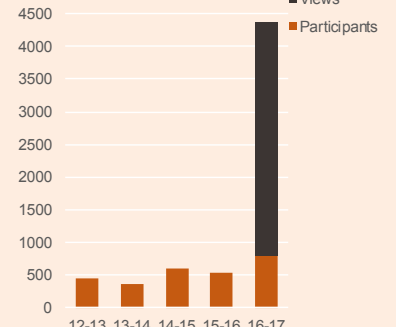
Website pages viewed



RoadWatch subscribers



Webinar participants



Publications released 2016-17

Corporate Reports

Code	Title	Released	Downloads 2016-17
AP-C20-16	Austroroads Annual Report 2015-16	Oct-16	1,239
AP-C91-17	Australian Cycling Participation 2017	Jun-17	897
AP-C93-16	National Cycling Strategy: Implementation Report 2015	Sep-16	481
AP-C93-17	National Cycling Strategy: Implementation Report 2016	Apr-17	436
AP-C101-17	Guidelines for Trials of Automated Vehicles in Australia	May-17	432
BA2057-DRAFTV2	Data Standard for Road Management and Investment in Australia and New Zealand: Draft 1 Version 2	Dec-16	1,094

Guides

Code	Title	Released	Downloads + sales 2016-17
AP-G56-16	Assessing Fitness to Drive for Commercial and Private Vehicle Drivers	Aug-16	92,744
AP-G88-17	Cycling Aspects of Austroroads Guides	Jun-17	1,190
AGRD03-16	Guide to Road Design Part 3: Geometric Design	Sep-16	8,012
AGRD04-17	Guide to Road Design Part 4: Intersections and Crossings - General	Jun-17	723
AGRD04A-17	Guide to Road Design Part 4A: Unsignalised and Signalised Intersections	Jun-17	854
AGSM-16	Guide to Smart Motorways	Dec-16	428
AGTM04-16	Guide to Traffic Management Part 4: Network Management	Aug-16	783
AGTM09-16	Guide to Traffic Management Part 9: Traffic Operations	Nov-16	695
AGTM10-16	Guide to Traffic Management Part 10: Traffic Control and Communication Devices	Aug-16	1,452
AGTM11-17	Guide to Traffic Management Part 11: Parking	Jan-17	920
AGTM12-16	Guide to Traffic Management Part 12: Traffic Impacts of Developments	Sep-16	843

Test Methods

Code	Title	Released	Downloads 2016-17
AGAM-S006-16	Specification for Pavement Deflection Measurement with a Traffic Speed Deflectometer (TSD) Device	Sep-16	181
AGAM-S007-16	Specification for Pavement Crack Measurement with an Automatic Crack Detection System	Sep-16	188
AGAM-T017-16	Pavement Data Collection with a Traffic Speed Deflectometer (TSD) Device	Sep-16	267
AGAM-T018-16	Pavement Crack Measurement with an Automated Crack Detection System	Sep-16	415

Technical Reports

Code	Title	Released	Downloads 2016-17
AP-T307-16	Effect of Heavy Vehicle Traffic in Sprayed Seal Design	Jul-16	602
AP-T308-16	Review of Australasian and Overseas Specifications and Performance Tests for Bitumen	Jul-16	858
AP-T310-16	Selection and Design of Initial Treatments for Sprayed Seal Surfacing	Jul-16	932
AP-T311-16	Permeability of Sprayed Seals: Literature Review	Jul-16	612
AP-T312-16	Development of a Binder Test to Rank the Low Temperature Cracking Resistance of Polymer Modified Binders Stage 2: Hard Binders	Aug-16	308
AP-T313-16	Realising 100-year Bridge Design Life in an Aggressive Environment: Review of the Literature	Nov-16	317
AP-T314-16	Unsealed Road Maintenance and Deterioration Performance	Nov-16	586
AP-T315-16	Data Standard for Road Management and Investment in Australia and New Zealand: Version 1	Nov-16	709
AP-T316-16	Levels of Service for Non-Freight Road Users	Nov-16	447
AP-T317-16	Realising 100-year Design Life of Bridge Structures in an Aggressive Environment: Experimental Work	Nov-16	307
AP-T318-16	Specification and Use of Geopolymer Concrete in the Manufacture of Structural and Non-structural Components: Review of Literature	Dec-16	395
AP-T319-16	Asphalt Fatigue Damage Healing and Endurance Limits: Guide Implementation Options	Dec-16	730
AP-T320-17	Verification of Austroroads Road Design Criteria Based on Objective Safety Evidence	May-17	759
AP-T321-17	Austroroads LTPP/LTPPM Study - Summary Report 2015-16	May-17	168
AP-T322-17	Revised Interim Works Effect Models	May-17	129

Research Reports

Code	Title	Released	Downloads 2016-17
AP-R472A-17	Australasian Pedestrian Facility Selection Tool [V1.2]: User Guide	Apr-17	259
AP-R515-16	Infrastructure Improvements to Reduce Motorcycle Casualties	Jul-16	931
AP-R521-16	Future Challenges of Changing Agricultural Equipment	Jul-16	271
AP-R522-16	Development of the Traffic Impact Estimation Tool for Small Intersection Projects	Aug-16	391
AP-R523-16	Traffic Impact Estimation Tool for Small Intersection Projects: User Guide	Aug-16	654
AP-R524-16	Operationalising Austroads' Product Acceptance Process	Aug-16	225
AP-R525-16	Identification of a Risk Indicator to Support "Life Line" Freight Routes	Aug-16	475
AP-R526-16	Reforming Remote and Regional Road Funding in Australia	Aug-16	328
AP-R527-16	Bicycle Parking Facilities: Guidelines for Design and Installation	Oct-16	689
AP-R528-16	Bicycle Parking Facilities: Updating the Austroads Guide to Traffic Management	Oct-16	517
AP-R529-16	Urban Freight: Development of a Policy Framework to Support Safety, Efficiency and Productivity	Sep-16	350
AP-R530-16	Older Road Users: Emerging Trends	Oct-16	945
AP-R531-16	Specification of Geopolymer Concrete: General Guide	Nov-16	394
AP-R532-16	Bridge Assessment for High Productivity Freight Vehicle Access: Guidelines on Processes and Procedures	Nov-16	423
AP-R533-16	Congestion and Reliability Review: Summary	Dec-16	537
AP-R534-16	Congestion and Reliability Review: Full Report	Dec-16	884
AP-R535-16	National Strategic Weigh-in-motion Network	Dec-16	248
AP-R536-16	Reliability-centred Maintenance Strategy and Framework for Management of Intelligent Transport System Assets	Dec-16	287
AP-R537-17	The Forrest Review: Driver Licensing and Barriers to Indigenous Economic Participation	Feb-17	106
AP-R538-17	Investigating the Potential Benefits of Enhanced End to End Supply Chain Visibility	Mar-17	246
AP-R539-17	Developing Braking Standards for Heavy Vehicles to Brake Effectively and Safely on Steep Declines	Mar-17	172
AP-R540-17	Registration, Licensing and CTP Insurance Issues Associated with Automated Vehicles	Mar-17	496
AP-R541-17	Reassessment of the Benefits and Impacts of the Use of High Productivity Vehicles on Australian Highway Pavements	Apr-17	121
AP-R542-17	Bicycle Safety at Roundabouts	May-17	1,041
AP-R543-17	Assessment of Key Road Operator Actions to Support Automated Vehicles	May-17	644
AP-R544-17	Safety at Road Worksites: Stage 1 Working Papers	Jun-17	469
AP-R545-17	Community Service Obligations Framework for the Roads Sector	Jun-17	212
AP-R546-17	National ITS Architecture Stage 2 Module 2: Mapping FRAME Content to TOGAF	Jun-17	176

Financials and Directors' Reports



Table of Contents

Directors' Report	46-48
Auditor's Independence Declaration	49
Statement of Profit or Loss and Other Comprehensive Income	50
Statement of Financial Position	50
Statement of Changes in Equity	51
Statement of Cash Flows	51
Notes to the Financial Statements	52-55
Directors' Declaration	55
Independent Auditor's Report	56-58

The directors of Austroads Ltd ("the Company") present this report on the Company for the financial year ended 30 June 2017.

Directors

The names of each person who has been a director during the year and to the date of this report are:

- Peter Duncan AM (Chair to 13 October 2016 - retired)
- Neil Scales OBE (Chair from 13 October 2016)
- Shane Gregory (Deputy Chair from 13 October 2016)
- Ken Kanofski (from 13 October 2016)
- Adrian Beresford-Wylie
- Allan Frost (to 1 September 2016)
- Tommy Parker (from 1 September 2016)
- Paul Gelston
- Andrew Kirkman
- Peter Todd
- Alex Foulds (from 8 August 2016)
- Tony Gill PSM (to 16 December 2016 – retired)
- Emma Thomas (from 16 December 2016)
- Stephen Troughton (to 4 July 2016)
- Peter Woronzow (from 4 July 2016)

Directors have been in office since the start of the financial year and are still directors to the date of this report unless otherwise stated.

Principal Activities

The principal activities of the Company during the financial year were to coordinate road transport related research and projects and to produce publications related to road transport.

The Company's short-term objectives are to:

- conduct strategic research that assist road agencies to address current and emerging issues
- develop guides to establish national consistency on technical and operational aspects of road networks
- facilitate knowledge sharing by promoting the wide dissemination of outputs and technology, conducting seminars and promoting the use of the Company's work;
- maintain and develop NEVDIS on behalf of road agencies as an essential national vehicle and driver licence information exchange
- foster international involvement by engaging with and supporting international road organisations.

The Company's long-term objectives are to:

- promote improved Australian and New Zealand transport outcomes
- provide expert technical input to national policy development on road and road transport issues
- promote improved practice and capability by road agencies
- promote consistency in road and road agency operations
- redevelop NEVDIS and pursue opportunities to make the system financially self sufficient.

Strategies

The Company uses a program management approach to the delivery of the strategic plan. Each program focuses on an operational area of the road system but in doing so they address the Company's strategic priorities by undertaking a range of projects and contribute to improving transport outcomes in Australia and New Zealand. Austroads utilises the expertise of its member organisations to develop and deliver its research programs. This encourages a collaborative approach and facilitates learning, development, sharing and a high level of consistency across jurisdictions.

An Operational Plan, which is monitored and reviewed by the Board, includes a number of proposed outputs for each program and an indicative four year work plan with projects to produce these outputs.

Key Performance Measures

The Company's Outputs

The following measures have been developed to assess performance and progress against the delivery of actions identified in each of the Company programs:

- **Projects completed on time and on budget**
All research projects were completed within the overall related program budget. The completion of projects within their scheduled timeframe continues to be a challenge but has improved on previous years. There were 40 projects scheduled for completion in 2016-17. Fifteen were completed on schedule. At 30 June there were four projects running more than six months late.
- **Take up of the Company outputs**
In 2016-17, 340,000 publications were downloaded or sold, a 10% increase on the previous year. On average, more than 470 Austroads Guides are downloaded by local councils and member organisations every working day, 70 a day more than the previous year.
- **Adoption of Austroads Guides by road agencies**
All road agencies across Australasia have adopted the Austroads Guides.

Information on Directors

Peter Duncan AM (Chair until 13 October 2016) | FIPAA G.Dip. Mgt, A.Dip. Land. Studies, Grad. Cert Traffic Eng, Cert. L&ESD

Mr Duncan was appointed Chair in November 2014, and was a member of the Austroads Executive Committee.

He was Chief Executive of Roads and Maritime Services NSW. Formerly, he was Deputy Director General of the Department of Premier and Cabinet. Previous roles include Director General of the Department of Services, Technology and Administration; Chief Executive Officer of Forests NSW; Director and Chief Executive of the Centennial Park and Moore Park Trust; and Director Estate Management at Olympic Coordination Authority.

In 2013, he was made a Member (AM) in the General Division of the Order of Australia for significant service to public administration in New South Wales, and to conservation and the environment.

Neil Scales OBE (Chair) | ONC (Eng), HNC (EEng), DMS, BSc (Eng), MSc (Control Engineering and Computer Systems), MBA, CEng (UK), FIEAust, FIET, FIMechE, FICE, FCILT, FCIT, FLJMU, FRSA, FSOE, MAICD

Mr Scales is Director-General of Queensland Department of Transport and Main Roads. He was previously CEO of TransLink, the public transport operator across Queensland. Prior to joining TransLink, he was the Chief Executive and Director General of Merseytravel; the transport authority for Merseyside in the north of England. Along with almost 40 years experience in the transport industry, he is a Fellow of three major UK engineering institutions. He received an OBE for services to public transport in 2005 and in 2011 he was awarded an honorary Fellowship from Liverpool John Moores University for his services to the region.

Shane Gregory (Deputy Chairperson) | Assoc Dip Eng (Civil), MAICD

Mr Gregory is the General Manager State Roads for the Department of State Growth, Tasmania. Mr Gregory started his career in 1985 with the former Highways Department of South Australia where he spent 11 years in various design roles. He moved to Western Australia in 1996 to work with Connell Wagner on various public and private infrastructure projects, before relocating to Tasmania in 2000 to work in the civil contracting industry. Prior to his current role he was Manager of Planning and Design for the Department of Infrastructure, Energy and Resources between 2009 and 2012.

Ken Kanofski (from October 2016)

Mr Kanofski was appointed Chief Executive of Roads and Maritime Services in August 2016. As Chief Executive, Ken is responsible for leading and managing the performance of the road and maritime networks to meet customer needs. This includes delivery of substantial infrastructure building programs, as well as maintaining, operating and regulating the networks.

Prior to his appointment as Chief Executive, he spent three years as the Roads and Maritime Chief Operating Officer. In this role, he was responsible for managing and operating the NSW road network including strategic network planning and investment prioritisation of a \$9 billion-dollar a year infrastructure program.

Previously, he has served as Chief Executive Officer (CEO) of three statutory corporations, the NSW Land and Housing Corporation, Government Property NSW and WSN Environmental Solutions. Experienced in a range of infrastructure, utilities and services industries, including Transport, Roads, Housing, Property, Venue Management, Waste, Recycling, Energy, Water and Telecommunications.

He has served as a board member and chair on statutory authorities, industry bodies and community organisations.

Adrian Beresford-Wylie | BA(Hons) LLB

Mr Beresford-Wylie is the Chief Executive of the Australian Local Government Association (ALGA). He took up that position in May 2006.

Mr Beresford-Wylie was a senior public servant in the Australian Public Service and headed the area dealing with local government and natural disasters in the Federal Department of Transport and Regional Services. Other roles include head of the road safety area of the Australian Transport Safety Bureau in 2000-2002 and advisor on maritime and land transport issues to the Hon. John Anderson MP, Deputy Prime Minister and Minister for Transport and Regional Services. He began his public service career in 1984 as a Foreign Affairs Officer with the Department of Foreign Affairs. He has also worked in corporate sales in Telstra and for a large law firm in Sydney.

Allan Frost | BBS. CA. FCPA.

Mr Frost was the Group Manager, Organisational Support for the New Zealand Transport Agency, and is a member of its Leadership Team and was previously the Chief Financial Officer and subsequently Chief Information Officer for the Ministry of Agriculture and Forestry. Mr Frost also sat on the Ministry's management executive board and has considerable experience in change, information services and financial management.

Tommy Parker (from September 2016)

Mr Parker is the Transport System Design and Delivery General Manager for the New Zealand Transport Agency. He originally graduated with a Town Planning degree before specialising in Transport by undertaking an MSC in Transport Planning and Engineering. Following which he worked in private consultancy in the UK for ten years initially for Halcrow and then TPi consultants. During this time, he built his experience in the planning and delivery of transport projects across different modes and in different parts of the world, including the Middle East and the Caribbean.

In 2005, he moved to New Zealand to take up a Project Director Role with Transit NZ, the predecessor organisation to the NZ Transport Agency. Within a year, he moved to the Transport Planning Manager role for the Auckland region where he was responsible for the planning and consenting of a number of large Highway projects.

At the formation of the New Zealand Transport Agency in 2009, he was promoted to Highway Manager for the Auckland and Northland Region responsible for the planning building Maintenance and operations of the Northern network. During this time, he oversaw the establishment of the Auckland Motorway Alliance, a collaborative contract to manage the asset management of the Motorway network. He also helped establish the ATOC (Auckland Transport Operations Centre) a joint venture with the local road operator (Auckland Transport) to operate a "one network" approach. During this period, he was involved in leading a number of substantial capital improvement projects, including The Waterview Connection, a \$1.4billion three lane tunnel, New Zealand's largest Transport project.

In 2014, he was appointed to the role of Group Manager of Highway Network Operations (HNO) to oversee the national State Highway network. He has been fortunate enough to take this role at a time when there is a capital build programme across the country that is increasing year on year. He has also implemented a comprehensive review of the Maintenance and Operations contracts that has led to significant efficiency gains.

Paul Gelston (from October 2014) | BEng (Civil), MIE(Aust)

Mr Gelston is Chief Operating Officer of the Department of Planning, Transport and Infrastructure, South Australia. Before taking up his current position in March 2015, he was Director, Road and Traffic Management for 4 years. He commenced work in DPTI in 1977 and has held a variety of senior executive positions, including leading the delivery of major projects such as the Gallipoli Underpass on South Road. He has also worked for Local Government and has significant knowledge and experience in road and transport engineering. He has a degree in Civil Engineering from the University of Adelaide in 1976. He is a member of Engineers Australia, the Australian Institute of Traffic Planning and Management and the Institute of Public Works Engineering Australia.

Andrew Kirkman

Mr Kirkman is the Chief Executive, Department of Infrastructure Planning and Logistics Northern Territory which he commenced in July 2015. Prior to this, he held the position of General Manager for the Land Development Corporation and continues to hold the position of Chief Executive of the Darwin Waterfront Corporation. With 17 years experience in the Northern Territory Public Service, he has previously held positions in the Department of Housing, including that of Deputy Chief Executive, Executive Director of Remote Housing and Executive Director of the Darwin Region. He previously held key roles in the Australasia Railway Corporation, Department of the Chief Minister and NT Treasury.

He has also worked in finance and commercial roles in the private sector, locally in the mining industry and overseas on public private partnerships. Mr Kirkman is a Certified Practising Accountant and has tertiary qualifications in business.

Peter Todd | BEng (Civil)(Hons), MBA

Mr Todd is the Deputy Chief Executive at VicRoads, Victoria. He is responsible for managing the operation of Victoria's road network, leading the delivery of projects through statewide regional and project offices, internal technical services to the organisation and management of concessions for private road operators in Victoria. He first joined VicRoads in March 2012, as the Regional Director for Metropolitan South East. Prior to joining VicRoads, he was the General Manager Roads and Traffic for the Department of Infrastructure, Energy and Resources in Tasmania (DIER). He joined DIER from the then Transport South Australia where he had extensive experience in planning, design and operations of both metropolitan and rural roads. Peter has more than 30 years experience in road transport engineering, planning, project management and delivery.

Alex Foulds (from August 2016) | BA, MBA

Mr Foulds came to the Infrastructure portfolio in 2009. He is currently Executive Director of Surface Transport Policy Division in the Department of Infrastructure and Regional Development. He is responsible for progressing the Australian Government's national reforms in surface transport policy and regulation (maritime, shipping, rail and road transport), road safety and vehicle design standards for all classes of vehicles, new and used, for import into Australia.

He previously led implementation of the Australian Government's Infrastructure Investment Program, including the delivery, in partnership with states and territories, of major land transport infrastructure projects across Australia. Prior to this, he worked in a variety of Australian Public Service senior policy development, procurement and program delivery roles after a career as an infantry officer in the Australian Defence Force.

He holds a Bachelor's degree in History with Masters degrees in Business Administration and International Relations and has completed an executive program in infrastructure financing and funding at the Harvard Kennedy School.

Tony Gill PSM | BESC

Mr Gill is a member of the Austroads Executive Committee. He was Director, Roads in the ACT's Department of Territory and Municipal Services. Prior to this role he held various positions with the department, covering traffic management and road maintenance responsibilities. He also worked for private consultant engineers Scott and Furphy from 1985 to 1988 and before this as a graduate engineer with Dublin County Council, Ireland for four years.

Emma Thomas (from December 2016)

Ms Thomas is the Director-General for Transport Canberra and City Services (TCCS) and brings extensive experience in both the commercial and public sectors, including major infrastructure projects that span most forms of transport including 'planes, trains and automobiles.'

Prior to leading TCCS, she was the Director-General of the Capital Metro Agency, delivering Canberra's first stage of light rail. Prior to this, she was the State Rail Commissioner for South Australia and Deputy Chief Executive of Public Transport. Previous experience also includes senior executive roles at Transport and Main Roads Queensland and Boeing. She commenced her career as an aeronautical engineer in the Royal Australian Air Force.

She is passionate about creating a simple and responsive customer experience and is excited, with the formation of TCCS, to proudly deliver services to the people of Canberra.

Stephen Troughton | BEng (Hons), MBA CEng, MICE, CPEng, MIEAust, RPEQ

Mr Troughton was appointed Managing Director of Main Roads Western Australia in February 2013. Prior to joining Main Roads he gained extensive experience in managing business areas in Australia, the United Kingdom and the Middle East and has considerable experience in overall project management and delivery of major infrastructure and property projects for government and the private sector. He moved to Australia in 2007 working in various areas within private industry based in Queensland.

In addition to sitting on the Board of Austroads Ltd he is also a Board member on the Planning and Transport Research Centre, the Western Australian Pavement Research Centre and the ROADS Foundation and is a member of the Australian Institute of Company Directors.

Peter Woronzow (from July 2016) | BA (Economics), Grad Dip Public Sector Management, CPA.

Mr Woronzow has been Acting Managing Director for Main Roads WA since July 2016. He has worked for Main Roads for 36 years and has been part of the Corporate Executive Team for 12 years.

He has been a member of the Alliance Boards that were responsible for delivering the Perth Bunbury Highway, Mandurah Entrance Road and Airport Gateway Projects. He is also a Board member of ARR.

Company Secretary

The following person held the position of entity Secretary at the end of the financial year:

Nick Koukoulas | MBA

Mr Koukoulas commenced with Austroads Ltd on 3 November 2014 as Chief Executive and was appointed company secretary on 6 November 2014 at the Austroads Board meeting. He is also a member of the Executive Committee.

Meetings of Directors

During the financial year, four meetings of directors were held.

Attendances by each director were as follows:

Director	Eligible meetings	Meetings attended
Peter Duncan	2	2
Allan Frost	1	1
Tommy Parker	3	3
Adrian Beresford-Wylie	4	3
Ken Kanofski	3	3
Tony Gill	2	1
Emma Thomas	2	1
Shane Gregory	4	4
Alex Foulds	3	1
Peter Todd	4	4
Neil Scales	4	3
Peter Woronzow	4	2
Andrew Kirkman	4	0
Paul Gelston	4	3

Alternate directors attended meetings as follows:

Alternate director	Alternate for	Meetings attended
Louise McCormick	Andrew Kirkman	4
Dennis Walsh	Neil Scales	1
Benjamin Ponton	Emma Thomas	1
Marcus James	Alex Foulds	2
Kym Foster	Adrian Beresford-Wylie	1
Alan Colegate	Peter Woronzow	1

The Company is limited by guarantee and is incorporated under the *Corporations Act 2001*. If the Company is wound up, the constitution states that each member is required to contribute a maximum of \$10 each towards meeting any outstanding obligations of the Company. At 30 June 2016, the total amount that members of the Company are liable to contribute if the Company is wound up is \$110 (2016: \$110).

Auditor's Independence Declaration

The lead auditor's independence declaration for the year ended 30 June 2017 has been received and can be found on page 49 of the financial report.

Signed in accordance with a resolution of the Board of Directors.



Neil Scales OBE

Chair

Dated this 15th day of September 2017

Auditor's Independence Declaration



**AUDITOR'S INDEPENDENCE DECLARATION
TO THE DIRECTORS OF AUSTRROADS LIMITED
ABN 16 245 787 323**

I declare that to the best of my knowledge and belief, during the year ended 30 June 2017 there have been no contraventions of:

- i. the auditor independence requirements as set out in the *Corporations Act 2001* in relation to the audit; and
- ii. any applicable code of professional conduct in relation to the audit.

C MILLINGTON
Partner

PITCHER PARTNERS
Sydney

20 September 2017

Statement of Profit or Loss and Other Comprehensive Income for the Year Ended 30 June 2017

	Notes	2017 \$	2016 \$
Revenue	2	27,839,600	23,281,314
Expenses			
Corporate Expenses	3(a)	4,410,364	2,939,605
Work Program	3(b)	12,369,495	12,918,466
Specific Projects	3(c)	770,321	964,629
Publications	3(d)	110,311	94,023
NEVDIS expenses	3(e)	3,029,098	3,191,112
Total expenses		20,689,589	20,107,835
Surplus for the year		7,150,011	3,173,479
Other comprehensive income		-	-
Total comprehensive income for the year		7,150,011	3,173,479
Total comprehensive income attributable to members of the entity		7,150,011	3,173,479

Statement of Financial Position for the Year Ended 30 June 2017

	Notes	2017 \$	2016 \$
ASSETS			
Current assets			
Cash and Cash Equivalents	4	23,997,654	17,234,960
Trade and Other Receivables	5	2,110,770	1,994,616
Other Assets	6	223,002	150,111
Total current assets		26,331,426	19,379,687
Non-current assets			
Plant and Equipment	7	232,178	329,606
Intangible assets	8	458,769	106,508
Other Assets	6	63,761	116,661
Total non-current assets		754,708	552,775
Total assets		27,086,134	19,932,462
LIABILITIES			
Current liabilities			
Trade and Other Payables	9	3,848,487	3,667,951
Income Received in Advance	10	-	250,000
Provision for Employee Benefits	11	223,755	194,345
Total current liabilities		4,072,242	4,112,296
Non-current liabilities			
Provision for Employee Benefits	11	115,262	71,547
Total liabilities		4,187,504	4,183,843
Net assets		22,898,630	15,748,619
Equity			
Accumulated Surplus		7,036,439	7,175,347
NEVDIS Reserve	1(n)	15,862,191	8,573,272
Total Equity		22,898,630	15,748,619

The accompanying notes form part of these financial statements.

Statement of Changes in Equity for the Year Ended 30 June 2017

	NEVDIS Reserve \$	Accumulated Surplus \$	Total Equity \$
Balance at 1 July 2015	4,182,702	8,392,438	12,575,140
Comprehensive income			
Surplus for the year	-	3,173,479	3,173,479
Transfer to Reserve	4,390,570	(4,390,570)	-
	<u>4,390,570</u>	<u>(1,217,091)</u>	<u>3,173,479</u>
Balance at 30 June 2016	8,573,272	7,175,347	15,748,619
Comprehensive income			
Surplus for the year	-	7,150,011	7,150,011
Transfer to Reserve	7,288,919	(7,288,919)	-
	<u>7,288,919</u>	<u>(138,908)</u>	<u>7,150,011</u>
Balance at 30 June 2017	<u><u>15,862,191</u></u>	<u><u>7,036,439</u></u>	<u><u>22,898,630</u></u>

Statement of Cash Flows for the Year Ended 30 June 2017

	Notes	2017 \$	2016 \$
Cash Flows from Operating Activities			
Member Contributions		17,752,405	17,449,520
Receipts from Customers		10,302,579	6,766,619
Publication Sales		472,662	359,947
Interest Received		419,444	423,634
External Project Funding		1,087,215	437,500
<i>Cash generated from operating activities</i>		<u>30,034,305</u>	<u>25,437,220</u>
Salaries and Related Costs		(2,426,973)	(1,818,481)
National Office including Corporate Projects		(5,458,711)	(5,669,245)
Publications		(121,342)	(103,426)
Programs		(14,825,876)	(14,505,161)
Cash used in operating activities		<u>(22,832,902)</u>	<u>(22,096,312)</u>
Net Cash Inflow from Operating Activities	13	<u>7,201,403</u>	<u>3,340,908</u>
Cash Flow from Investing Activities			
Purchase of Plant and Equipment		(438,709)	(407,577)
Cash used in Investing Activities		<u>(438,709)</u>	<u>(407,577)</u>
Net increase in cash held		6,762,694	2,933,331
Cash at the beginning of the financial year		<u>17,234,960</u>	<u>14,301,629</u>
Cash at the end of the financial year	4	<u><u>23,997,654</u></u>	<u><u>17,234,960</u></u>

The accompanying notes form part of these financial statements.

Notes to the Financial Statements for the Year Ended 30 June 2017

The financial statements are for Austroads Ltd. ("the Company") as an individual entity. The Company is a public entity limited by guarantee, incorporated and domiciled in Australia.

Note 1 — Summary of Significant Accounting Policies**Basis of Preparation**

The directors have prepared the financial statements on the basis that the Company is a non-reporting entity because there are no users who are dependent on general purpose financial statements. These financial statements are therefore special purpose financial statements that have been prepared in order to meet the requirements of the Corporations Act 2001. The Company is not-for-profit entity for financial reporting purposes under Australian Accounting Standards.

The financial statements have been prepared in accordance with the mandatory Australian Accounting Standards applicable to entities reporting under the Corporations Act 2001 and the significant accounting policies disclosed below, which the directors have determined are appropriate to meet the needs of members. Such accounting policies are consistent with those of previous periods unless stated otherwise.

The financial statements, except for the cash flow information, have been prepared on an accruals basis and are based on historical costs unless otherwise stated in the notes. The accounting policies that have been adopted in the preparation of the statements are as follows:

The financial statements were authorised for issue on 15th September 2017 by the directors of the Company.

Accounting Policies**(a) Revenue**

Membership revenue is recognised over the period of time to which it relates.

Grant revenue is recognised in the statement of comprehensive income when the Company obtains control of the grant and it is probable that the economic benefits gained from the grant will flow to the Company and the amount of the grant can be measured reliably.

If conditions are attached to the grant which must be satisfied before it is eligible to receive the contribution, the recognition of the grant as revenue will be deferred until those conditions are satisfied.

Interest revenue is recognised on a proportional basis taking into account the interest rate and period applicable.

Revenue from the rendering of a service is recognised upon the delivery of the service to the customers.

Publication Sales revenue is recognised monthly when advised by the distributor.

All revenue is stated net of the amount of goods and services tax (GST).

(b) Foreign currency translation

The financial statements of the Company are presented in Australian dollars, the Company's functional and presentation currency.

(c) Income tax

The Company has been exempted from income tax under section 50-5 of the Income Tax Assessment Act 1997.

(d) Leases

Payments made under operating leases where substantially all the risks and benefits remain with the lessor are charged to the income statement on a straight-line basis over the lease term.

(e) Plant and Equipment

Plant and equipment are measured on the cost basis less depreciation and impairment losses.

The carrying amount of plant and equipment is reviewed annually by directors to ensure it is not in excess of the recoverable amount from these assets. The recoverable amount is assessed on the basis of the expected net cash flows that will be received from the assets employment and subsequent disposal.

Depreciation

The depreciable amount of all fixed assets is depreciated on a straight line basis over the asset's useful life to the entity commencing from the time the asset is held ready for use.

The depreciation rates used for each class of depreciable assets are:

Class of Fixed Asset	Depreciation Rate
Furniture and office equipment	20 - 33.33%

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount.

Gains and losses on disposals are determined by comparing proceeds with the carrying amount. These gains or losses are included in the statement of profit or loss and other comprehensive income.

(f) Cash and cash equivalents

Cash and cash equivalents include cash on hand, deposits held at call with financial institutions, and other short term highly liquid investments with original maturities of twelve months or less.

(g) Trade receivables

All trade debtors are recognised at the amounts receivable as they are due for settlement no more than 120 days from the date of recognition, and no more than 30 days for other debtors.

There is no general provision for doubtful debts, as all receivables are fully recoverable.

(h) Goods and Services Tax (GST)

Revenues, expenses and assets are recognised net of the amount of GST, except where the amount of GST incurred is not recoverable from the Tax Office. In these circumstances the GST is recognised as part of the cost of acquisition of the asset or as part of an item of expense. Receivables and payables in the statement of financial position are shown inclusive of GST.

Cash flows are presented in the statement of cash flows on a gross basis, except for the GST component of investing and financing activities, which are disclosed as operating cash flows.

(i) Provision for employee entitlements

Provisions for long service leave and annual leave are made for all employees from the date of their commencement and are calculated at current pay rates. Additionally, provision is made for On Costs of 13% on long service leave and annual leave.

Provisions for long service leave for service under six years is treated as a non current liability.

(j) Trade and other payables

These amounts represent liabilities for goods and services provided to the Company prior to the end of financial year which are unpaid. The amounts are unsecured and are usually paid within 30 days of recognition.

(k) Income in advance

This represents the invoices raised or monies received during the year but goods and services not yet provided to members and customers at the end of the financial year.

(l) NEVDIS

The Company on behalf of Australian jurisdictional driver licensing and vehicle registration authorities contracted with Fujitsu Australia Limited to operate and maintain the National Exchange Vehicle Driver Information System (NEVDIS) to 8 September 2017. The annual fee is \$2,199,882 (ex GST) payable monthly in arrears.

(m) Intangible assets

Intangible assets acquired separately are recorded at cost less accumulated amortisation and impairment. Amortisation is charged on a straight-line basis over their estimated useful lives. The estimated useful life and amortisation method is reviewed at the end of each annual reporting period, with any changes in these accounting estimates being accounted for on a prospective basis.

Notes to the Financial Statements for the Year Ended 30 June 2017**(n) NEVDIS Reserve**

A separate NEVDIS reserve is being shown to highlight profit and loss from NEVDIS activities and historical NEVDIS reserves brought forward. This reserve is separate to the other activities of Austroads.

(o) Comparative figures

Comparative figures have been adjusted to conform to changes in presentation for the current financial year, where required by Accounting Standards.

(p) Critical accounting estimates

The directors evaluate estimates and judgements incorporated into the financial statements based on historical knowledge and best available current information. Estimates assume a reasonable expectation of future events and are based on current trends and economic data, obtained externally and within the Company.

Key Judgments – Doubtful Debts Provision

Except as disclosed in the financial statements, the directors have assessed each debtor and believe that the full amount of debtors is recoverable.

(q) New accounting standards for application in future periods

Certain Australian Accounting Standards have recently been issued or amended but do not have mandatory application for the 30 June 2017 reporting period. The director's assessment of the impact of new standards and interpretations will not affect any of the amounts recognised in the financial statements.

2017 **2016**
\$ \$

Note 2 — Revenue**(a) Member Contributions**

Membership Contributions	1,072,200	1,051,000
Membership Contributions (NEVDIS)	2,042,200	2,042,200
Work Program Contributions	13,024,150	12,770,000
	<u>16,138,550</u>	<u>15,863,200</u>

(b) Special Programs and Projects

DIRD – Australian Bicycle Council Secretariat	129,150	165,000
IPWEA	25,000	-
AGD Funding for Project RS2028	-	60,000
Willingnes to Pay Study	1,061,500	-
NEVDIS:		
PPSR Enhancements Recovery	2,500,000	1,554,148
VIRS Commercial Phase	1,193,596	836,085
Safety Recalls	1,069,296	732,352
AEC Extract Charges	211,522	208,072
Data Extracts	16,512	14,713
DVS Private Sector	4,101,267	3,025,493
VSA income	26,950	9,450
WMI income	18,200	5,950
P2V Income - Vehicle	281,418	-
RAV Project	45,747	-
	<u>10,680,158</u>	<u>6,611,263</u>

(c) Publications

Gross Sales Revenue	421,451	365,355
Royalties	13,376	3,407
	<u>434,827</u>	<u>368,762</u>

(d) Interest Received

Short Term Investments	274,769	275,348
Short Term Investments (NEVDIS)	224,350	130,854
Rental Bond Deposit	256	1,118
Rental Bond Deposit (NEVDIS)	8,663	11,475
	<u>508,038</u>	<u>418,795</u>

Note 2 — Revenue (continued)**(e) Other Income**

Net profit on sale of non-current assets	-	5,630
Other income (NEVDIS)	78,027	13,664
	<u>78,027</u>	<u>19,294</u>

Total revenue

27,839,600 23,281,314

Note 3 — Expenses**(a) Corporate**

Salaries and Related Charges	807,243	676,839
Salaries and Related Charges (NEVDIS)	1,499,731	1,002,774
Program Management	1,635,508	775,176
Corporate Services	30,922	58,927
Depreciation	39,151	31,600
Other National Office Expenses	397,809	394,289
	<u>4,410,364</u>	<u>2,939,605</u>

(b) Work Program

Technology	-	4,369,448
Safety	3,627,471	1,414,315
Assets	6,870,331	3,089,850
Network	1,653,634	2,012,609
Freight	-	1,245,840
Registration and Licensing	-	786,404
CAV	218,059	-
	<u>12,369,495</u>	<u>12,918,466</u>

(c) Specific Projects

Indigenous Learner Driver Tool Kit	-	11,589
Cooperative ITS Project Director	-	272,037
DIRD - Australian Bicycle Council Secretariat	129,147	165,000
AFTD Printing	44,508	-
AFTD Future Delivery	10,120	-
International Participation	65,170	55,042
Austroads ARRB Fellowship	30,000	60,000
Redevelop/Ongoing Austroads Databases and Publications Website	21,300	24,640
National Safety Barrier Assessment Panel - Independent Consultant	21,276	26,044
Review of the NGTSM	123,127	271,414
CPEE Support	26,000	16,000
Support to ALGA Reps	10,156	2,831
Cooperative ITS Non ARRB Contracts	-	25,432
In Depth Study - ARRB Project	-	18,150
Value of Travel Time Willingness	235,570	-
Australian Standards Development Related Activity	-	8,000
Discussion Paper Future of Road Authorities and Funding Issues	24,897	-
Austroads Guide online analysis	29,050	8,450
	<u>770,321</u>	<u>964,629</u>

Notes to the Financial Statements for the Year Ended 30 June 2017

	2017 \$	2016 \$		2017 \$	2016 \$
Note 3 — Expenses (continued)			Note 7 — Plant and Equipment		
(d) Publications			NON-CURRENT		
Cost of Sales	68,311	52,023	Furniture and Office Equipment		
Production and Distribution Management	42,000	42,000	At Cost	200,317	197,938
	<u>110,311</u>	<u>94,023</u>	Accumulated depreciation	(136,140)	(109,471)
				<u>64,177</u>	<u>88,467</u>
(e) NEVDIS expenses			NON-CURRENT		
Fujitsu Subscription and Operating Costs	2,524,631	2,212,575	Furniture and Office Equipment (NEVDIS)		
RMS NEVDIS Administration Unit and Salaries	-	563,170	At Cost	287,710	268,421
NEVDIS Projects	34,131	86,286	Accumulated depreciation	(119,709)	(27,282)
Amortisation	52,299	795		<u>168,001</u>	<u>241,139</u>
Depreciation	92,426	27,282	Total Plant and Equipment	<u>232,178</u>	<u>329,606</u>
Rent	121,262	118,821			
Other	204,349	182,183	Note 8 — Intangible Assets		
	<u>3,029,098</u>	<u>3,191,112</u>	NON-CURRENT		
Total Expenditure	<u>20,689,589</u>	<u>20,107,835</u>	Computer Software (NEVDIS)		
			At Cost	192,350	107,303
			Accumulated depreciation	(53,094)	(795)
				<u>139,256</u>	<u>106,508</u>
			Work in Progress - Computer Software	319,513	-
			Total Intangible Assets	<u>458,769</u>	<u>106,508</u>
Note 4 — Cash and Cash Equivalents			Note 9 — Trade and Other Payables		
CURRENT			CURRENT		
Cash at bank and on hand	1,792,350	1,575,595	Trade and Other Payables	2,671,442	2,752,413
Cash at Bank (NEVDIS)	1,005,304	759,365	Trade and Other Payables (NEVDIS)	324,501	469,342
Short-term deposits and deposits at call	9,900,000	8,400,000	Net Payable to ATO	79,397	-
Short-term deposits and deposits at call (NEVDIS)	11,300,000	6,500,000	Accrued Expenses	568,888	252,813
	<u>23,997,654</u>	<u>17,234,960</u>	Accrued Expenses (NEVDIS)	204,259	193,383
				<u>3,848,487</u>	<u>3,667,951</u>
Cash at the end of the financial year is reconciled to the statement of cash flow as follows:			Note 10 — Income Received in Advance		
Cash and cash equivalents	<u>23,997,654</u>	<u>17,234,960</u>	CURRENT		
			Income Received in Advance	-	250,000
				<u>-</u>	<u>250,000</u>
Note 5 — Trade and Other Receivables			Note 11 — Provision for Employee Benefits		
CURRENT			CURRENT		
Trade debtors	33,176	32,120	Provisions for Annual Leave	93,228	91,856
Trade debtors (NEVDIS)	249,419	473,615	Provisions for Annual Leave (NEVDIS)	61,630	44,669
Sundry and other debtors (NEVDIS)	1,769,072	1,315,782	Provisions for Long Service Leave	68,897	57,820
Net Receivable from ATO	-	98,965		<u>223,755</u>	<u>194,345</u>
Accrued Income	59,103	74,134	NON-CURRENT		
	<u>2,110,770</u>	<u>1,994,616</u>	Provisions for Long Service Leave (NEVDIS)	50,021	28,657
			Provisions for Long Service Leave	65,241	42,890
Note 6 — Other Assets				<u>115,262</u>	<u>71,547</u>
CURRENT					
Prepayments	38,861	44,705			
Prepayments (NEVDIS)	129,166	105,406			
Rental Deposit Bond	54,975	-			
	<u>223,002</u>	<u>150,111</u>			
NON-CURRENT					
Rental Deposit Bond	-	54,015			
Rental Deposit Bond (NEVDIS)	63,761	62,646			
	<u>63,761</u>	<u>116,661</u>			

Notes to the Financial Statements for the Year Ended 30 June 2017

Note 12 — Members' Guarantee

The Memorandum of Association of the Company provides that the liability of members is limited and that every member of the Company undertakes to contribute to the assets of the Company, in the event of it being wound up while he is a member, or within one year after he ceases to be a member and of the costs, charges and expenses of winding up and of the adjustment of rights of the members among themselves, such amount as may be required, not exceeding ten dollars (\$10) per member.

	2017	2016
	\$	\$

Note 13 — Cash Flow Information

Reconciliation of profit from ordinary activities to net cash generated from operating activities

Profit for the year	7,150,011	3,173,479
Adjustment for non-cash-flow items:		
- Depreciation and amortisation	183,876	59,677
Change in operating assets and liabilities:		
- (Increase) in trade and other receivables	(116,154)	(629,060)
- (Increase) in other assets	(19,991)	(105,173)
- Increase in trade and other payables	180,536	536,592
- (Decrease)/increase in income received in advance	(250,000)	190,000
- Increase in provision for employee benefits	73,125	115,393
Net Cash Generated from Operating Activities	7,201,403	3,340,908

Note 14 — Remuneration of Directors

No remuneration was paid or payable to directors in respect to or during the financial year.

Note 15 — Remuneration of Auditors

During the year, the auditor of the company earned the following remuneration:

	2017	2016
Audit of the financial statements	21,800	20,500
Other services	9,300	4,700
	<u>31,100</u>	<u>25,200</u>

Note 16 — Lease Commitments

Operating Lease Commitments – being for the rent of office:

Payable – minimum lease payments		
- Not later than 12 months	275,374	263,380
- Between 12 months and 5 years	259,379	534,753
	<u>534,753</u>	<u>798,133</u>

There are no other lease expenditure commitments as at 30 June 2017.

Note 17 — Capital Commitments

Contracted for:

NEVDIS re-platform and NEVDIS re-write softwares projects	1,152,005	-
Less: Paid to 30 June 2017	(220,476)	-
Remaining Commitment	<u>931,529</u>	<u>-</u>

There are no other capital expenditure commitments contracted for as at 30 June 2017.

Note 18 — Contingent Liabilities or Assets

At 30 June 2017, the Company has no contingent liabilities or assets (2016: Nil).

Note 19 — Matters Subsequent to the End of the Financial Year

There were no subsequent events that occurred prior to the end of the financial year.

Note 20 — Company Details

The registered office and principal place of business of the Company is: Level 9, 287 Elizabeth Street, SYDNEY NSW 2000

Directors' Declaration for the Year Ended 30 June 2017

The directors of Austroads Ltd. ("the Company") have determined that the Company is not a reporting entity, and that this special purpose financial report should be prepared in accordance with the accounting policies outlined in Note 1 to the financial statements.

The directors declare that the financial reports and notes set out on pages 50 to 55, are in accordance with the *Corporations Act 2001*, and:

- The financial statements are in accordance with the *Corporations Act 2001* and:
 - comply with applicable Accounting Standards; and
 - give a true and fair view of the Company's financial position as at 30 June 2017 and of its performance for the financial year ended on that date in accordance with the accounting policies described in Note 1 of the financial statements.
- In the directors' opinion, there are reasonable grounds to believe that the Company will be able to pay its debts as and when they become due and payable.

This declaration is made in accordance with a resolution of the directors.



Neil Scales OBE
Chair
Dated this 15th day of September 2017

Independent Auditor's Report



**INDEPENDENT AUDITOR'S REPORT
TO THE MEMBERS OF AUSTRROADS LIMITED
ABN 16 245 787 323**

Report on the Financial Report

Opinion

We have audited the special purpose financial report of Austroads Limited "the Company", which comprises the statement of financial position as at 30 June 2017, statement of profit or loss and other comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, notes comprising a summary of significant accounting policies and other explanatory information.

In our opinion, the accompanying financial report of Austroads Limited is in accordance with the *Corporations Act 2001*, including:

- (a) giving a true and fair view of the Company's financial position as at 30 June 2017 and of its performance for the year then ended; and
- (b) complying with Australian Accounting Standards to the extent described in Note 1, and the *Corporations Regulations 2001*.

Basis for Opinion

We conducted our audit in accordance with Australian Auditing Standards. Our responsibilities under those standards are further described in *the Auditor's Responsibilities for the Audit of the Financial Report* section of our report. We are independent of the Company in accordance with the auditor independence requirements of the *Corporations Act 2001* and the ethical requirements of the Accounting Professional and Ethical Standards Board's APES 110 *Code of Ethics for Professional Accountants* "the Code" that are relevant to our audit of the financial report in Australia. We have also fulfilled our other ethical responsibilities in accordance with the Code.

We confirm that the independence declaration required by the *Corporations Act 2001*, which has been given to the directors of the Company, would be in the same terms if given to the directors as at the time of this auditor's report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of Matter – Basis of Accounting

We draw attention to Note 1 to the financial report, which describes the basis of accounting. The financial report has been prepared for the purpose of fulfilling the directors' financial reporting responsibilities under the *Corporations Act 2001*. As a result, the financial report may not be suitable for another purpose. Our opinion is not modified in respect of this matter.



**INDEPENDENT AUDITOR'S REPORT
TO THE MEMBERS OF AUSTRROADS LIMITED
ABN 16 245 787 323**

Other Information

The directors are responsible for the other information. The other information comprises the information included in the Company's annual report for the year ended 30 June 2017, but does not include the financial report and the auditor's report thereon.

Our opinion on the financial report does not cover the other information and accordingly we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial report, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial report or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of the Directors for the Financial Report

The directors of the Company are responsible for the preparation of the financial report that gives a true and fair view and have determined that the basis of preparation described in Note 1 to the financial report is appropriate to meet the requirements of the *Corporations Act 2001* and is appropriate to meet the needs of the members. The directors' responsibility also includes such internal control as the directors determine is necessary to enable the preparation of a financial report that gives a true and fair view and is free from material misstatement, whether due to fraud or error.

In preparing the financial report, the directors are responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Company or to cease operations, or have no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Financial Report

Our objectives are to obtain reasonable assurance about whether the financial report as a whole is free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Australian Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of this financial report.

**INDEPENDENT AUDITOR'S REPORT
TO THE MEMBERS OF AUSTRROADS LIMITED
ABN 16 245 787 323**

As part of an audit in accordance with the Australian Auditing Standards, we exercise professional judgment and maintain professional scepticism throughout the audit. We also:

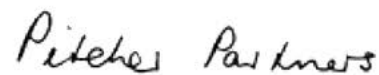
- Identify and assess the risks of material misstatement of the financial report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial report or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial report, including the disclosures, and whether the financial report represents the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.



C MILLINGTON
Partner

20 September 2017



PITCHER PARTNERS
Sydney

Abbreviations

AAPA	Australian Asphalt Pavement Association
ACMA	Australian Communications Media Authority
AS	Australian Standard
ABC	Australian Bicycle Council
ACT	Australian Capital Territory
ALGA	Australian Local Government Association
ANZPAA	Australia New Zealand Policing Advisory Agency
ARRB	ARRB Group
ATOG	Australasian Tunnel Operators Group
ATS	Australasian Tunnelling Society
Auststab	Pavement Recycling and Stabilisation Association
BITRE	Bureau of Infrastructure, Transport and Regional Economics
C-ITS	Cooperative Intelligent Transport Systems
DSG Tas	Department of State Growth Tasmania
DIPL NT	Department of Infrastructure, Planning and Logistics Northern Territory
DIRD	Department of Infrastructure and Regional Development
DJCS ACT	Directorate of Justice and Community Safety Australian Capital Territory
DLP NT	Department of Lands and Planning Northern Territory
DoI NT	Department of Infrastructure Northern Territory
DoT NT	Department of Transport Northern Territory
DoT WA	Department of Transport Western Australia
DTMR Qld	Department of Transport and Main Roads Queensland
DPTI SA	Department of Planning, Transport and Infrastructure South Australia
DVS	Document Verification Service
IPWEA	Institute of Public Works Engineering Australia
ITS	Intelligent Transport Systems
LMA	Linking Melbourne Authority
LTPP	Long Term Pavement Performance
MoT NZ	Ministry of Transport New Zealand
MR WA	Main Roads Western Australia

NAU	NEVDIS Administration Unit
NBN	National Broadband Network
NEVDIS	National Exchange of Vehicle and Driver Information System
NHVR	National Heavy Vehicle Regulator
NMVTRC	National Motor Vehicle Theft Reduction Council
NPI	National Performance Indicators
NRSEG	National Road Safety Executive Group
NRSS	National Road Safety Strategy 2011-2020
NSW	New South Wales
NTC	National Transport Commission
NZ	New Zealand
NZTA	New Zealand Transport Agency
PBS	Performance Based Standards
PMB	Polymer Modified Binders
PDF	Portable Document Format
WRA	World Road Association
PPSR	Personal Property Security Register
REAAA	Road Engineering Association of Asia and Australasia
RMS NSW	Roads and Maritime Services New South Wales
RUE	Road User Effects
SA	Standards Australia
SMA	Stone Mastic Asphalt
TAMS ACT	Department of Territory and Municipal Services Australian Capital Territory
TCCS	Transport Canberra and City Services Directorate
TfNSW	Transport for NSW
TISOC	Transport and Infrastructure Senior Officials' Committee
VIC	Victoria
VicRoads	Roads Corporation Victoria
VIN	Vehicle Identification Number
VIRS	Vehicle Information Request System
WA	Western Australia



nevdis™
National Exchange of Vehicle &
Driver Information System

Level 9, 287 Elizabeth Street
Sydney NSW 2000, Australia

Phone: +61 2 8265 3300

austroads@austroads.com.au

www.austroads.com.au | www.onlinepublications.austroads.com.au