Annual Report
2018–19

Austroads

30 YEARS

COLLABORATION
HARMONISATION
INNOVATION

Contents

Austroads Annual Report 2018–19

Published: November 2019
Austroads publication number: AP-C20-19
ISBN: 978-1-925854-50-3

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Cover photo: Mandurah Railway Line on the Kwinana Freeway, Perth WA.

Overview

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

Austroads members are collectively responsible for managing more than 900,000 kilometres of roads valued at more than $250 billion, representing the single largest community asset in Australia and New Zealand.

Austroads' 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 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.

Austroads also acquired Transport Certification Australia Ltd (TCA) in January 2019, recognising the importance of telematics and related intelligent technologies in supporting transport reforms now and in the future.

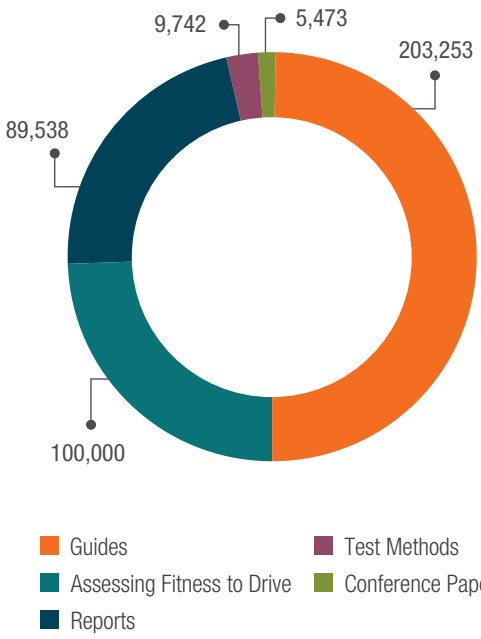
Austroads provides a collective approach that delivers value for money, encourages shared knowledge and drives consistency for road users.

Members (at 30 June 2019)

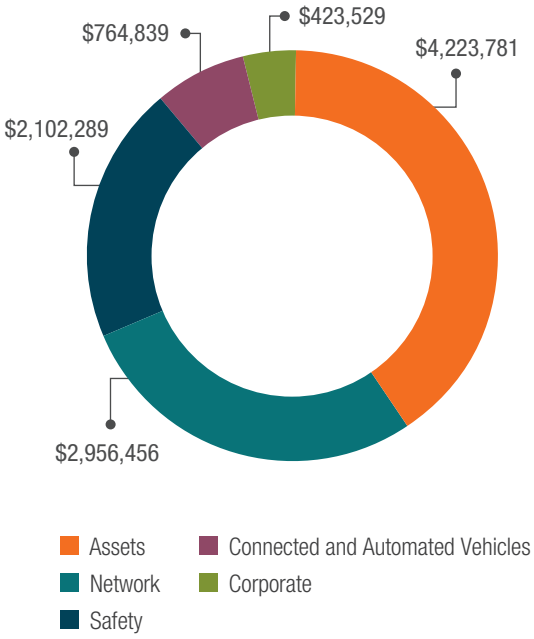
- Roads and Maritime Services New South Wales (at 30 June 2019)
- Roads Corporation Victoria
- Queensland Department of Transport and Main Roads
- Main Roads Western Australia
- Department of Planning, Transport and Infrastructure South Australia
- Department of State Growth Tasmania
- Department of Infrastructure, Planning and Logistics Northern Territory
- Transport Canberra and City Services Directorate, Australian Capital Territory
- Commonwealth Department of Infrastructure, Transport, Cities and Regional Development
- Australian Local Government Association
- New Zealand Transport Agency

Highlights

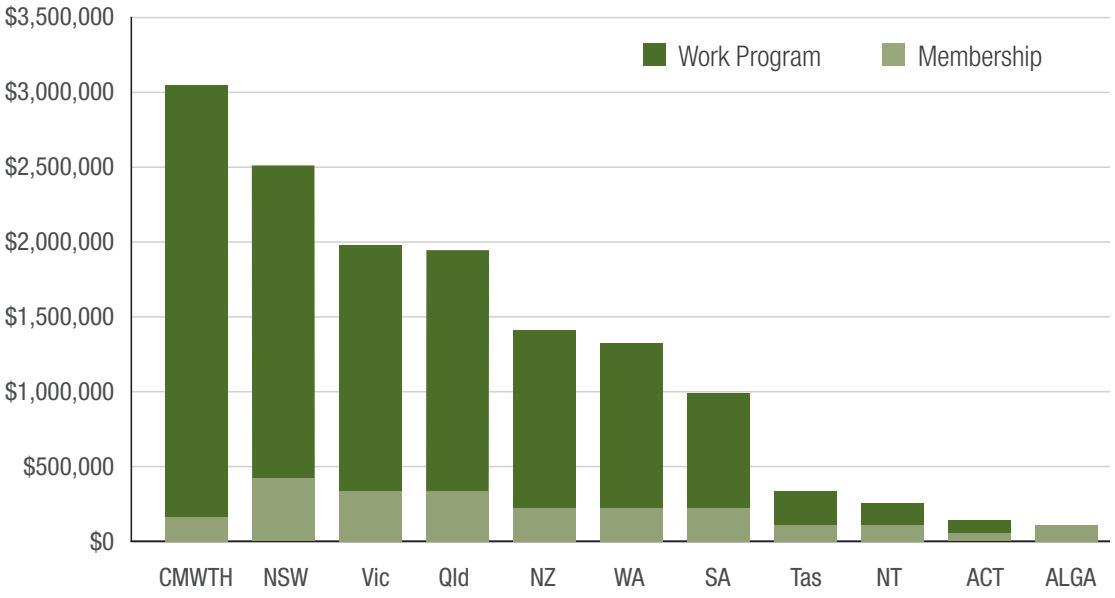
PUBLICATION DOWNLOADS 2018–19



WORK PROGRAM EXPENDITURE 2018–19



AUSTROADS FUNDING CONTRIBUTION SHARES 2018–19



2018–19 HIGHLIGHTS:

$10.4 million research work program expenditure

27.2 full-time equivalent staff

32 projects completed

235 million NEVDIS transactions

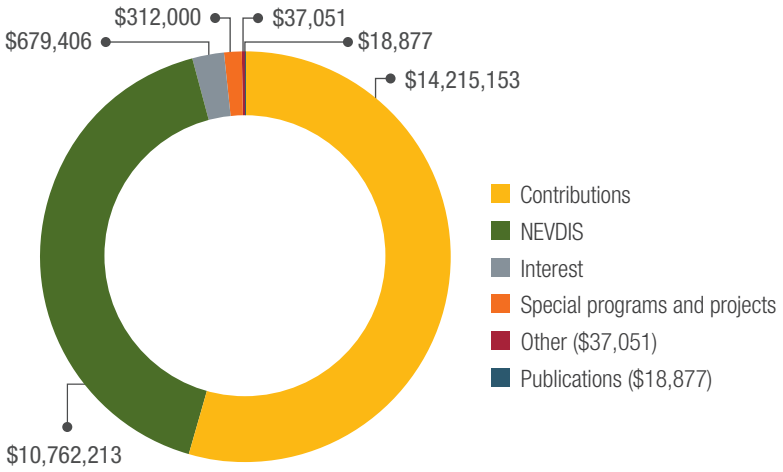
132 publications and webinars produced

400,000 publications accessed

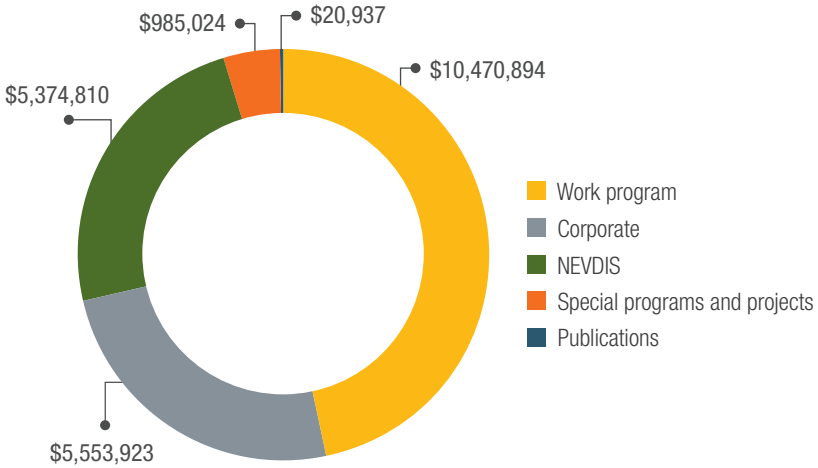
2.7 million web page views

17,600 webinar participants

INCOME 2018–19



EXPENDITURE 2018–19



Neil Scales, OBE

> This year marks the penultimate year of our 2016–2020 strategic plan. The plan has successfully provided a clearer project focus for Austroads and delivered a sharper and more agile approach.

Chair's Report

On 1 July 2019 Austroads celebrated its 30th anniversary, but the history of the organisation stretches back to the 1930s. Throughout its history, Austroads has provided a collective approach that delivers value for money, encourages shared knowledge and drives consistency for road users.

This year marks the penultimate year of our 2016-2020 strategic plan. The plan has successfully provided a clearer project focus for Austroads and delivered a sharper and more agile approach.

The high level of respect afforded Austroads is due to the value it returns to its member agencies, which is largely driven by the quality of the research the organisation commissions, the guidance it produces and its reputation for strong management. These strengths influenced the decision by Ministers at the May 2018 Transport Infrastructure Council meeting to recommend that Transport Certification Australia (TCA) be folded into Austroads. Austroads' Board members endorsed this decision at the July 2018 meeting and on 1 January, after thorough legal and due diligence processes had been completed, Austroads acquired TCA. The acquisition has enabled a better use of resources and allowed both businesses to capitalise on the different expertise of staff. I recognise that these types of organisational changes can be challenging, and congratulate staff at both organisations for the smooth transition and the positive spirit brought to the transition.

The Austroads Board has undergone significant change over the year with a number of member agencies undergoing restructures. Ken Kanofski (Roads and Maritime Services NSW), Emma Thomas (Transport Canberra and City Services), Judith Formston (Department of Planning, Transport and Infrastructure, SA) and Anita Curnow (VicRoads) resigned from the Board during the year. We welcomed Brett Gliddon (New Zealand Transport Agency) and Tony Braxton-Smith (Department of Planning, Transport and Infrastructure, SA). I am looking forward to working with the Board members as we start preparing for the next strategic plan which will lead the organisation through to 2024.

Congratulations are due to each of the people recognised with Austroads awards. The awards recognise the contribution of individuals to the Austroads work program. In particular, I acknowledge the work of the people who received outstanding service awards.

- **John Spathonis (TMR QLD)** provided an outstanding contribution to Austroads and its activities over many years. John managed the Austroads Technology Program from 2013–2016. John has been a key contributor to technology development and putting research into practice through the review and update of the Guides, national specifications, test methods and Australian Standards.
- **Parvez Shah (RMS NSW)** has provided an outstanding contribution to Austroads and to Australasian bridge managers over the last 11 years, especially on the topics of bridge design and assessment. Parvez has been the NSW representative on the Austroads Bridge Task Force since 2008. From 2011–17 he was the Austroads representative on the Standards Committee revising AS 5100-2017. He has provided high-level engineering and structural inputs for numerous Austroads projects either as project manager or member of working groups.
- **Natalie Lockwood (Austroads)** was recognised for her outstanding contribution to Austroads including her leadership of the Network Program from June 2016–June 2019, her work for the Safety Program as the Program Assistant from July 2013–June 2016 and the delivery of Safe System Infrastructure Workshops, and her work for the Assets Program as the Program Assistant from July 2009–June 2012. Natalie was project manager for a number of Austroads projects, including two significant strategic priority projects.

Project managers, along with our Task Force and Working Group representatives, often undertake Austroads work in addition to their regular duties. On behalf of the Board I offer thanks for your ongoing commitment and energy. We recognise that this can represent a significant additional workload and Austroads is grateful for your assistance.

I would also like to thank the Austroads national office staff for their hard work and commitment during the year. In particular, Nick Koukoulas, Chief Executive who continues to provide excellent leadership. David Francis, Chief Operating Officer, has been with Austroads for more than 16 years and will retire in October 2019. His depth of experience and exceptional support of the Board and staff will be sorely missed.

The Austroads Program Managers and Coordinators have made an outstanding contribution to the work program. The quality of Austroads outputs is a reflection of their efforts. The National Exchange of Vehicle and Driver Information System (NEVDIS) team has also delivered a excellent result both financially and operationally. NEVDIS income is now funding the organisation's administrative costs, allowing member contributions to be wholly used in the research work program.

As we turn to 2019-20, we will continue with our important task of delivering an improved and sustainable Australasian road transport network, while also considering how Austroads will reshape itself to meet the changing needs of our members.

Thank you to everyone who has contributed to our work over the decades, and to those who continue to invest their expertise and energy in delivering better road transport for all.

Neil Scales, OBE
Chair, Austroads

"As we turn to 2019–20, we will continue with our important task of delivering an improved and sustainable Australasian road transport network, while also considering how Austroads will reshape itself to meet the changing needs of our members.

Chief Executive's Report

This year has been one of significant structural change for Austroads with the acquisition of Transport Certification Australia (TCA) on 1 January 2019. The decision for TCA to be owned by Austroads was made by the Transport and Infrastructure Council (TIC) following a review of national transport bodies in 2018. The Council recognised the essential role TCA performs in providing advisory services, development and implementation of programs and their associated administration, including management of the National Telematics Framework. Importantly, Council recognised that the use of telematics and related intelligent technologies will continue to support surface-based transport reforms now and into the future. TCA will continue as a separate corporate entity reporting through a Board but ownership of TCA will bring synergies and efficiencies to both businesses.

In response to the ongoing delivery of the Strategic Plan 2016-2020 and the direction of the Board, we have continued to reduce the number of projects undertaken but increased their complexity and potential impacts. The nature of our work means that it can take some years for the impacts of our projects to be realised. This year we have introduced a series of case studies into the annual report to demonstrate how our projects are delivering value to member agencies beyond their completion.

We are once again challenged by the delivery of projects on time. After a sterling performance last year, the results in 2018-19 are less pleasing with five projects more than six months late. This is a key performance indicator for Austroads and Programs are required to report monthly on project progress. I know that our Project Managers, Program Coordinators, Program Managers and National Office staff are making every effort to complete these delayed projects.

NEVDIS continues to provide strong financial returns, as shown in the financial summary. The NEVDIS team are to be congratulated for their performance throughout the year.

The NEVDIS re-platforming project has been completed and is already delivering value with increased flexibility. The National Heavy Vehicle Registration System was delivered on time and on budget on 1 July 2018 and has run successfully for 12 months. NEVDIS service demands continue to increase which has allowed us to cap the financial contributions by member agencies and support initiatives such as making the Austroads Guides freely available, which was also delivered on 1 July 2018.

The Austroads Guides continue to be developed as highly regarded and valued technical resources, adopted by all road agencies in Australia and New Zealand and used across the world. We are now seeing research outcomes incorporated into the Guides more quickly with 32 updates issued during the year.

Austroads Online went live on 3 September 2018. The new website (austroads.com.au) combined our corporate and publications websites into a single site, provided the Austroads Guides as an online resource, and delivered private working spaces for Task Forces and Working Groups. The site had close to 34,000 registered users by the end of the financial year and more than 200,000 Guides were downloaded in PDF format and 130,000 online Guide pages were viewed. We have embarked on Stage 2 development work on the site starting with user experience testing.

As Neil has mentioned, David Francis, Chief Operating Officer, will be retiring in October 2019. He will be missed by national office staff, the Board and the many people he works with from stakeholder and member organisations. I wish him all the very best for the future. Other significant staff changes during the year were the appointment of John Wall as Connected and Automated Vehicles Program Manager and the appointment of Richard Delplace as Network Program Manager. John joined us from Transport for NSW where he was Manager Road Safety Technology and replaced Stuart Ballingal who has since taken up the

Nick Koukoulas

role of Executive General Manager of Transport Certification Australia. Richard, an engineer and certified Project and Program Manager with 17 years experience, replaced Natalie Lockwood. Natalie was awarded an Outstanding Service Award for her valuable contribution to Austroads, including her leadership of the Network Program from 2016 to 2019. Natalie has taken up a position at the Australian Road Research Board. We wish her all the best in her new role.

I would like to thank the Austroads Chair, Deputy Chair and Board members; Austroads staff, Program Managers and Program Coordinators; our Task Force and Working Group members; and Project Managers for their work this year. It has been a challenging but rewarding year and I am looking forward to working with the Board to develop the new Strategic Plan over the next 12 months.

Nick Koukoulas
Chief Executive, Austroads

2018–19 Financial Summary

INCOME AND EXPENDITURE TO 30 JUNE 2019

	Austroads	NEVDIS	Consolidated
Revenue	13,231,464	12,793,236	26,024,700
Expenses	-15,318,214	-7,087,374	-22,405,588
Surplus/deficit for the year	**-2,086,750**	**5,705,862**	**3,619,112**

STATEMENT OF FINANCIAL POSITION AS AT 30 JUNE 2019

	Austroads	NEVDIS	Consolidated
Total assets	8,386,696	29,348,680	37,735,376
Total liabilities	-2,516,624	-866,690	-3,383,314
Net assets	**5,870,072**	**28,481,990**	**34,352,062**
Accumulated surplus b/f	7,956,822	22,776,128	30,732,950
Surplus/deficit for the year	-2,086,750	5,705,862	3,619,112
Total equity	**5,870,072**	**28,481,990**	**34,352,062**

Work Program

Austroads tracks progress on all projects, and reports to the Board at each meeting on the overall delivery of the work program.

There were 104 projects approved in 2018–19, with 70 projects continuing from previous financial years and 34 new projects.

Of the 50 projects due for completion in 2018–19, 15 were completed on schedule.

During 2018–19, 32 projects were completed. In 2019–20, 72 projects will carry over from 2018–19 and there will be 35 new projects, making 107.

STATUS OF AUSTROADS WORK PROGRAM

Year	Number of projects						
	Completed	Cancelled or Deferred	> 12 months + late	6–12 months late	< 6 months late	On time	Total Active Projects
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
2017–18	43	1	0	0	4	66	114
2018–19	32	0	2	3	12	55	104

Governance

Austroads Ltd is a company limited by guarantee under the Corporations Act 2001.

Austroads is governed by a Board of directors. There is currently one chief executive or a senior executive officer from each member organisation.

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

At its November 2018 meeting the Austroads Board determined new appointments to important leadership positions on the Board and Executive Committee.

Neil Scales OBE, Director-General of Queensland Department of Transport and Main Roads, was re-appointed Chair on 22 November 2018. The appointment is for a two-year term.

Shane Gregory, General Manager State Roads for the Department of State Growth, Tasmania, was also re-appointed Deputy Chair on 22 November 2018 for a two year term.

The Executive Committee, appointed at Austroads Board Meeting No. 32 in November 2018 until November 2019, was:

- Neil Scales DTMR QLD (Chair)
- Shane Gregory DoSG TAS (Deputy Chair)
- Nick Koukoulas (Chief Executive)
- Louise McCormick DIPL NT
- Alex Foulds DTICRD
- Ken Kanofski RMS NSW (ended 30 June 2019).

Austroads Board planning session, Perth, July 2019.

Activities

Austroads:

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 knowledge sharing by widely disseminating research outputs, conducting seminars and promoting the use of Austroads work.

Conducts business activities on behalf of Australasian road agencies.

Fosters international collaboration by engaging with and supporting international road organisations.

Structure

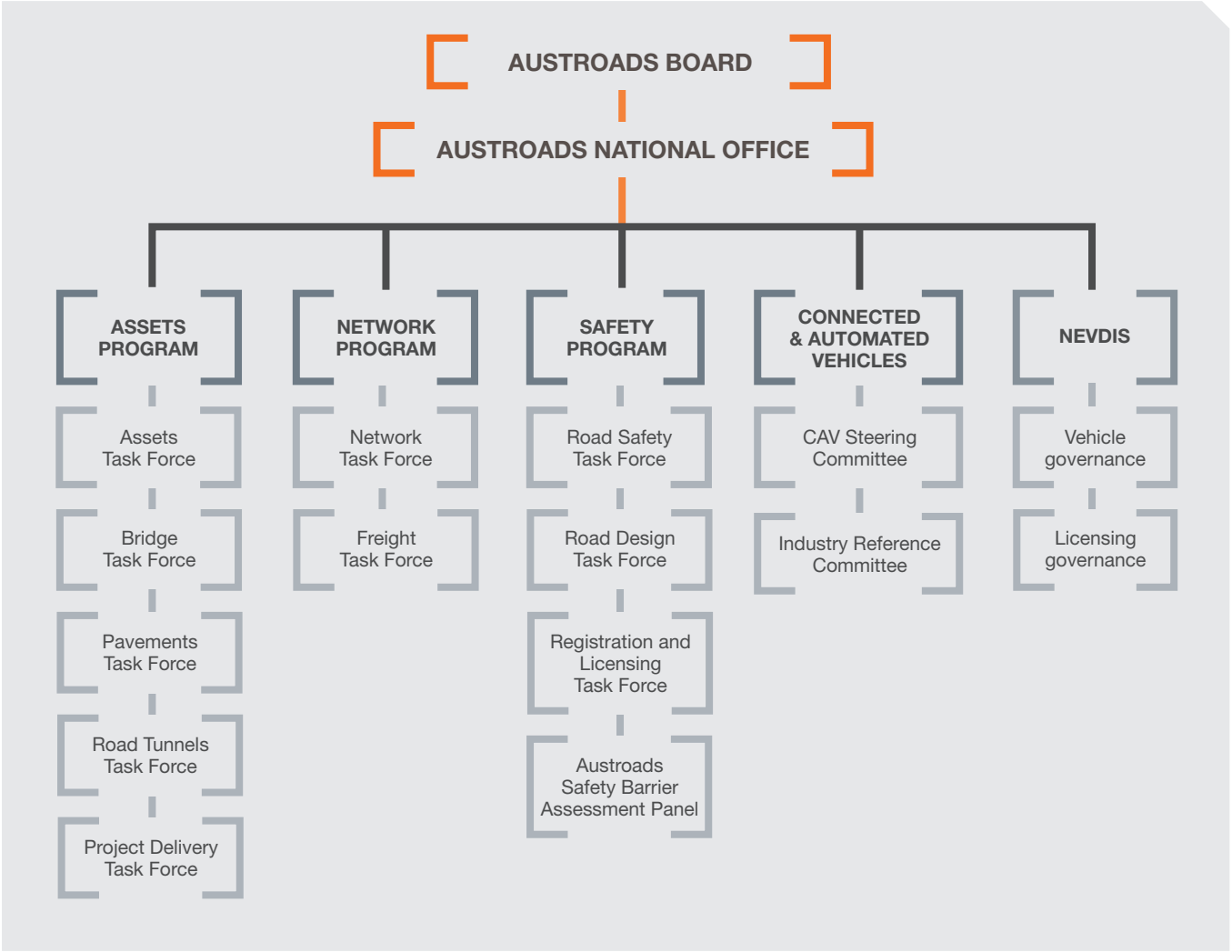
Austroads uses a program management approach to deliver the strategic plan.

Each program focuses on an operational area of the road system and undertakes a range of projects which contribute to improving road transport in Australia and New Zealand.

Austroads relies on the expertise of its member organisations to achieve its outcomes, and member organisation staff play an integral role in Austroads operations. This encourages a collegiate, collaborative approach and facilitates learning, development, sharing and a high level of consistency across jurisdictions.

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 Austroads' member and related organisations.

AUSTROADS MANAGEMENT STRUCTURE



Awards

Each year, Austroads Awards recognise the contribution of individuals from member organisations to our work program.

The people managing Austroads projects and serving on Task Forces and Working Groups often undertake that work in addition to their normal job. The awards acknowledge their efforts and commitment on which our success depends. In 2018-19, Austroads recognised the following people for their exceptional service.

Austroads Outstanding Service Award

JOHN SPATHONIS – QLD DTMR

John Spathonis served as the Austroads Program Manager for the Technology Program for three years from 2013–2016 and has a long history of involvement in Austroads activities. John represented Austroads on Standards Australia committees and chaired an Austroads sub-committee reviewing the bitumen sprayer test methods.

John celebrated 50 years of service with the Department of Transport and Main Roads in February 2019. Most recently, John has been working in research for the department and nationally through Austroads. John has been a key contributor to technology development and putting research into practice through the review and update of the Guides, national specifications, test methods and Australian Standards.

SHAH M PARVEZ (PARVEZ SHAH) – RMS NSW

Parvez Shah has provided an outstanding contribution to Austroads and bridge technology over the last 11 years, especially in relation to bridge design and bridge assessment.

Parvez has represented NSW on the Austroads Bridge Task Force since 2008 and has attended more than 40 meetings and arranged six meetings and site visits for the Task Force. From 2011–17 he represented Austroads revising three critical parts of AS 5100-2017, namely Part 1 (Scope and General Principles), Part 2 (Design Loads) and Part 7 (Bridge Assessment).

Parvez has provided high-level engineering and structural inputs for numerous Austroads projects either as project manager or a member of Working Groups. He also project managed the 2015 Austroads report *Improved bridge deterioration models, predictive tools and costs* (TS1837).

NATALIE LOCKWOOD – AUSTROADS

Natalie was awarded an Austroads Outstanding Service Award in recognition of her outstanding contribution to Austroads and its activities over an extended period, particularly for: her leadership of the Network Program; her work for the Safety Program from 2013–2016 and delivery of Safe System Infrastructure Workshops; and her work for the Assets Program from 2009–2012. Natalie project managed a number of Austroads projects, including two significant strategic priority projects: Safety at road worksites (BN2019), and Congestion management and network operations opportunities, technology data, mobility and guidance: Congestion and Reliability Stage 2 (NSP6090).

Austroads Special Commendation Awards

KARL CLOOS – TCCS ACT

Karl Cloos has been an active member of the Assets Task Force and various Working Groups including the Chief Engineers Group. He has been enthusiastically involved in asset management, and his contribution to Austroads and its outputs has been exceptional. Karl has also been the ACT Austroads member contact. He recently announced his retirement.

COLIN MCKAY – NZTA

Colin McKay's award is in recognition of his ongoing contribution to the work and objectives of Austroads through his exceptional work with the Project Delivery Task Force since 2005. The award is particularly for his role in developing and maintaining the Austroads *Guide to Project Delivery*, his input into other projects, and for sharing New Zealand experiences and expertise.

NICOLA BOYD – QLD DTMR

Nicola Boyd provided exceptional work on the Austroads Project AAM6165: Improve Asset Management, Safety and Project Efficiencies Through Balanced Telecommunications Legislation Changes (White Paper). Nicola consistently demonstrated a high level of commitment and determination with respect to this white paper and its importance to the member agencies of Austroads.

Austroads Achievement Awards: Assets Program

BARRY WRIGHT – NZTA

Barry Wright was recognised for his ongoing contribution to the Bridge Task Force in terms of participation and commitment to the objectives of Austroads and through his exceptional work on an important project for the Assets Program and Bridge Task Force: Optimised asset management for bridges (ABT6015).

TORILL PAPE – AECOM

Torill Pape was recognised for her exceptional work as lead consultant on the Austroads project ABT6015: Optimised asset management for bridges. Torill has consistently exceeded expectations on this project in the last year and demonstrated commitment to the Austroads core values in her deliverables.

PENNY DREW – VICROADS

Penny Drew provided ongoing contributions to the OHS Committee with a consistent input to board papers and other initiatives under the Austroads banner, such as the Asbestos Management Committee.

ERIK DENNEMAN – FORMERLY AAPA

Erik Denneman contributed to the advancement of pavements technology with development of the *Guide to Pavement Technology* and several 'Work Tips'.

TOM MCHUGH – MR WA

Tom McHugh was recognised for his outstanding contribution to the Assets Task Force with new proposal ideas, authorship, project management, project status updates and feedback on other project deliverables.

GEORGIA O'CIANIAN – DITCRD

Georgia O'Cianian provided an outstanding contribution to the Assets Task Force in terms of participation, knowledge sharing and generation of priority research proposals. She also developed and project managed an important project for the Assets Program and Assets Task Force: Data to support heavy vehicle road reform (AAM6068).

ULYSESS AI – ARRB

Ulysess Ai was recognised for his exceptional work as lead consultant on the Austroads Project: Data to support heavy vehicle road reform (AAM6068). Ulysess consistently exceeded expectations on this project and demonstrated commitment to the Austroads core values in his deliverables.

Austroads Achievement Awards: Network Program

WAYNE HARVEY – FORMERLY VICROADS

Wayne Harvey was recognised for his significant contributions to Austroads and the System Managers Working Group over many years, and for the successful delivery of the Network Program project: Standardisation of ITS technology asset-management datasets (NEG6026).

MICHAEL DAY – FORMERLY CANBERRA CITY SERVICES ACT

Michael Day provided valuable contributions to the System Managers Working Group over many years.

FERGUS TATE – FORMERLY NZTA

Fergus Tate was recognised for leading the Traffic Management Working Group over many years and the harmonisation of traffic management practice projects for Australia and New Zealand, including the successful delivery of the project: Passing lanes – safety and performance (NTM6025).

MATHEW FOGG – MAIN ROADS WA

Mathew Fogg was recognised for his project management and leadership of the freight project: Operations of automated heavy vehicles in remote and regional areas (NEF6029).

PAUL GAYNOR – TRANSPORT FOR NSW

Paul Gaynor was recognised for his successful project management of the freight project: Co-operative intelligent transport systems and freight productivity (NEF6023).

LISA KOGIOS – VICROADS

Lisa Kogios provided excellent project management, including collaborating with supply chain companies, for the complex freight project: Establishing extended hours delivery trials (NEF2095).

JEREMY BURDAN – VICROADS

Jeremy Burdan provided excellent project management and technical leadership for the Network project: Safe System in Austroads Guide to Traffic Management (NTM6021).

MELISSA O'BRIEN – FORMERLY NTC

Melissa O'Brien provided outstanding project management and technical knowledge of the freight project: Update the national guidelines on rest areas for heavy vehicles (NEF6027).

Austroads Achievement Awards: Safety Program

ANN-MARIE KNOX (AND THE SUPPORT FROM HER TEAM)

Ann-Marie Knox was recognised for her dedication and commitment to the objectives of Austroads and the Road Safety Task Force. Her leadership of the Safe Speed Theme Group and the group's productive knowledge sharing is appreciated by all jurisdictions.

ROD TROUTBECK – TROUTBECK & ASSOCIATES

Rod Troutbeck has provided a significant and outstanding contribution to improving road safety both nationally and internationally. He has worked extensively with Austroads and the award recognises Rod's unwavering commitment to achieving positive road safety outcomes.

TIM RISBEY – BITRE

Tim Risbey managed an important long-term project for the Safety Program and Road Safety Task Force: A national approach to measuring non-fatal crash outcomes. This project has improved the measurement and reporting of serious injury crashes by matching crash and hospital data. Tim has, quietly in the background, demonstrated an unwavering commitment to deliver a positive result for this project.

MICHAEL GILLIES – QLD DTMR

Michael Gillies managed an important long-term complex project for the Safety Program and Road Safety Task Force: Implementation of the Australian National Risk Assessment Model (ANRAM). The award recognises his development of supporting documentation, coordination of technical group meetings and provision of advice and support to jurisdictions – tasks above and beyond his normal responsibilities.

MICHAEL TZIOTIS – ARRB

Michael Tziotis has made a significant contribution to Austroads and its activities over a number of years, including his exceptional collaboration with many Task Forces covering disciplines of road design, road safety, traffic management, and tunnels. Michael is a fountain of knowledge across many disciplines. His role in supporting the development and maintenance of the Austroads *Guide to Road Design* over the last decade is notably recognised.

World Road Association

The World Road Association is an international road organisation with 122 member governments and some 2,500 road experts.

Both Australia and New Zealand are full country members. Austroads currently has full or corresponding representatives on 15 of the 18 World Road Association technical committees. The representatives provide regular progress reports on the work being conducted by their technical committee. The technical committee representatives are either members of, or have a close working relationship with, an Austroads Task Force or Working Group.

The World Road Association held its annual meetings in Yokohama through the week of 22 October 2018. During the week, meetings were held for the Strategic Planning Commission, the Executive Committee, the full Council of PIARC, the Communications Commission and the National Committees Group.

Nick Koukoulas was elected to formally join the Executive Committee and he was also voted in as Vice Chair to the Communications Commission. Nick presented to about 35 members of the National Committees meeting about the role and work of Austroads.

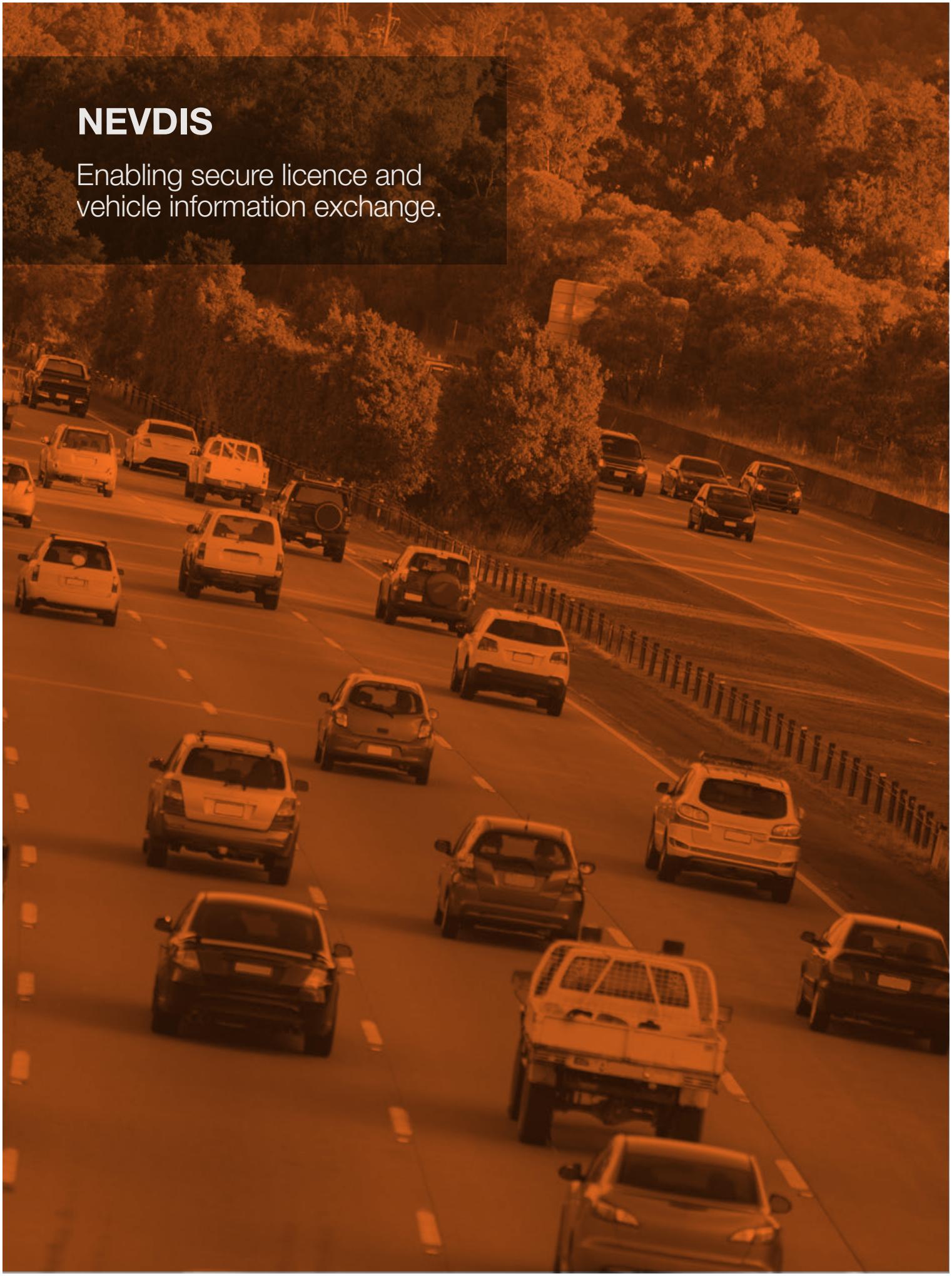
Ken Kanofski, First Delegate Australia and CEO of RMS NSW, travelled with Nick Koukoulas, to attend the meetings and to lead the Australasian bid for the World Road Congress 2023.

The bidding cities for the World Road Congress 2023 were Sydney, Prague and Kuala Lumpur. The Sydney bid team comprised the Hon Richard Court (Ambassador to Japan); Colin Jordan (Past President of PIARC), Ken Kanofski and Nick Koukoulas. The Sydney bid was of an exceptionally high standard, the most comprehensive and of greatest financial benefit to PIARC. Unfortunately, we lost to Prague, but the bid put Australasia, and specifically Sydney, front and centre to the Council and its 200 attendees.

Presenters and members of PIARC TC1.1 arranged an International Conference ‘Strategic Planning and Performance Monitoring of Road Transport Administrations’ with the Ukraine Ministry of Infrastructure and the City of Kiev.

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 state and territory jurisdictions who contribute information.

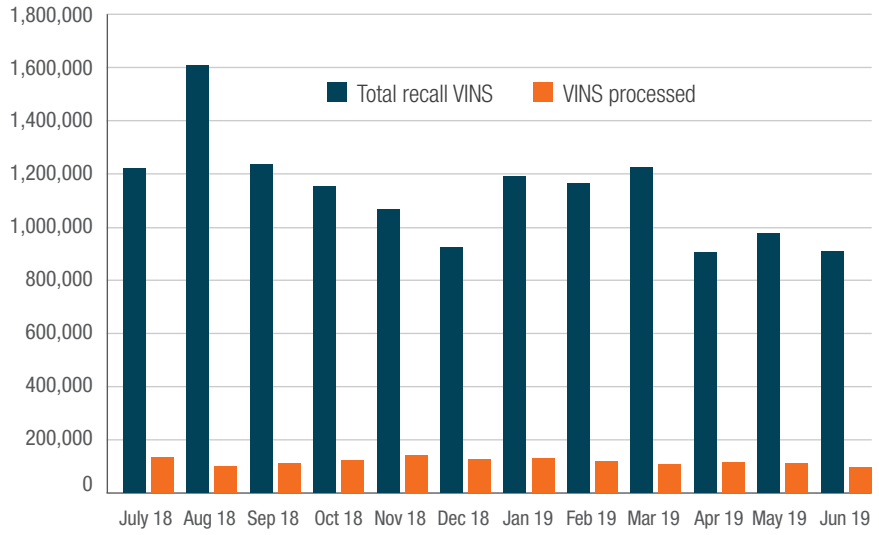
NEVDIS is a national system which enables road authorities to interact across state borders and directly supports the transport and automotive industries.

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

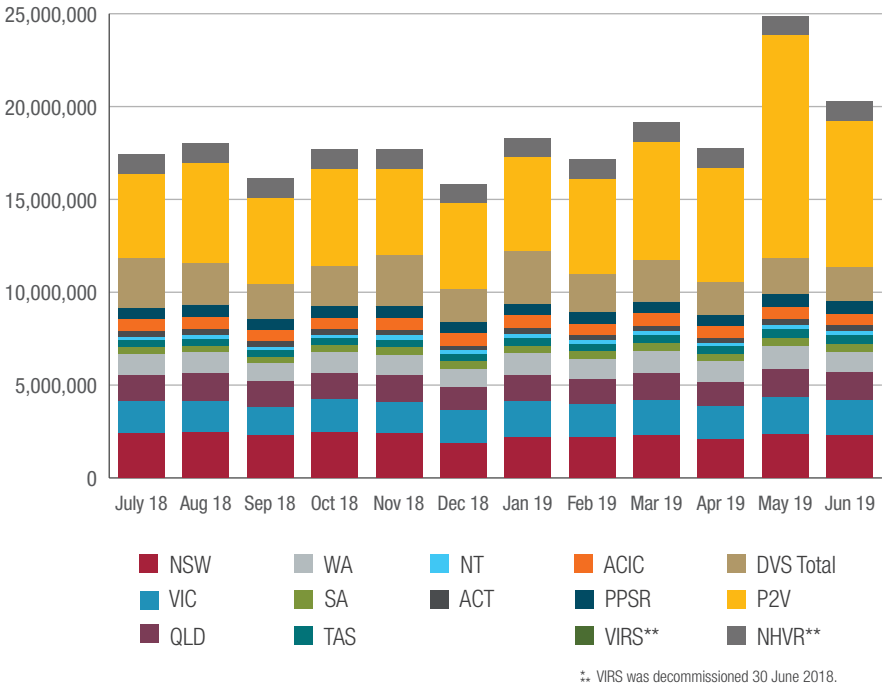
In addition to information supplied by road agencies, NEVDIS collects VIN data for compliance from vehicle wholesalers and information on stolen vehicles from police.

It also provides information to public and private sector organisations to facilitate provenance checking on vehicles, matching of biographic details on licenses, motor vehicle insurance underwriting and vehicle safety recalls.

NEVDIS VIN TRANSACTIONS 2018–19

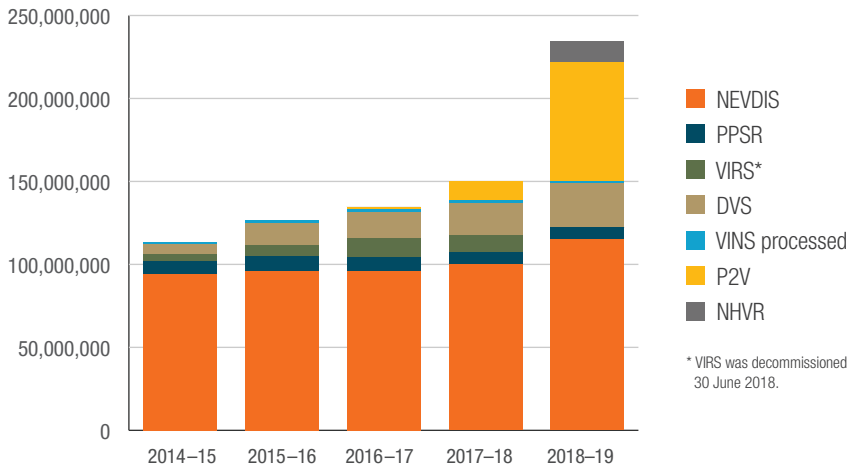


NEVDIS TRANSACTIONS 2018–19



** VIRS was decommissioned 30 June 2018.

NEVDIS TRANSACTIONS FIVE YEAR COMPARISON



* VIRS was decommissioned 30 June 2018.

Highlights

The NEVDIS system processed 235 million transactions in 2018–19, a 40% increase from 2017–18. This is primarily due to increases in safety recall activities, and extracts and growth in the volume of transactions seen through the Plate to VIN service.

NEVDIS participants and the National Heavy Vehicle Regulator have also increased their use of NEVDIS by 10%, and there has been strong growth of 51% in Document Verification Service transactions with the public sector.

Although NEVDIS utilisation has significantly increased, NEVDIS availability has remained at 99.9% of scheduled uptime.

Significant projects are:

- The NEVDIS **Re-platform** has been successfully completed, and the decommissioning of the legacy data centres and infrastructure is under way.

  NEVDIS is already benefitting from the new platform's flexibility by being able to quickly provide temporary infrastructure to aid the NEVDIS Re-write development work, and support quick and cost-effective Proof Of Concept works without having to commit to long-term costs.

- The NEVDIS **Re-write** is due for completion in late 2019, extended from mid-2018 to allow stakeholders to thoroughly test the new core application, and identify bug fixes and enhancements.

  The strategy to run the new system alongside the legacy system has proven invaluable in highlighting differences and preventing any material impact on end users.

- The **Wide Area Network** refresh has passed through vendor selection and an extended design process to accommodate various stakeholder relocations, and is being implemented. With no further disruptions, the project is on track for completion in late 2019.

- The **National Heavy Vehicle Registration System** has successfully completed one year of operation (1 July 2019) and will continue to evolve as the system is better integrated with the rewritten NEVDIS core application.

Additional services are being discussed with the National Heavy Vehicle Regulator and will be provided during 2019–20.

Takata airbag inflators continue to generate significant **safety recall** activity, and NEVDIS has continued to support vehicle manufacturers by conducting related safety recall extracts fee-free. This offer will continue through to 31 December 2020.

Since instigating this initiative, NEVDIS has provided over 22 million vehicle registered owner details to those conducting the recalls, facilitating the advice to these owners of the possible safety issues of their vehicles.

NEVDIS is also working with the Australian Competition and Consumer Commission (ACCC) to provide supporting data to help ratify manufacturer reported Takata Airbag rectification works.

The Plate to VIN service continues to be a strong growth area and new business demand has continued. NEVDIS is investigating additional vehicle data products and combinations as well as possible alternatives to the current transactional services.

The **Personal Property Security Register** transaction volumes have remained flat in 2018–19 which, when considering the contraction of new car sales figures, is seen as positive.

The **Document Verification Service** continues to grow, with an overall volume increase of 33% across the public and private sectors.

Future Focus

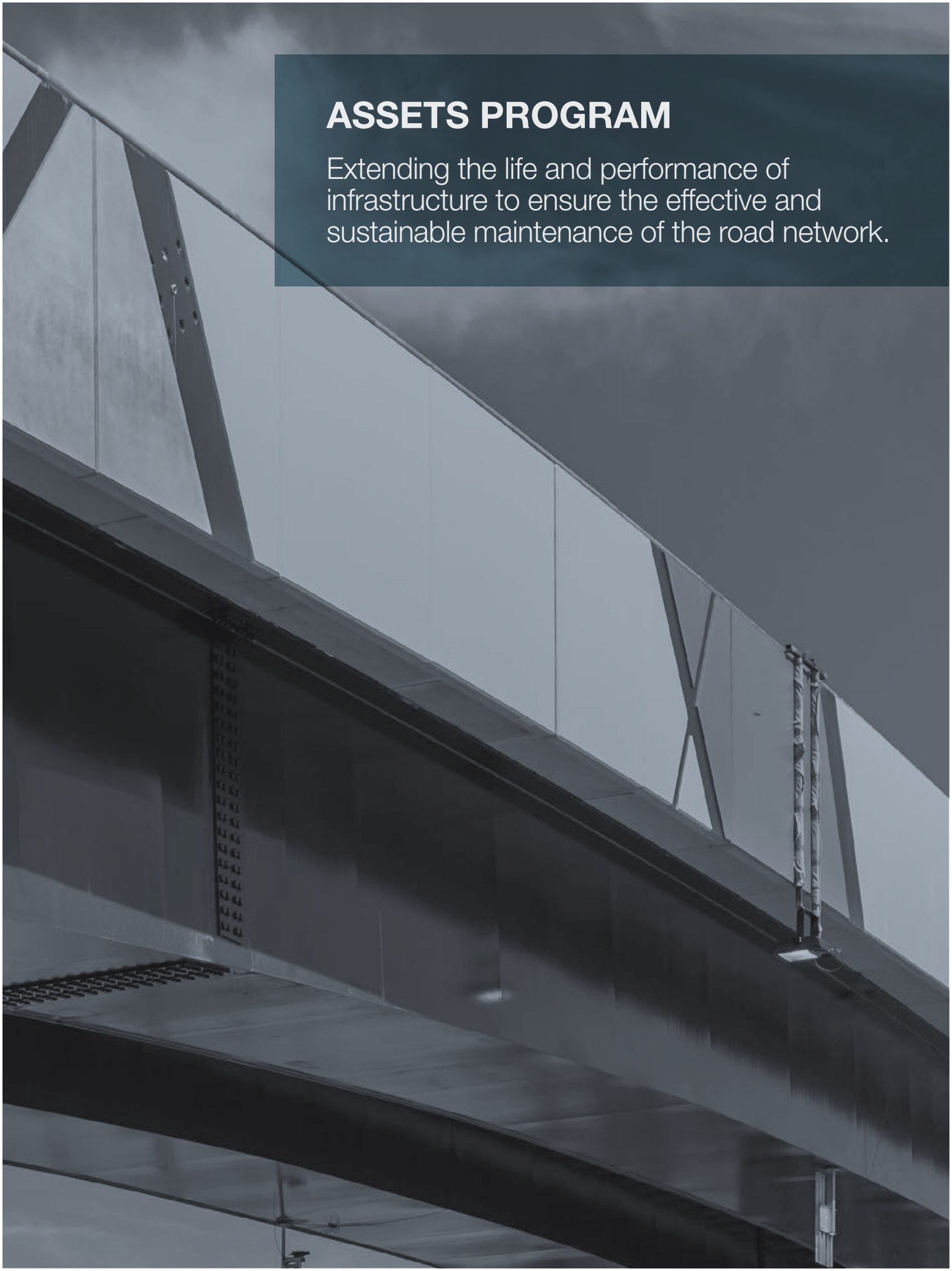
NEVDIS (Austroads) remains a not-for-profit entity but continues to seek to identify opportunities in both operational efficiencies and additional revenue streams which may partially or fully negate the need for funding by jurisdictions.

NEVDIS covers 100% of Austroads administrative costs, allowing all member contributions to be utilised in the Austroads research program.

From time to time, with the approval of the Board, NEVDIS surplus funds are also used for specific priority work identified for inclusion in the Austroads work program for that financial year.

NEVDIS is also seeking additional and alternate data sources to augment existing holdings to achieve improved data accuracy and completeness. This will have a direct benefit to core stakeholders, and provide a stronger base for analytical activities and a higher quality service for commercial users.

"The strategy to run the new system alongside the legacy system has proven invaluable in highlighting differences and preventing any material impact on end users.



ASSETS PROGRAM

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

Overview

The Assets Program's strategic priority is to extend the life and performance of infrastructure to ensure the road network is effectively and sustainably maintained.

Rapid change in the operating environment continues. Areas of change include digitisation, big data, connected and automated vehicles, road user expectations, financial capacity and increased impacts of adverse weather.

Road sector asset management is evolving to align with international practices, including the ISO 55000 asset management standards.

To support member agency operations, the Austroads Guides need continual review and update to ensure they reflect the latest developments and technologies. This has been a key focus for the Assets Program in 2018-19. As an input to this, around 40 projects were progressed across the Assets work streams.

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

People

ROSS GUPPY, PROGRAM MANAGER ASSETS

Ross has over 30 years' experience in the road and transport infrastructure sector, including 28 years with the Queensland Department of Transport and Main Roads (TMR). During Ross's time with TMR, he held various specialised engineering and senior executive roles across the technologies of Pavements, Materials, Geotechnical, Project Delivery, Asset Management, and Road Design & Standards.

Ross held a pivotal role in managing TMR's liaison with academia and key industry bodies including AAPA, the ARRB Group, CCF, QMCA, Austroads, and IPWEAQ. As Program Manager Assets, he is a keen advocate for forging and maintaining strong industry relationships.

PROGRAM COORDINATOR: LIZ KARAS

Program Governance

ASSETS TASK FORCE

Karl Cloos, TCCS ACT	Michelle Baran, QLD DTMR
Catherine Dear, VicRoads	Mick Savage, IPWEA
David Darwin, NZTA	Andrew Cooper, RMS NSW
Andrew Golding, QLD DTMR	Georgia O'Cianain, DITCRD
Andrew Hargrave, DSG TAS	Shane Tepper, DIPL NT
Nelson Mendoza, DPTI SA	Tom McHugh, MR WA
David Jansen, VicRoads	Kym Foster, ALGA
Liam Terris, RMS NSW	

PAVEMENTS TASK FORCE

Philip Stacey, DIPL NT	Mike Tait, DIPL NT
John Donbavand, NZTA	Andrew Papacostas, VicRoads
Sam Henwood, RMS NSW	Mike Pickering, QLD DTMR
Paul Keech, ALGA	Hugo Van Loon, DPTI SA
Les Marchant, MR WA	Barry Walker, DSG TAS

ROAD TUNNELS TASK FORCE

Nigel Casey, RMS NSW	Nooru Mohamed, QLD DTMR
Georgia Stylianos, VicRoads	David Kimpton, VicRoads
Yan Yan Xiao, DPTI SA	John Venables, MR WA
Nigel Lloyd, NZTA	

BRIDGE TASK FORCE

Adam Lim, MR WA
Phil Molloy, DPTI SA
Andy Ng, VicRoads
Vincent Tang, DSG TAS
Andrew Wong, QLD DTMR
Parvez Shah, RMS NSW
Richard Underhill, DIPL NT
Barry Wright, NZTA
Tanya Nelson, QLD DTMR
Jay Brewster-O'Brien, DIPL NT

PROJECT DELIVERY TASK FORCE

Juliette Economo, RMS NSW	Harold Carn, DPTI SA	Adrian Paine, DSG TAS
Leo Coci, MR WA	Graham Hobbs, QLD DTMR	Colin MacKay, NZTA
Sharon Patterson, VicRoads	Richard Underhill, DIPL NT	

ASSETS PROGRAM TECHNICAL WORKING GROUPS

Bituminous Surfacings Working Group

This group is chaired by a member agency representative and comprises road agency staff, ARRB and industry practitioners who have an interest 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 generally comprises road agency practitioners, ARRB and AAPA representatives.

Pavement Structures Working Group

This group contains representatives from member agencies, AAPA, AustStab and ARRB, and reviews projects relating to pavement design and performance.

Road Authority Pavement Marking Working Group

This group comprises road agency and industry practitioners who are working to update national standards and nationally harmonise pavement markings, performance-based requirements and test methods. This work is key as consistency in pavement markings will support optimised asset management outcomes and future connected and automated vehicle operations.

Utilities in Road Reserves Working Group

This group comprises road agency practitioners who are working together to ensure a united position for road agencies in response to the ever growing and complex arrangements related to utilities in road reserves. With the National Broadband Network roll-out, more telecommunications, gas, electricity, water and other utilities providers are accessing critical road and bridge infrastructure. As a result, the role of this working group has never been more important.

Occupational Health and Safety Working Group

In July 2017, the Austroads Board established an Austroads work health and safety (WHS) 'safety alerts' system to share knowledge and information in and between jurisdictions about issues and changes to WHS practices, for improved safety outcomes. Through the Assets Program and under the Project Delivery Task Force, this group comprises jurisdictional WHS representatives who share information through Task Force meetings, on the Austroads website and through regular reports to the Austroads Board.

Prequalification Working Group

This working group manages the highly successful national prequalification scheme for major contractors. This scheme involves a mutual recognition agreement across most member road agencies so once a contractor has prequalified for roadworks or bridgeworks in one jurisdiction, there is an easier process to obtain prequalification with other participating road agencies.

Steel Fabrication Specification Working Group

This new working group was formed in February 2018 by the Bridge Task Force to progress the development of a harmonised national steel fabrication specification.

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

Program Activities

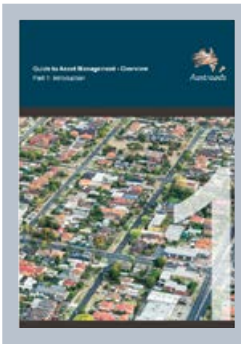
Highlights

- Completed the 25-year performance monitoring of pavement study, which has provided major insights into increasing the condition and life of pavements in the long-term and could save Australian governments $40 million a year (see case study for more information).
- Data collected on 78 fire incidents in 11 tunnels revealed fixed (deluge) firefighting systems are effective in managing fires in tunnels, and provided detailed data on fire incident management and tunnel operations. This data will inform tunnel designs and design standards, and effective fire safety measures.
- The *Guide to Asset Management* was updated to reflect the principles on risk management in ISO 55001 and incorporate information on the impact of autonomous vehicles and digital infrastructure, reducing the environmental effects of asset management and reliability centred maintenance.

> “Data collected provided detailed data on fire incident management and tunnel operations.

Strategic Management of Road Infrastructure

The focus on strategic asset management has grown internationally, with a range of guidance materials being produced such as the ISO 55000 standards series, the international infrastructure management manual and other guidelines. Australasian road agencies are responding to these developments and aligning their processes with world best practice. Austroads is supporting this response by developing national research and technical projects and updating its Guides.



In **July 2018**, Austroads updated its *Guide to Asset Management* which guides road managers on applying contemporary ‘whole of organisation’ asset management practice to road networks.

Asset management has continued to develop as decision-makers increase their focus on the value it can bring to an organisation, and as awareness increases of the importance of risk management.

This focus on a wider organisational approach has been emphasised in the International Standard for Asset Management ISO 55001.

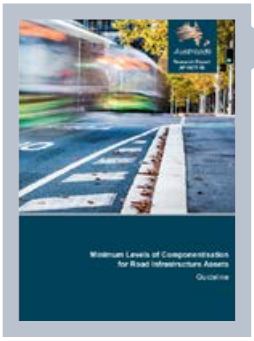
The 2018 edition of the *Guide to Asset Management* supports these principles while continuing to provide a substantial level of technical guidance to assist agencies in the most efficient and effective monitoring of pavement performance.

The new edition includes the impact of autonomous vehicles and digital infrastructure, measures to reduce the environmental impact of asset management and the practice of reliability centred maintenance. It also documents the outcomes of Austroads research covering asset condition monitoring equipment, asset performance prediction models, and risk management practices.

The Guide is relevant to people managing road infrastructure assets (including structures and non-pavement assets), and those seeking to learn more about the fundamental concepts, principles, issues and procedures of asset management.

austroads.com.au/publications/asset-management/agam01 (report)

austroads.com.au/publications/asset-management/web-agam-19 (webinar)



In **August 2018**, Austroads published a guideline to assist organisations to determine the appropriate minimum level of componentisation (splitting an asset into parts so each part can be separately depreciated) for road infrastructure assets.

Minimum Levels of Componentisation for Road Infrastructure Assets: Guideline has been developed to:

- improve integration and alignment of asset management, financial management and financial reporting processes
- provide prescriptive guidance regarding minimum levels of componentisation
- provide a benchmark for road management authorities and auditors to drive a more consistent approach to preparing and auditing road agency financial statements, data management and asset recognition
- enable more efficient collation of national datasets to enable equitable reform initiatives such as national funding reform.

austroads.com.au/publications/asset-management/ap-r577-18

In **August 2018**, Austroads published a report which details the background research that underpins the *Minimum Levels of Componentisation for Road Infrastructure Assets: Guideline*.

It provides background information to support organisations with implementing the Guideline and includes an impact statement. It also explains the methodology used, and details the outcomes of the literature review, stakeholder survey and conformance assessment.

austroads.com.au/publications/asset-management/ap-r576-18

In **November 2018**, Austroads published a report that outlines a framework to help assess the value of maintenance and renewal works, consistent with capital investments.

The report advises road managers and investors how to better manage competing requirements and achieve required service outcomes by assessing, measuring and reporting on the contribution that network assets make to performance of the road network. It also builds understanding of the strategic value of investing in maintenance and asset renewal compared to asset enhancement or new assets

There is an increasing need to demonstrate the value for money for all types of expenditure as governments face growing budgetary pressure. While there are established economic evaluation frameworks for evaluating transport capital projects, a framework for evaluating road maintenance expenditure is not commonly used, making it more vulnerable to budget cuts.

The CBA frameworks measure the trade-offs decision makers face when determining the appropriate level of road maintenance expenditure, to balance maintaining a higher level of service for faster travel speeds and fewer accidents with additional cost.

Cost benefit analysis (CBA) frameworks have been developed for three asset groups:

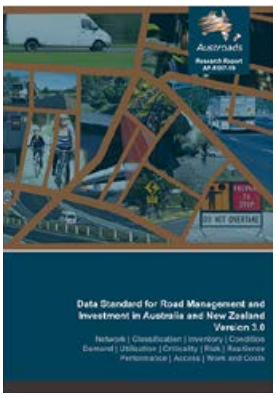
- the road surface and related features
- bridges and other structures, which allow roads to be built in places that would otherwise not be possible, thereby increasing the routes available to road users
- navigation and guidance related features, such as traffic lights and line markings, which help road users safely and more easily navigate the road network.

austroads.com.au/publications/asset-management/ap-r588-18

austroads.com.au/publications/asset-management/web-r588-18

CASE STUDIES

STAGE 3 OF NATIONAL DATA STANDARD DEVELOPMENT INCREASES DATA SHARING ACROSS JURISDICTIONS



In **January 2019**, following stakeholder feedback, Austroads published the third version of the *Data Standard for Road Management and Investment* with revised priority harmonisation subsets (PHS) and metrics.

The Data Standard, which provides standardised data definitions and structure, was initiated in response to requests from Austroads members who increasingly need to share data but have been frustrated by the lack of common data definitions and formats.

"The differences in road asset data in each jurisdiction increase the costs of working across road networks," says Angus Draheim, Austroads Project Manager. "By harmonising the data used in planning, asset management and reporting, the data standard allows road managers to learn from each other, improving asset management across the board."

This long-term project entered its third stage in 2018–19, providing more data for stakeholders to compare their road network performance reporting, and the costs and benefits of maintenance and investment strategies.

Stage 3 also involved pilot projects with local councils in Victoria, NSW, Queensland and the Northern Territory.

"Participating councils helped Austroads to align datasets with local government priorities and meet their needs.

In turn, we helped councils transform their data into a format consistent with the data standard. Regional groups of councils can now generate analytics from harmonised datasets," says Angus.

Stage 4 of the project in 2019–20 will involve rolling out collaboration initiatives with 12–15 regional groups of councils.

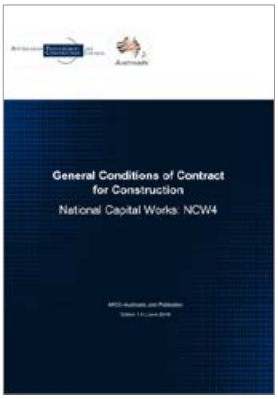
"These initiatives expand on the pilots and bring more functionality to assist councils in transforming data and gaining improved analytics," says Angus.

"In Stage 4, we'll also work with several road agencies to trial automated national reporting functionality, and discuss opportunities with vendors to provide products that comply with the standard."

austroads.com.au/publications/asset-management/ap-r597-19 (Data Standard for Road Management and Investment)

austroads.com.au/publications/asset-management/ap-r598-19 (Priority Harmonisation Subsets)

NATIONAL STANDARD CONTRACT FOR THE CONSTRUCTION OF BUILDINGS, ROADWORKS AND BRIDGEWORKS



In **June 2019**, Austroads and the Australian Procurement and Construction Council (APCC) published new General Conditions of Contract for Construction, titled *National Capital Works 4* (NCW4). It was developed in response to requests from road agencies for nationally consistent contractual conditions that were up-to-date and suitable for use by public sector agencies on 'construct only' contracts.

NCW4 follows contemporary contract drafting practice and addresses recently introduced legislation, such as security of payment, personal property securities, GST and work health and safety. It should be easily understood without extensive reference to handbooks or case law.

Each jurisdiction will insert additional clauses to address local requirements such as government policies for training or local industry participation. The master version will be annually reviewed in consultation with industry, and updated if appropriate.

NCW4 includes features such as Superintendent, Practical Completion, Separable Portions and a Defects Liability Period. It also incorporates more recent developments such as Early Warning Notification, the express duty for the parties to cooperate and the classification of information into reliance or non-reliance information.

In the long term, the national use of NCW4 will:

- **save Austroads members money** by reducing the inefficiencies that come about when bespoke contracts or special conditions of contract are used
- **facilitate the development of training programs** to raise the capability and competence of construction industry personnel across Australia
- **reduce the level of disputes in the industry** due to better trained personnel mentioned in the previous bullet point, and its unambiguous and succinct wording minimising the need to imply terms in the contract.

austroads.com.au/publications/project-delivery/ap-c104-19

austroads.com.au/publications/project-delivery/web-c104-19

Managing for Climate Change

With road assets used by everyone daily, assessing and planning for impacts of climate change, adverse weather and natural disasters on the road network is a key consideration. Infrastructure resilience and adaptation to a changing climate have been key factors 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.

In **October 2018**, Austroads updated Part 4K of the *Guide to Pavement Technology* which details the procedures for selecting and designing sprayed seals.

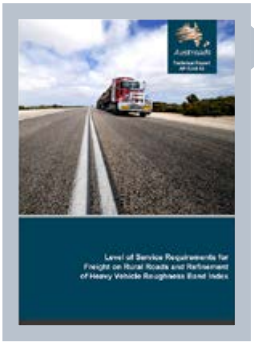
The life of sprayed seals is influenced by climate including seasonal temperature variation, moisture change in pavement materials and binder oxidation at high temperatures. These factors influence both the type and frequency of treatment.

Australia's climate has warmed, and the duration, frequency and intensity of extreme heat events have increased across large parts of Australia (Bureau of Meteorology 2016). As a result, bituminous binders typically used in the past may not function as optimally as they have previously. The Guide discusses the historical background and operational environment of sprayed seals, alongside design and selection of, and construction procedures for, various types of sprayed seals.

austroads.com.au/publications/pavement/agpt04k

Managing Rural and Remote Roads

While much of the population lives in towns and cities, the road network must also deliver road community services and accessibility in rural and remote areas. Marginal and non-standard materials are often the only cost-effective resource for road construction in these areas.



In **November 2018**, Austroads published a report that proposed a ride quality index of roads for heavy vehicles, equivalent to the International Roughness Index (IRI) for cars.

The study investigated the perceived safety and comfort of drivers in a range of vehicles to set levels of service (LOS) standards, and collect driver seat vibration data, to refine a new ride quality index for heavy vehicles.

Following on from previous work, the purpose of this project was to complete an investigation of subjective ratings of ride quality of A, B and C roads in Victoria, while driving a passenger car and a range of heavy vehicles. This data was used to define LOS for rural roads.

The Fleet Ride Index (FRI) allows the range of response in a heavy vehicle fleet to be determined from a longitudinal road profile. The heavy vehicle fleet can be customised to reflect actual fleet compositions to provide a more powerful and nuanced assessment of ride quality for heavy vehicles.

austroads.com.au/publications/asset-management/ap-t340-18

austroads.com.au/publications/asset-management/web-t340-18

Managing Loading Impacts

Growing numbers of heavy vehicles on the roads are 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.

In **November 2018**, Austroads published a new test method that described the methods for determining the flexural modulus, strength and fatigue characteristics of laboratory manufactured cemented materials, using four-point bending techniques.

More than 90% of the Australian and New Zealand sealed road network consists of a sprayed seal overlying granular pavement.

Increased traffic loadings are placing more pressure on these pavements, with some non-standard materials no longer being fit-for-purpose.

In many rural areas, the use of high-quality crushed rock is not a cost-effective treatment to improve the structure of these pavements.

Consequently, there is increasing use of treatments that enhance the existing non-standard materials by adding cementitious and bituminous binders, to allow for recycling of scarce resources.

austroads.com.au/publications/pavement/agpt-t600-18

In **March 2019**, Austroads released a report detailing the findings from the first phase of a project to evaluate the deformation performance of foamed bitumen stabilised materials.

Foamed bitumen stabilisation involves stabilising pavement materials with bitumen as the primary binder. The process improves the strength of granular materials while retaining a flexible pavement.

This first phase included evaluating early-life deformation; measuring long-term deformation characteristics under warm temperatures; benchmarking the foamed bitumen stabilised base performance with an asphalt control section; and evaluating the effects of recycling reclaimed asphalt pavement (RAP) in the foamed bitumen stabilised base.

The project assessed a crushed rock and a 50% reclaimed asphalt pavement blend using the ARRB accelerated loading facility (ALF). The ALF is used to simulate heavy vehicle trafficking on pavement structures under controlled conditions.

The main findings were that the test pavement showed limited pavement surface deformation and low deformation rates under accelerated loading for both the early-life and cured conditions; when tested at the same temperature, the 50% RAP did not impact significantly on the performance of the pavement; and the foamed bitumen stabilised pavements performed well compared with the asphalt control.

The project concluded the overall good deformation performance of the foamed bitumen stabilised materials. Subsequent laboratory wheel-tracking tests will be performed to confirm the finding at higher temperatures.

austroads.com.au/publications/pavement/ap-t343-19

Materials Development

The road network has traditionally been constructed of a wide range of local and manufactured materials to meet road user needs while being cost-effective. As the 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.

In **July 2018**, Austroads released the final report of a five-year project to improve the Austroads design procedures of foamed bitumen stabilised (FBS) materials and identify distress modes of FBS pavements from in-service trial sites.

The major project conclusions were the mix design methods of foamed bitumen stabilised (FBS) materials have been improved and harmonised; mix design indirect tensile moduli are similar to very early-life values and well below cured field values; fatigue cracking is a distress mode for FBS pavement layers and needs to be considered in structural thickness design; and despite identified deficiencies, the fatigue life predictions using the Austroads interim thickness design method appear reasonably consistent with the observed field performance based on the limited information available from field trials.

The use of very conservative FBS design moduli with the asphalt fatigue relationship, together with empirical guidance on particle size distribution, plasticity and maximum binder contents, appears to result in FBS pavement layer depth.

austroads.com.au/publications/pavement/ap-t336-18

In **September 2018**, Austroads published the second report from a project that is developing a laboratory test to rank the low-temperature cracking performance of binders in sprayed seals.

This report describes whether different spray and asphalt grades are required for four polymer modified binder (PMB) grades in the Australian PMB specification, Austroads Test Method AGPT/T190:2014.

The specification requires that different PMB grades be used in the construction of sprayed seals and asphalt. Binder grades used in sprayed sealing applications are labelled ‘S grades’, while those used in asphalt applications are labelled ‘A grades’.

The study examined four PMB grades which typically contain styrene butadiene styrene (SBS) polymer (A20E, S20E, A15E and S25E). The specified test limits for A20E in comparison to S20E and A15E in comparison to S25E are very similar except for the maximum specified limits of the stiffness test parameter.

This study compared A20E with S20E and A15E with S25E grade PMBs, to determine whether the use of comparable asphalt and spray grade PMBs influenced asphalt performance. Tests were conducted after each binder was incorporated into a single type of 10 mm dense graded asphalt mix.

The results were that the asphalt and spray grade PMBs could be merged into two binder grades in the Australian PMB specification (i.e. A20E/S20E and A15E/S25E grades) if these materials were only used in asphalt applications.

A reduction in the number of SBS based PMB grades in the standard will simplify jurisdiction specifications. It will also benefit binder suppliers as producing fewer PMB grades will simplify production processes and reduce costs associated with additional tanks for storing different specified products.

austroads.com.au/publications/pavement/ap-t337-18

In **May 2019**, Austroads published an updated specification for polymer modified binders (PMBs) and crumb rubber modified binders for use in sprayed seal and asphalt applications.

PMBs consist of bitumen blended with a synthetic polymer or crumb rubber, and enhance the performance of binders on heavily trafficked or distressed pavement surfaces.

The test method has been revised following a review of current PMB manufacturing, testing and application experience.

The updated test method includes an alternative Standards Australia method to determine viscosity at 165 °C, a stress ratio binder property and a definition for field-produced crumb rubber modified binders. The consistency and elastic recovery binder properties have been removed, and the rubber content by analysis binder property for the class S45R binder has been replaced with a stipulation that this binder class be manufactured from crumb rubber derived from used vehicle tyres.

The framework is based on test procedures that have been used in Australia for several years.

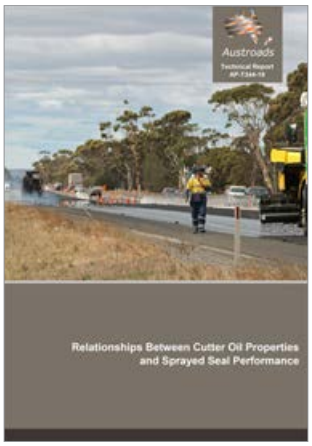
austroads.com.au/publications/pavement/agpt-t190-19

CASE STUDY

AUSTROADS PROJECT INITIATED REVISED AUSTRALIAN STANDARD FOR IMPROVING PAVEMENT LIFE

Road agencies specify hydrocarbon oils (cutters) for sprayed seal construction in cool conditions, as they help a bond to form between the bituminous binder and the aggregate in a seal, improving the short- and long-term life of pavements.

Australian Standard AS 3568 *Oils for Reducing the Viscosity of Residual Bitumen for Pavements* dictates the types of cutters used for sprayed seals. However, AS 3568 was last updated in 1999. Some cutters are no longer commercially available, whilst new cutters have emerged that do not comply with the standard but are fit for purpose.



The issues with AS 3568 meant road agencies developed their own local specification standards, duplicating work and effort.

As a result, Austroads commissioned the Australian Road Research Board (ARRB) to assess the sprayed seal performance of several commercially available cutters, in the hope this information could be used to update and improve AS 3568.

ARRB identified that the final boiling point and viscosity of cutters were relevant to their performance in seals, whereas certain chemical composition requirements from AS 3568 had no influence.

Austroads incorporated the results of the study in their report *Relationships between Cutter Oils and Sprayed Seal Performance*, published in June 2019. The Austroads Bituminous Surfacings Working Group proposed removing redundant test requirements and endorsed a new and modernised set of criteria for a performance-based cutter specification.

The Department of Transport (Victoria) has shown confidence in the project outcomes by adopting the revised specification criteria. This will provide the Department and its suppliers with certainty that materials can be supplied to a current and relevant standard, and potentially reduce the level of administrative effort involved in dealing with out-of-date requirements.

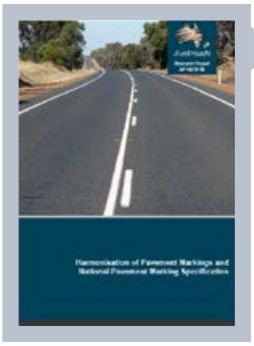
Standards Australia have subsequently approved an update to AS 3568, to integrate the findings of this Austroads research project.

austroads.com.au/publications/pavement/ap-t344-19

austroads.com.au/publications/pavement/web-t344-19

Pavement Management

In the context of the freight task (tonnes of freight per kilometre) and international best practice in road asset management, Austroads supports its member agencies in harmonising and improving pavement management.



In **August 2018**, Austroads undertook a project to achieve national harmonisation by developing national performance specifications for pavement markings.

Pavement markings are a key element of safe system infrastructure and used by all road users.

There are variations in road agency practice with respect to longitudinal and transverse line marking types and widths, and other pavement markings and materials. As a result, many do not comply with Australian Standard AS 1742.2:2009. Maintenance levels to replace and re-paint pavement markings also differ.

The project investigated:

- longitudinal and transverse line marking types and widths, and other pavement markings used by different road agencies, to harmonise them as far as practical
- road agency pavement marking specifications, to develop a national performance specification for pavement markings.

austroads.com.au/publications/asset-management/ap-r578-18

In **January 2019**, Austroads released the final report of the long-term pavement performance (LTPP) study which was established in 1994-95.

This long-running project monitored the structural and functional performance of a range of in-service sealed granular, asphalt and concrete pavements.

See the case study for more information.

austroads.com.au/publications/asset-management/ap-t342-19

CASE STUDY

LONG-TERM STUDY IMPROVES PAVEMENT DEVELOPMENT, DESIGN, MAINTENANCE AND PLANNING

A long-term pavement performance (LTPP) study, established by Austroads in 1994, was completed in late 2018.

"This study has helped Australian road agencies to predict the performance of sealed granular, asphalt and concrete pavements under different traffic loading and environmental conditions, and better plan maintenance and rehabilitation actions," says Shane Tepper, Director Asset Performance, Department of Infrastructure, Planning and Logistics, Northern Territory Government, and Austroads Project Manager.

Models developed during the study included road deterioration models for rutting and roughness, and an asphalt and seal-life prediction model based on bitumen hardening from more than 257 asphalt and 124 seal samples across Australia.

"We also developed interim works effects models for various surface treatments and road deterioration models for flexible pavements. These are now incorporated with the pavement management system used by the NSW, Victorian and Western Australian road agencies," Shane explained.

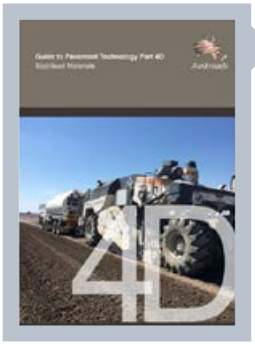
The performance of accelerated loading facility (ALF) test pavements with actual road pavement data was found to be similar. This enabled ALF data to be used to investigate the impact of increased axle loads on LTPP, and in road deterioration modelling of flexible pavements.

Shane said: "Data collected from eight sites from 1998 to 2018 confirmed that geotextile, polymer modified binder and normal reseal treatments helped reduce pavement roughness, rutting and cracking."

Information on increasing the life of pavements collected under the study could potentially save government agencies millions of dollars a year.

These and other findings are being used by academics, researchers and road agencies worldwide.

The data from the project is available on ltpp.info



In **April 2019**, Austroads published an updated edition of the *Guide to Pavement Technology Part 4D: Stabilised Materials*. The Guide describes in detail:

- types of stabilisation undertaken in improving pavement materials and subgrades
- types of binders used in stabilisation
- types of materials suited to particular binders
- laboratory determination of the type and quantity of binder required to achieve a particular type of stabilised material (mix design).

The use of stabilising and recycling materials for pavement construction and maintenance is widely accepted as a cost-effective method of improving long term performance and reducing whole-of-life costs of modern, heavily trafficked pavements.

austroads.com.au/publications/pavement/agpt04d

austroads.com.au/publications/pavement/web-agpt04d-19

Bridge Management

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

In **September 2018**, Austroads documented the options and methodologies for conducting higher order assessments of bridges, which are encouraged, but not currently defined, by the new Australian Standard AS 5100.7.

In Australia, there is a continued push to improve freight productivity by increasing vehicle masses and allowing flexibility in truck configurations.

Increasing bridge load limits is also seen as important but this objective is tempered by aging infrastructure that was not designed for current or future loads.

As a result, there is increasing focus on managing aging bridge infrastructure and determining ways to get more out of the existing bridge stock.

The project investigated international and local practice and developed a framework to provide guidance on when and where higher order assessments were appropriate, and their relative benefits and costs.

The proposed framework focused on three tiers of assessment with a specific flow chart to assist with the decision-making process.

Key recommendations of this study were to further investigate the usefulness of reliability assessment, with a focus on code calibration and Tier 3 site specific evaluations, and developing an Australian guide to bridge assessment.

austroads.com.au/publications/bridges/ap-r582-18

Sustainable Roads and Roadsides

The Australasian road network is one of the most extensive per head of population. Sustainability is therefore a key objective for road agencies as road user expectations and freight demands grow. It is important to make the best use of available resources to sustain the road network and understand how the network changes in response to traffic and environmental impacts.

Sustainability continues to be a focus of the Assets Program and has been incorporated into Austroads Guide updates. We are developing a number of projects that adopt the concept of a circular economy, particularly the use of recycled tyres, plastics and glass. In addition, Austroads supports the Infrastructure Sustainability Council of Australia (ISCA) rating scheme.

A project implemented in 2018-19 was to update the *Guide to Road Tunnels Part 2*, to include the impacts of zero and low emissions vehicles on the design and operation of tunnels.

An Austroads webinar: *Lean Construction: Responding to the Productivity Challenge Faced by the Construction Industry* provided an overview of Lean principles, practices and techniques, including maximising value and minimising waste during project construction and implementation. It also included key differences between traditional and Lean construction, case studies demonstrating Lean outcomes and the current state of Lean construction in Australia.

austroads.com.au/publications/project-delivery/web-lc-19

In **July 2018**, Austroads published updated editions of the *Guide to Road Tunnels Part 1: Introduction to Road Tunnels* and *Guide to Road Tunnels Part 3: Operations and Maintenance*.

The major updates in Part 1 included new sections on emerging issues and ground contamination; expanded information on groundwater management and vibration; and additional guidance on sustainability and operating costs. Updates were also made to Workplace Health and Safety legislation and the impacts of climate change.

New sections on tunnel inspections and reporting, and an integrated approach to tunnel safety and evacuation behaviour of tunnel users, were included in Part 3. This new edition also contained more information on risk analysis, incident management, methodology, abnormal conditions, motorists, and communication during incidents.

austroads.com.au/publications/tunnels/agrt01

austroads.com.au/publications/tunnels/agrt03

In **September 2018**, Austroads published guidance on the consistent, efficient and safe design of emergency egress signage and operations in road tunnels.

Fire drills to familiarise occupants with evacuation routes are not possible in tunnels, and occupants may face different evacuation route types due to tunnel length and complexity. To provide this direction, emergency evacuation signage must be provided in the tunnel.

Australian Standards relating to emergency egress signage were not intended for use in road tunnels, so jurisdictions developed their own requirements.

This study reviewed local and international standards relating to emergency evacuation signage and tunnel evacuation exercises. It also assessed the signage in many Australasian road tunnels, and discussed the objectives and effectiveness of signage.

austroads.com.au/publications/tunnels/ap-r583-18

In **March 2019**, Austroads released an updated edition of Guide to Road Tunnels Part 2: Planning, Design and Commissioning.

This Part guides decision makers who plan, design, operate and maintain new road tunnels in Australia and New Zealand. Principles and standards are based on Australasian and international experience.

This new edition of the Guide included significantly expanded pavement design guidance in Section 5 and updated references to Austroads Guides throughout.

It is expected that the Guide will be used by engineers and technical specialists working on the planning, design and operation of road tunnels, proponents of road tunnel solutions, senior decision makers and regulators in the various jurisdictions.

austroads.com.au/publications/tunnels/agrt02

In **March 2019**, Austroads published a detailed reference document for fire incidents and fire safety operational information for 11 major road tunnels in Australia.

These tunnels are all more than 1 km wide, have high traffic volumes, are in an urban location, and are monitored and controlled through a continuously staffed control centre.

As the incidents are logged through the operational management control system, the data collected is highly accurate and includes minor incidents.

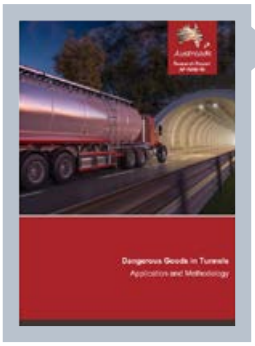
The high-quality dataset has captured extensive information about 78 fire incidents in Australian road tunnels. The data capture extends from the opening date of the Sydney Harbour Tunnel in August 1992, to subsequently opened major tunnels and their operation up to June 2016.

Information provided includes the frequency of fire incidents, types of vehicle, estimated fire size, means of detection, way the fire was extinguished, the time it took to extinguish the fire and reopen the tunnel and whether there was an emergency evacuation.

It captures the extent of use of fixed firefighting (deluge) systems, so can be used by an international audience.

Austroads expects this specialised dataset will be used as a reference in projects to inform designs and design standards, and in tunnel operations to demonstrate the effectiveness of fire safety measures.

austroads.com.au/publications/tunnels/ap-t341-19



In **June 2019**, Austroads set out a framework for undertaking risk assessments of transporting dangerous goods in road tunnels.

Dangerous goods are items or substances which are a risk to health, safety, property or the environment such as petrol, liquefied petroleum gas, paints, pesticides and acids.

The most common approach to transporting dangerous goods is on roads but this can be contentious, especially when navigating through sensitive infrastructure such as bridges and tunnels or when the route is near schools or hospitals.

The report recognises that the transport of dangerous goods carries some inherent risk but that banning dangerous goods from tunnels can shift this risk to other areas that may increase the overall risk profile and have an economic impact.

The report provides an approach for road managers to compare the societal benefits of using a road tunnel or another surface route across a complete journey. It also provides information on the application of design methods to reduce risks.

It is expected that Stage 2 of this research (Dangerous Goods in Tunnels – ART6122) will review and further expand on this topic. The project is due to be completed in mid-2020.

This report is accompanied by a literature review involving international and local studies and methodologies, trial reports, and media.

austroads.com.au/publications/tunnels/ap-r590-19

austroads.com.au/publications/tunnels/ap-r589-19 (literature review)

Significant Outputs

ARC Research Hub for Smart Next Generation Transport Pavements

Austroads is supporting university-led research into the pavements industry through its partnership with the Smart Pavements Australia Research Collaboration (SPARC Hub). The SPARC Hub aims to advance the Australian pavement manufacturing industry through high-quality, collaborative research into innovative materials, smart technologies and advanced design, construction and maintenance methods.

The viability of using recycled plastics in asphalt and sprayed seals has become increasingly important to Australian and New Zealand road authorities since plastic bans were implemented by countries such as China, India, Indonesia and Malaysia. The Australian plastic recycling market has relied on exporting its waste overseas because of lower costs, so does not have the infrastructure to deal with this international change.

Austroads is finalising a project to investigate the viability of using recycled plastics in asphalt and sprayed seals by conducting an international literature review. The outcome of this project will guide future research.

Using recycled materials in pavements has many benefits: decreasing the use of virgin raw materials, saving energy and reducing landfill waste.

White Paper: Balancing the powers of telecommunications carriers and road authorities

Legislation governing telecommunications provides carriers with certain powers relating to installing, maintaining and inspecting their facilities on land managed by road agencies. Federal telecommunications laws take precedence over state and local road legislation, and carriers do not require road authority consent to undertake works. This can lead to network disruptions, traffic delays and frustration for users, and an imbalance of powers and obligations between affected road authorities and telecommunications carriers.

Austroads initiated the development of a White Paper to identify potential changes to the *Telecommunications Act 1997* (Cwth) (Telecom Act) and related statutory instruments, to more appropriately balance the powers and obligations of road authorities and telecommunication carriers. The White Paper was released for public comment in mid-2019.

It is being reviewed by the Assets and Bridges Task Force members and the Austroads Board prior to publication.

Engineering Guide to Bridge Asset Management

Austroads has engaged AECOM to produce an Engineering Guide to Bridge Assessment Management, which seeks to deal with the gaps between the many asset management guides and documents and provide specific management guidance for bridges.

The alignment of accounting and engineering practice and interpretation is fundamental to asset management of bridges.

This Guide is being reviewed by the Bridges Task Force and Austroads Board prior to publication.

Austroads Technical Specifications

The Austroads Board is considering a sizeable investment in standardising technical specifications for use across all jurisdictions.

The economic justification for moving to a consistent set of standards is found in efficiencies for both industry and road authorities.

For industry, the potential benefits from adhering to a single set of specifications cover administration, production methods, and test methods, including reducing the considerable cost of training and retraining staff for particular jurisdictional variations.

Road authorities would benefit from avoiding the need to maintain and update separate sets of specifications across Australasia.

Austroads has engaged consultants to develop a project plan and advise on the scope and governance arrangements of the project. Several technical specifications have already undergone extensive consolidation and amendment, and are being progressed with stakeholders and task force members. These works will continue in 2019–20.

> “Road authorities would benefit from avoiding the need to maintain and update separate sets of specifications across Australasia.

Future Focus

The Assets Program will continue to deliver on the Austroads 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 include:

- harmonisation in areas such as technical specifications
- emerging technology and materials development
- freight efficiency to drive economic outcomes, including managing loading impacts
- strategic asset management through focusing on improved road user experience and journeys
- sustainable roads and roadsides by continuing to investigate the use of recycled materials
- connecting people and places by meeting community service obligations, optimised levels of service, and infrastructure needs for connected and automated vehicles.

The Assets forward work program is annually developed by the respective task forces. While Austroads focuses on early, rapid project delivery, followed by implementation to drive benefits, some projects require a multi-year approach.

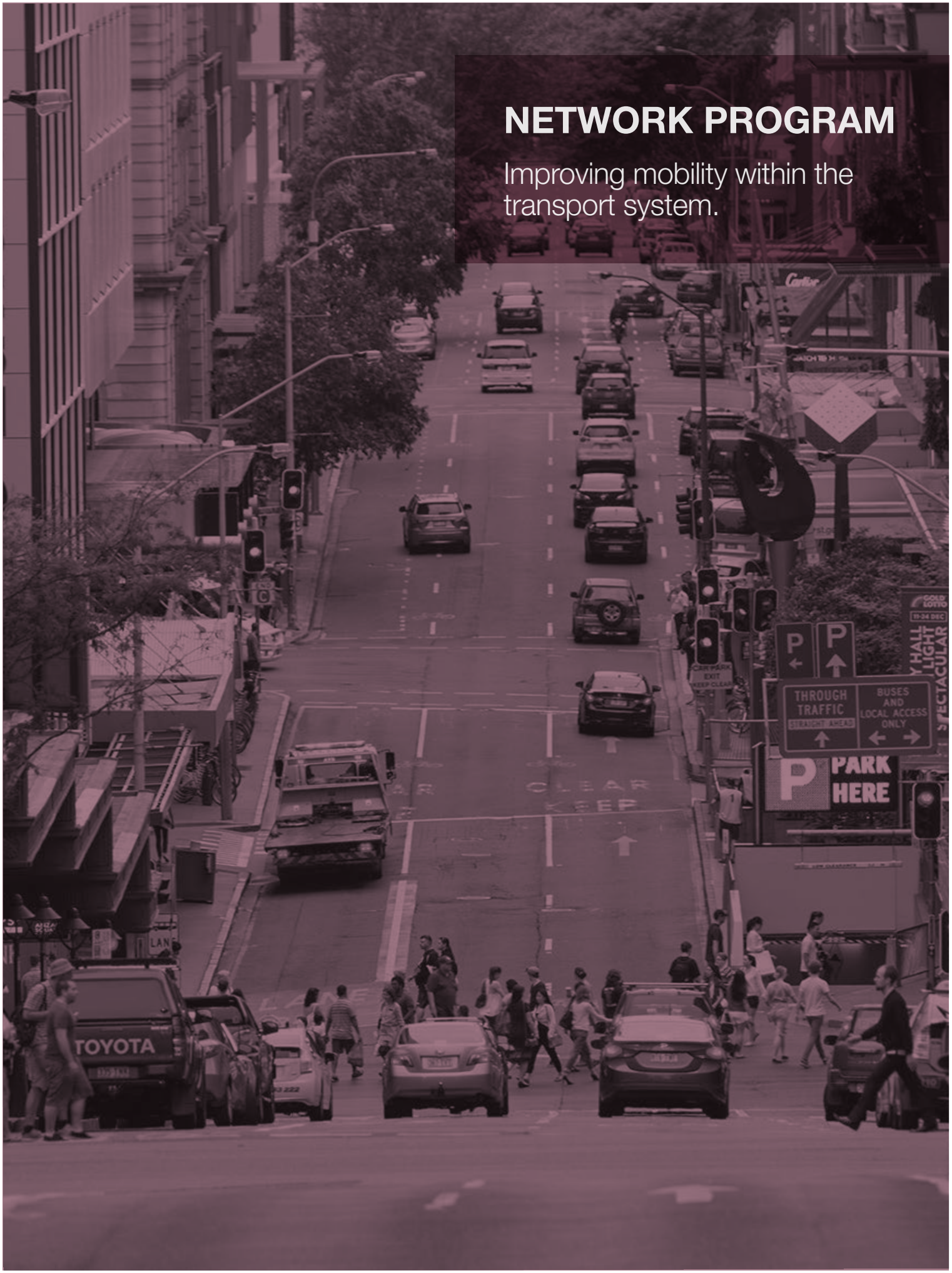
A good example is the use of accelerated pavement testing. This approach is widely used internationally to provide rapid results on the performance of pavement structures under heavy axle loading. Rather than wait 10 or 20 years to understand the performance of a specific design or treatment, a wide range of variables can be assessed in detail over just a few years. Research of this nature involves a detailed review of the literature to ensure no duplication of effort, which

also informs the experiment design, then test roads are constructed. It can take between 6 to 12 months after construction to ensure that the test roads meet the design specifications. Traffic loading can then be applied using the accelerated loading facility (ALF) data which yields the required performance data in months, not decades.

Through this type of applied research, the Austroads *Guide to Pavement Technology* was updated and generated significant and rapid benefits for member agencies.

The 12 projects approved for commencement in 2019-20 are:

Assets	
AAM6200	Investment prioritisation
ASP6227	Road asset data standard implementation - Stage IV
AAM6146	Next generation asset data collection
Project Delivery	
APD6174	Optimising project delivery performance
Bridge Technology	
ABT6203	Structural and real-time bridge health monitoring
ABT6196	Design guidelines for the delivery of large cantilever and gantry structures
Pavement Technology	
APT6213	Sustainable test for measuring rutting performance of binders in asphalt
APT6204	Improved general mechanistic method (GMP) for pavement rehabilitation
APT6123	National harmonisation of test methods used in performance specifications
APT6173	National specification for crumb rubber binders in asphalt and seals
Road Tunnels	
ART6137	Use of perceptual countermeasure treatments to reduce crash risks in tunnels
ART6151	Revision of Austroads Guide to Road Tunnels – Part 2: Planning, Design and Commissioning



NETWORK PROGRAM

Improving mobility within the transport system.

Overview

The Network Program's strategic priority is to improve mobility in the transport system.

In alignment with the Austroads Strategic Plan 2016-20, the Network Program supports road transport agencies by sharing knowledge based on their practical experience and Austroads research, researching national and international best practice, and developing consistent approaches to road network operations and the movement of people and goods.

We provide guidance for road and traffic agencies on real-time traffic operations, management of planned and unplanned disruptions such as roadworks and accidents, road user information, road network performance management and reporting, deployment and operation of Intelligent Transport Systems (ITS), and multi-modal integration.

Regarding freight and the movement of goods, the Network Program supports members and Commonwealth stakeholders including the Department of Infrastructure, Transport, Cities and Reginal Development, National Transport Commission and National Heavy Vehicle Regulator by delivering key research on national reforms and operational initiatives to enhance freight productivity and safety.

We engage with stakeholders in government, industry, academia and the private sector to ensure Austroads' guidance and research on harmonisation and network operations is relevant, comprehensive and up-to-date.

Work Streams

- Emerging technology, including Intelligent Transport Systems (ITS)
- Managing urban congestion
- Traffic management planning and infrastructure
- Freight transport and road productivity
- Active travel such as cycling and walking, and integration with public transport
- Funding models

People

RICHARD DELPLACE, PROGRAM MANAGER NETWORK, JUNE 2019–PRESENT

Richard Delplace joined Austroads as Program Manager, Network in June 2019.

Richard is a recognised Engineer with a Masters in Electronics and a certified Project and Program Manager with 17 years' experience in senior technical roles. He has worked in the public sector, major consultancy companies and the construction industry, covering emerging technology, traffic engineering, road network and public transport operations.

He is no stranger to Austroads, having worked as a consultant on several initiatives, including recently capturing ways in which transport agencies are adopting new technology-enabled trends such as Artificial Intelligence and Mobility as a Service. Richard has also developed case studies on latest Smart Motorways applications, and co-authored white papers on Intelligent Transport System planning for arterial roads and the future possible uses of the kerbside.

"I am excited by the opportunity to support the road transport agencies in their ongoing expansion from road builders to road network operators, and ultimately stewards of multi-modal mobility services," says Richard.

"There are tremendous initiatives being implemented across the jurisdictions to improve the mobility of people and goods. Sharing ideas, experiences and lessons learnt, jointly reviewing international best practice and collaboratively defining the appropriate level of consistency and harmonisation can have a significant impact on our customers' journeys and the ability of the individual jurisdictions to deliver on their respective visions for mobility and safety."

NATALIE LOCKWOOD, PROGRAM MANAGER NETWORK, JULY 2018–JUNE 2019

Natalie Lockwood led the Network Program from 2016-19. In June 2019, she was awarded an Outstanding Service Award for her valuable contribution to Austroads.

"Natalie has managed some significant priority projects including Safety at Road Worksites and Congestion and Reliability," says Nick Koukoulas, Chief Executive, Austroads. "She has consistently delivered projects on time and on budget and her team building skills have been highly regarded by the task forces and working groups she has led over the last four years."

Natalie worked as a Civil Engineer for Main Roads Western Austroads for 14 years, and held Program Coordination and Management roles in Austroads from 2009. Natalie has experience in Stakeholder 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.

Natalie has taken up a position at the Australian Road Research Board. Austroads wishes her all the best in her new role.

PROGRAM COORDINATOR: JUDI JARVIS

Program Governance

NETWORK TASK FORCE

Kellee McGilvray, RMS NSW	Aftab Abro, DIPL NT
John Oppes, QLD DTMR	Martin Blake, DSG TAS
Glenn Bunting, NZTA	Ben Hubbard, TCCS ACT
Andrew Excell, DPTI SA	Sameem Moslih, VicRoads
Mark Beasley, MR WA	

FREIGHT TASK FORCE

Susie Mackay, RMS NSW	Andrew Poole, DSG TAS
Eric Henderson, VicRoads	Tim Wyatt, TCCS ACT
Russell Hoelzl, QLD DTMR	Brett Clifford, DIPL NT
Mike Wilde, DPTI SA	Anthony Swan, DITCRD
Gavin Hill, TCA	Kym Foster, ALGA
Mathew Fogg/Phoebe Flinn, MRWA	

OTHER TECHNICAL WORKING GROUPS

Traffic Management Working Group (TMWG)

The TMWG 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 (SMWG)

The SMWG ensures consistency and value for money in the transition of ITS research into operational practice and alignment with emerging technologies such as connected and automated vehicles. The group is represented by each of the member organisations.

Agreed Practice Outputs

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

Program activities

Highlights

- Major updates to the *Guide to Traffic Management* to embed Safe Systems principles mean the latest information to improve traffic flows and reduce road accidents is available for practitioners – the accompanying report *Embedding Safe System in the Guide to Traffic Management* was downloaded 1,291 times (71% in Australia, 7% in New Zealand) between January and 30 June 2019.
- We captured the approaches and initiatives led by Austroads' member agencies on **Mobility as a Service (MaaS)** and facilitated discussions on the possible public sector role in guaranteeing sustainable and responsible societal outcomes from new business models. This project (with an associated report to be published in August 2019) enabled the Network Program to better understand the changing dynamic between public and private sector organisations, support the real-time and operational integration of transport modes sharing the road infrastructure, and better respond to evolving customer needs for mobility.

- We led an internal project to facilitate discussions between Austroads' member agencies on taking increasing advantage of **artificial intelligence (AI) techniques**. With AI rapidly evolving to recognise techniques such as machine and deep learning, road and transport agencies wish to gain real-time insights on what could happen on their network soon, and what actions should be implemented to improve network performance and incident management.
- We developed guidelines on how to assess the need for, prioritise, and design Heavy Vehicle Rest Area Facilities (HVRAs), based on best practice, to assist road managers in supporting the freight transport industry and their drivers in managing fatigue and complying with driving hours regulations.

Emerging technology – ITS

The Network Program supports the identification and assessment of new technology that may improve congestion, incident management, and network and traffic signal operations.

Recognising the increasing use of Intelligent Transport Systems (ITS) assets and solutions for real-time traffic operations, agencies are implementing processes and controls to protect themselves against malicious attacks and address any ITS security vulnerability. Through project NEG6121: Security vulnerability of existing intelligent transportation systems and devices, we facilitated the sharing of knowledge and practical experience as well as considering international best practice.

Managing Urban Congestion

Congestion results in significant costs to the community and industry by interrupting traffic flow and increasing journey times, resulting in less reliability regarding traffic times and less operational efficiency. There is no single 'solution' for improving road congestion. Carefully selected solutions integrated across transport modes, rather than operated independently, will have a greater combined impact than strategies adopted by one jurisdiction or for one mode of transport.

In **June 2018**, Austroads published a report to increase Australasian road agency use and application of Network Performance Indicators (NPI) by establishing principles that could present complex data so it could inform decision making and be understood by the public.

Austroads and members developed the NPIs to provide consistency in measuring road network performance across Australia and New Zealand. They provide metrics, including those on journey time, reliability and safety. However, their take up and application has been limited.

Stakeholders were crucial in developing the eight principles which included:

- inform and drive change
- target information to users
- make information consistent and regular

The next step is to revisit the NPIs to ensure that they are best tailored to guide decision making, particularly investment decisions.

austroads.com.au/publications/network/ap-r573-18

austroads.com.au/publications/network/web-r573-18

Active Travel and Integration with Public Transport

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

In **November 2018**, Austroads published an updated Australasian Pedestrian Facility Selection Tool User Guide to include economic evaluation updates, design improvements and the addition of Safe and Appropriate Speeds for New Zealand. The new input is used as the 'do minimum' speed for calculating delays for vehicle occupants and conforms with section 2.7 of the NZ Transport Agency 2018 *Economic Evaluation Manual* (EEM).

Expected crash reduction factor values for platforms, zebra crossings on platforms and zebra crossings on platforms with kerb extensions have also been updated to incorporate recent Australasian research into the safety of raised platforms.

The guide describes the user interface of the tool, including how to access it; the types of facilities that can be assessed; computer requirements; a quick-start guide and known issues and troubleshooting.

See the case study for more information:

austroads.com.au/__data/assets/pdf_file/0025/149650/AP-R592-18_User_Guide_Pedestrian_Facility_Selection_Tool_V2-1.pdf (guide)

austpedtool.com/index.html (tool)

CASE STUDY

AWARD-WINNING ONLINE SERVICE EVALUATES PROPOSED PEDESTRIAN CROSSING FACILITIES

Austroads' Pedestrian Facility Selection Tool is a free service for Australian and New Zealand practitioners, who enter information online on physical, environmental and operational factors of their proposed pedestrian crossing. The tool then evaluates pedestrian and vehicle delay, safe sight distances and pedestrian level of service, and calculates a benefit cost ratio (BCR).

Gaining the Award of Merit in 2016 from the Association of Consulting Engineers in New Zealand, the tool has been a useful device for the Australasian road industry. In 2018–19 alone, 1,590 people used it 2,645 times, with 69% of users from Australia and 21% from New Zealand.

"I've used it to quickly assess possible pedestrian crossing facilities on a busy freight route, and at a major tourist destination to assess at-grade versus underpass options," says Michael Blyleven, Technical Advisor, New Zealand Transport Authority. "You can input traffic volumes and pedestrian demands, and it works out the gaps, times to cross, delays and indicative BCR."

Bradley Jones, Senior Traffic Engineer, Premise in Queensland says: "It compares a wide range of crossing

options, including the option to provide no facility. It's quick and easy to use, and its comprehensiveness and independence are great benefits in objectively assessing and justifying crossing strategies."

Both the tool and accompanying user guide are updated annually to reflect changes in economic evaluation guidelines in Australia and New Zealand. The latest update in November 2018 also included Safe and Appropriate Speeds for New Zealand and updated expected crash reduction factors for crossings on raised platforms, based on recent Australasian research.

Traffic Management Planning and Infrastructure

The 13-part Austroads *Guide to Traffic Management* provides comprehensive 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.

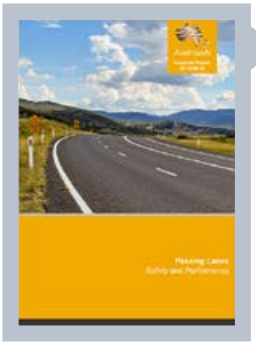
In **January 2019**, Austroads published a report providing the outcomes of a Safe System review of the Austroads *Guide to Traffic Management* (AGTM). The AGTM addresses treatment selection so plays an important role in influencing treatments used on road networks.

Austroads has strengthened the guidance relating to treatments and their likely effectiveness by presenting opportunities to integrate Safe System into, for example, intersection treatments, and other traffic engineering and management activities.

The report includes recent research and presents new and revised content to address many former Safe System gaps in the AGTM.

austroads.com.au/publications/traffic-management/ap-r595-19

austroads.com.au/publications/traffic-management/web-r595-19



In **January 2019,** Austroads published a report that examines the impacts of passing lanes on safety, journey time and user experience; and provides guidance to assist in the development of passing lane installation projects.

The research found that passing lanes result in safety benefits, including perceived safety by motorists, safer operational conditions, and historical crash reductions. Passing lanes also improve journey times through a small increase in travel speed and a significant reduction in time spent following a slower vehicle.

This project included a:

- literature review
- safety analysis, before-and-after analysis of crash records, speed and headway analysis, and overtaking behaviour analysis
- journey time analysis, including development of modelling guidance and numerical experiments on the impact of passing lanes on travel speed and following time
- road user experience survey, including an analysis of perceptions and valuation of level-of-service
- a review and re-calibration of the TRaffic on Rural Roads (TRARR) model.

austroads.com.au/publications/traffic-management/ap-r596-19

austroads.com.au/publications/traffic-management/web-r596-19

In **February 2019**, Austroads released updated editions of six Parts of the *Guide to Traffic Management* (AGTM), following a Safe System review.

The AGTM has 13 Parts and provides comprehensive traffic management guidance for Australian and New Zealand practitioners involved in traffic engineering, road design and road safety.

In January, Austroads released the report *Embedding Safe System in the Guide to Traffic Management*. The new and revised content recommended in that report for AGTM Parts 1, 5, 6, 7, 9, 10 and 12 has been incorporated into the series.

The publication of the six updated editions addresses the priority gaps identified in the review and presents an opportunity to better integrate Safe System into traffic engineering and management activities.

austroads.com.au/publications/traffic-management/agtm-set

Freight Transport/Road Productivity

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

CASE STUDY

AUSTROADS' PROJECT FORMS BASIS FOR NATIONAL FREIGHT AND SUPPLY CHAIN STRATEGY

In 2017, Austroads conducted a project with the Australian Logistics Council Supply Chain Standards Working Group and GS1 Australia to investigate the impact of using Global Data Standards (GDS) and GDS-enabled traceability systems to record and follow the journey of products from their suppliers to customers.

The project assessed the effectiveness of traceability systems using industry pilots with TOLL, Arrium OneSteel and Nestlé. Activities recorded included freight transport, pick-up and delivery locations, and delays due to traffic congestion and accidents.

The results demonstrated improvements in terms of efficiency, integrity, visibility and innovation, and concluded that benefits to Australian manufacturers, producers and traders would justify incorporating the technology.

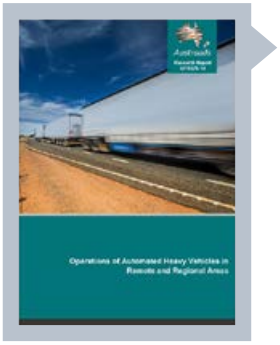
Austroads' report, Investigating the Potential Benefits of Enhanced End to End Supply Chain Visibility, was published in March 2017. In a media release, the then Minister for Infrastructure and Transport said the report findings were in line with the government's commitment to develop a National Freight and Supply Chain Strategy.

Anthony Swan, Director, Freight and Ports Policy, Dept of Infrastructure, Transport, Cities and Regional Development, has subsequently managed the strategy's development.

"Austroads' report informed the strategy's development by providing a clear case and recommending actions for adopting an agreed industry data standard," Anthony said.

"Action 2.1 of the strategy commits to 'Adopt and implement national and global standards, and support common platforms, to reduce transaction costs and support interoperability along supply chains,'" said Anthony. "The strategy notes that 'research and pilots in Australia have shown that the adoption of global data standards demonstrates significant net economic benefits'."

The National Freight and Supply Chain Strategy and Action Plan will be released in August 2019.



In **August 2018**, Austroads published a report that identified opportunities for future use of automated heavy vehicles in regional and remote areas of Australia and New Zealand, as well as any boundaries to prevent such use.

The report provided road managers and industry with direction for their development of facilities, procedures and regulations around the use of automated heavy vehicles.

The roles and responsibilities of road managers and government were defined in respect of the operation of the road network. The findings were based on the most suitable automated heavy vehicle operations in remote and regional areas, which were found to be automated highway driving and platooning.

An implementation roadmap was derived from the lessons learned, covering technology, infrastructure (physical and digital requirements), regulation and opportunities in remote areas.

austroads.com.au/publications/freight/ap-r579-18

austroads.com.au/publications/freight/web-r579-18

In **October 2018**, Austroads published a report to prepare, implement and evaluate trials of freight deliveries in urban areas in off-peak periods.

The trials were set up using the findings from Austroads project FS1999 Overcoming barriers to off-peak movement of freight in urban areas, which included the need for effective stakeholder engagement, collaboration, sharing of problems and solutions, and the importance of leaving a legacy after major events.

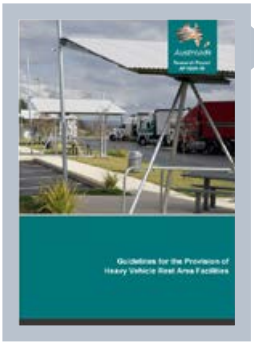
Both Brisbane City Council and City of Gold Coast volunteered to undertake trials in their jurisdictions. The Gold Coast were particularly interested in trials to help prepare them and the local freight industry for deliveries during the Commonwealth Games in April 2018.

This report provides a summary of findings, responses from stakeholders, and the successes and challenges of setting up delivery trials on the Gold Coast and in Brisbane.

austroads.com.au/publications/freight/ap-r586-18

austroads.com.au/publications/freight/web-r586-18

austroads.com.au/publications/freight/ap-r586-18 (summary video)



In **January 2019**, Austroads published Guidelines for the Provision of Heavy Vehicle Rest Area Facilities (HVRAs) to help road managers plan and design HVRAs.

Heavy vehicle drivers often work for long hours and are susceptible to fatigue. HVRAs can help drivers manage fatigue and comply with driving hours regulations, by providing an opportunity for sleep and rest breaks. The successful operation of HVRAs depends on many factors including planning, design, construction and maintenance.

The guidelines include:

- an outline of the different types of HVRAs road managers can implement to cater for the heavy vehicle driver's rest needs
- guidance on how to assess the need for and prioritise HVRAs
- the principles of good HVRA design.

This document draws on and provides an update to the 2005 National Transport Commission Guidelines. It also incorporates guidance outlined in Proposed HVRA Needs and Prioritisation Methodology, published by Austroads in 2012. This document supersedes those two documents.

austroads.com.au/publications/freight/ap-r591-19

austroads.com.au/publications/freight/web-r591-19

Significant Outputs

Austroads Guide to Temporary Traffic Management

The development of a new Austroads Guide to Temporary Traffic Management (AGTTM) began and progressed in 2018-19 with the development of an 10-Part Guide which will improve safety for all workers at roadworks sites, provide safe roads for motorists and pedestrians, and support road agencies and industry in implementing a harmonised approach to temporary traffic control at road worksites across Australia and New Zealand.

The Guide covers all the processes, procedures and technical information required to develop, implement and manage best practice temporary traffic management practices at work sites, including information on worker training competencies, on-site risk assessment, design of temporary traffic guidance schemes and the decision-making process on which site set up and devices to use.

As at the end of June 2019, all Parts were well advanced in their development including progress through industry consultation, project working group reviews, and Board approvals. The intent is to release the first edition of the AGTTM later in 2019, followed by member agencies putting the Guide into practice in their jurisdictions with support from Austroads as necessary.

Work will continue to ensure ongoing evolution of the AGTTM based on jurisdiction and industry experience.

In parallel, an initial business case is being developed to confirm the technical feasibility of registration and company prequalification systems that would ensure harmonisation of training as well as alignment of qualifications and training competencies across borders. The Austroads Board will review this in November 2019, and if it is approved, we will develop a detailed business case and implement the systems.

National Intelligent Transportation Systems Architecture

Road and transport agencies increasingly manage multiple datasets, systems and operational processes to deliver their business objectives and services. The risks of overlaps and gaps between these, and misalignment between data, systems, processes and business objectives, call for a robust and structured management framework.

The National ITS Architecture Framework (NIAF) provides a commonly agreed approach based on enterprise architecture principles for planning, defining, and linking data, systems and operational processes to the business objectives of road and transport managers, supporting ultimately all their functions and services and enabling successful change management.

Austroads completed Stage 1 of the NIAF in 2014 and Stage 2 in 2017, by assessing international architectures to identify the approach most relevant to Australia, and by developing a roadmap to define future development. Stage 3, currently in progress, is establishing a governance framework, developing high-priority national architecture content and resources, and undertaking stakeholder engagement to support and encourage its use.

Movement and Place Framework

Austroads commenced a project in May 2019 to classify, measure and value the benefits of place in the transport system, and to fill the gap between urbanism and road design and operations.

Roads and streets are part of the transport system and public realm of cities, and often have both a movement and a place function. However, transportation planning and investment have historically been concerned with movement, particularly the efficiency of vehicles, network efficiency and travel time savings for vehicles. Other measures related to destination, social and community interaction, liveability and health, amenity and local economy are often underplayed and generally not measured.

Movement and Place Frameworks (see Part 4 of Austroads' Guide to Traffic Management) are being increasingly adopted around Australia and New Zealand to help governments address this problem. While many agree on how movement is classified, measured and valued, the place function, classifications and measures adopted are inconsistent, and not always producing desired outcomes. Austroads' project NEG6181: Classifying, measuring and valuing the benefits of place on the transport system will produce some consistent and focused measures to support members in adopting effective movement and place frameworks.

Future Focus

The work program for 2019–20 will continue to deliver on the strategic priority of improving mobility on the road network, and align with the work streams and priorities identified by the Board.

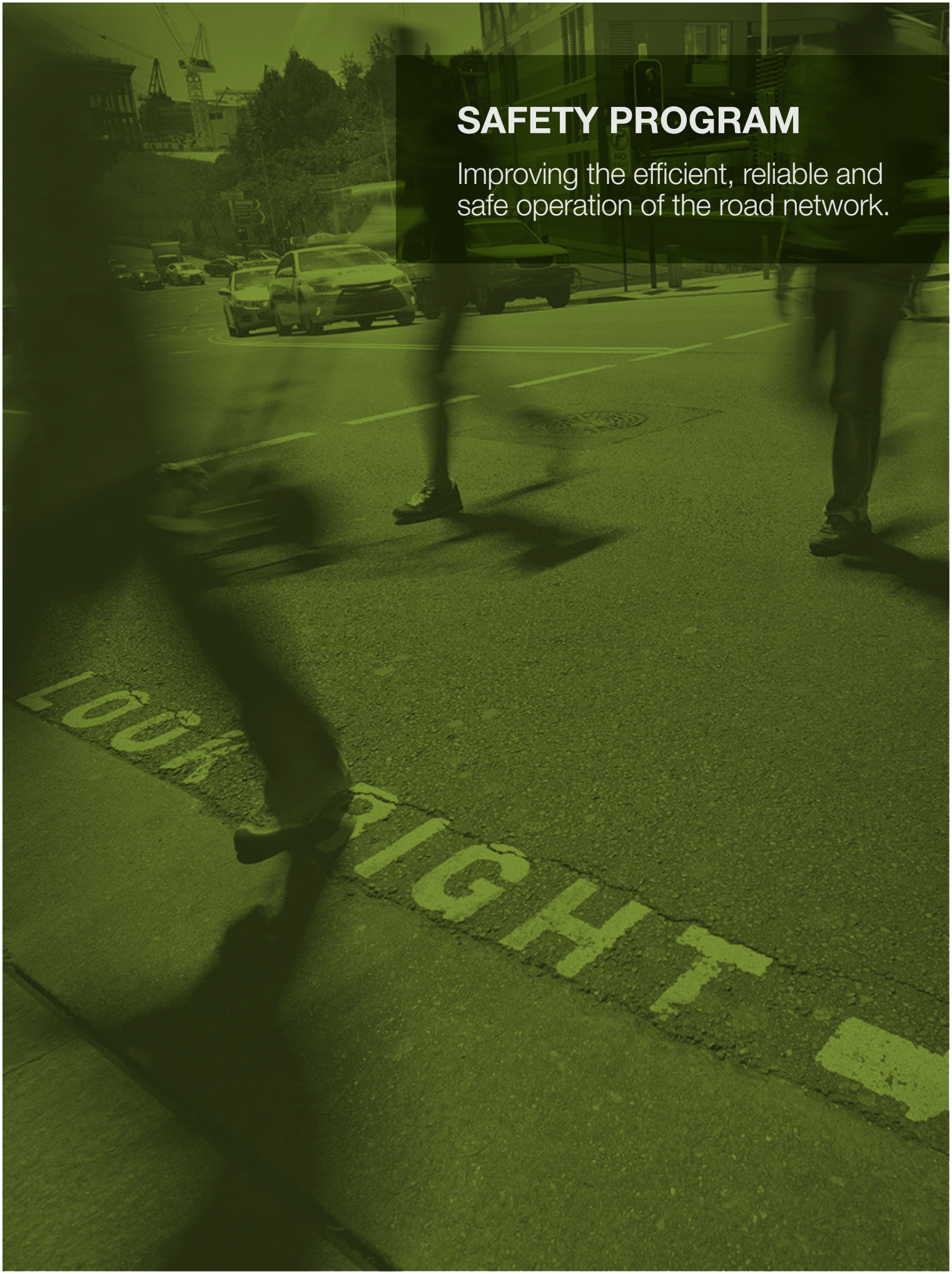
Key areas of focus include:

- supporting agencies and industry in implementing the forthcoming Guide to Temporary Traffic Management (see Significant Outputs) in their jurisdictions, and continually improving the Guide based on practical experience
- building the case for individual registration and company prequalification systems for temporary traffic management
- defining the case for implementing a national heavy vehicle bridge assessment system
- developing the National ITS architecture (NIA) content and confirming the level of commitment and adherence to NIA of the individual jurisdictions (see Significant Outputs)
- updating guidance in traffic flow theory for arterial roads and freeways
- increasing research into multi-modal and active transport projects, in line with the ongoing evolution of Austroads member organisations
- researching best practice for network operational planning and road-based transport performance metrics, and defining the way forward beyond the existing Austroads Network Performance Indicators
- proactively collaborating with other Austroads program areas on projects.

The Network Program will also focus on delivering research with practical value to member organisations and identify the areas of priority for future research to be considered in the Austroads Strategic Plan 2020-2024.

Projects approved for commencement in 2019-20 include:

Network Operations and ITS	
NEG6185	Innovation and best practice in performance measurement and transport information
NEG6206	Network operation planning - case studies and capability building
NEG6207	Guidance to support ITS decision making on motorways, freeways and arterials
NEG6208	Guidance and readability criteria for traffic sign recognition (TSR) systems reading electronic signs
Traffic Management	
NTM6186	Improved guidance on interrupted traffic flow theory
NTM6187	Effectiveness and implementation of raised safety platform
NTM6189	Passing lane investigation: Design, placement and safety
NTM6195	Trip generation rates for Australia and New Zealand
NTM6205	Opportunities to build capability in traffic management
NTM6238	Improved traffic management guidance – Freeway capacity analysis and on road public transport priority
Freight	
NEF6184	Identification of best practice for professional and sustainable road transport operations in Australia and New Zealand
NEF6188	Review of mass limits for class 1 load carrying and special purpose restricted access vehicles
NEF6209	Decision making framework and tools for freight access decisions
NEF6210	Best practice approaches to freight and communities
NEF6237	Investigation of pavement assessment methodologies for PBS access



SAFETY PROGRAM

Improving the efficient, reliable and safe operation of the road network.

Overview

The Safety Program's strategic priority 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 few years. This is a trend around the world, and also experienced in Australia and New Zealand. However, some Australian states have reported some improvement in road safety performance, which will be monitored.

Austroads is committed to progressing the Safe System approach, building on effective existing countermeasures, further reducing deaths and serious injuries on the road network and aiming for zero.

Work Streams

- Emerging technology – C-ITS, automated vehicles
- National Road Safety Strategy priorities
- Understanding crashes and risks
- Safe System, incorporating safer road and roadside infrastructure, safer speeds and safer vehicles
- Driver licensing and vehicle registration
- Vulnerable road users including pedestrians, cyclists, motorcycle riders, older people and indigenous people.

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. With approximately 50% of crashes occurring on local government roads, Austroads is also ensuring practices are developed with local government practitioners in mind. "This will be important as Austroads adopts and implements Safe System thinking for all roads and supports jurisdictions in implementing the Road Safety Action Plan 2018 to 2020. I want to develop a culture where no stone is unturned in the endeavour to save lives," David said.

PROGRAM COORDINATOR: LEONIE PATTINSON

Program Governance

ROAD SAFETY TASK FORCE

Bernard Carlon, TfNSW	Sharon Nyakuengama, DITCRD
Nicole Spencer, DITCRD	Kym Foster, ALGA
David Moyses, MR WA	Lisa Rossiter, NZTA
Mark Russell, Transport for Victoria	Brett Clifford, DoT NT
Melissa Watts, RSC WA	Craig Hoey, DSG TAS
Belinda Owen, JACSD ACT	Fabian Marsh, NZTA
Gabby O'Neill, DPTI SA	Ann-Maree Knox, QLD DTMR
Mike Keating, QLD Police	Joanna Robinson, QLD DTMR
Chris Brennan, Transport for Victoria	Antonietta Cavallo, TfNSW

ROAD DESIGN TASK FORCE

Richard Fanning, VicRoads	Ken Marshall, TCCS ACT
Albert Wong, MR WA	Bernard Worthington, DTMR Qld
Ben McHugh, Roads ACT	Peter Ellis, RMS NSW
Sam Hatzivalsamis, DIPL NT	Tony Napoli, Blacktown City Council
James Hughes, NZTA	Edi Winkler, DPTI SA
Geoff Armstrong, Eurobodalla Shire Council	

REGISTRATION AND LICENSING TASK FORCE

Tim Matthews, Austroads NEVDIS	Helen Lindner, VicRoads	Emma Kokar, DPTI SA
Geoff Hughes, NMVTRC	Chris Davers, WA DoT	Don Hogben, DPTI SA
Matthew Squire, DITCRD	Melissa Cummins, QLD DTMR	Martin Crane, DSG TAS
Claudia Huertas, RMS NSW	Roger Chao, VicRoads	Claire Manalo DIPL NT
Karen McCluskey, DSG TAS	Charles Ronaldson, NZTA	Adrian Chippendale, DITCRD
Cheryl Richey, TfNSW	Rod Paule, TCCS ACT	

AUSTROADS SAFETY BARRIER ASSESSMENT PANEL (ASBAP)

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.

Daniel Naish, QLD DTMR	Evan Coulson, VicRoads (from August 2017)	Julian Chisnall, NZTA
Phil Molloy, DPTI SA	Karl Cloos, TCCS ACT	Bruce Snook, MR WA
Sam Hatzivalsalmis, DIPL NT	Sue Philpott, Secretariat, RMS NSW	Peter Hubble, DSG TAS
Jade Hogan, Chair, RMS NSW		

OTHER TECHNICAL REFERENCE AND WORKING GROUPS

Safe System Theme Groups
These four groups comprise representatives from state and territory government agencies and the Commonwealth. They are aligned with the four Safe System elements:

1. Safe roads and roadsides
2. Safe speeds
3. Safe vehicles
4. Safe people
5. Safe management (by the Task Force).

Agreed Practice Outputs

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

Program Activities

Highlights

- We completed Stage 1 of a pilot project to improve the reporting of progress against the National Road Safety Strategy 2011-2020 target of a 30% reduction in serious injuries, by matching crash and hospital data for 2014 for NSW, Victoria, Queensland and South Australia. The key challenges were to gain the required approvals and navigate the ethical approval processes with data custodians and the Australian Institute of Health and Welfare.
- To improve speed management on Australasian roads, we developed a new online map and report to help road agencies assess road safety risk by undertaking an Infrastructure Risk Rating (IRR) assessment and set safe and appropriate speed limits. This work supports speed related actions under the National Road Safety Action Plan 2018–2020.
- To increase licence ownership and retention among Indigenous and other road users, we developed service design proposals to reduce licensing barriers and deliver best practice driver licensing services.
- Research undertaken in 2018–19 by the Austroads Safety Program either completed or nearly completed prerequisite guidance in supporting the delivery of the National Road Safety Action Plan 2018–2020.

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 level of global road fatalities by increasing regional, national and international activities. Australian and New Zealand governments support the decade of action and are committed to the *National Road Safety Strategy 2011–2020* (NRSS) to achieve those targets by 2020.

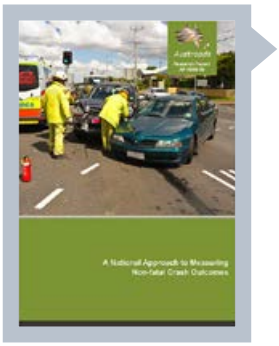
While fatalities were decreasing in line with the targeted outcome, more recently a plateau in performance has occurred in Australia and New Zealand. This plateau was also experienced by other OECD countries. In this context, Australasian road and transport agencies have focused on initiatives to immediately mitigate crashes and longer-term actions to reduce the number of incidents and fatalities.

Austroads through the Road Safety Task Force with the Australian Government as lead agency, facilitated the development of the National Road Safety Action Plan 2018–2020 which supports the NRSS. Austroads is working cooperatively with Commonwealth, state and territory, and local road agencies to facilitate delivery of the action plan by providing contemporary and evidence-based research and guidance.

The Austroads research program has been front loaded to deliver research findings earlier to facilitate road and transport agency implementation.

In supporting all jurisdictions, Austroads is integrating Safe System principles, contemporary safety treatments, dimensional road design guidance and speed management options into the one simple decision-making method, to assist road authorities, particularly smaller road agencies, to develop their own network-wide safety plan.

> “The Austroads research program has been front loaded to deliver research findings earlier to facilitate road and transport agency implementation.



In **March 2019**, Austroads documented Stage 1 of a pilot project to improve the reporting of progress against the NRSS, by matching crash and hospital data. The aim was to provide a proof of concept for a national approach to supply routine data on non-fatal hospitalised road injuries for reporting progress against the NRSS target of a 30 % reduction in serious injuries. A serious injury is defined in the NRSS as a hospitalised case

Neither crash data nor hospital data alone provide an adequate national source of data, with linkage of hospital and police data recognised by road transport agencies as integral to future reporting.

Key outcomes of Stage 1 included:

- successfully linking crash, hospital and National Death Index data for NSW, Victoria, Queensland, and South Australia for 2014
- being granted permission to link data for the Australian Capital Territory and Northern Territory.

Stage 1 has provided a proof of concept for a national approach, with a case estimation process developed and applied, and statistical results obtained. The report recommends proceeding with Stage 2 to extend the process to Tasmania and Western Australia, and produce a series from 2008 to the latest year of data.

austroads.com.au/publications/road-safety/ap-r599-19

austroads.com.au/publications/road-safety/web-r599-19

In **April 2019**, Austroads published an updated edition of Guide to Road Design Part 2: Design Considerations with a new extensive section on geotechnical investigation and design.

A new appendix describes the importance of geotechnical investigations and the way road design outcomes are influenced by site conditions, associated ground response, geological hazards and locally available material. Without guidance being available for this specialised discipline, this update provides information specifically for road designers.

Guidance is provided to practitioners on the range of influences, information, data, criteria and other considerations that may have to be assessed in developing a road project. The Guide also describes the basis of the guidelines and the context in which they should be applied.

austroads.com.au/publications/road-design/agrd02

Understanding Crashes and Risks

By focusing 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 to the highest trauma risks identified by road and transport authorities.

CASE STUDY

WORLD-FIRST COMPUTER GENERATED HAZARD PERCEPTION TEST FOR MOTORCYCLE RIDERS USED IN WESTERN AUSTRALIA

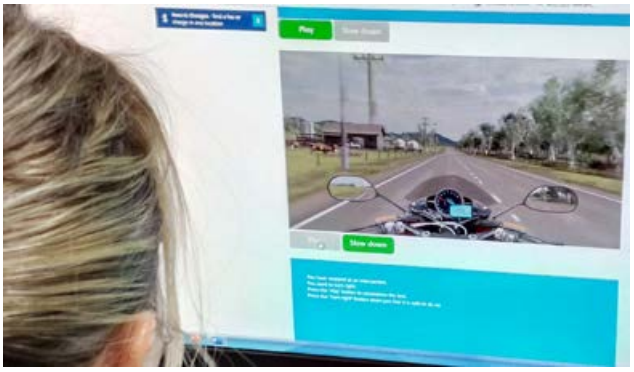
In a world first, the Western Australian Department of Transport (DoT) has adopted a motorcycle-specific hazard perception test (HPT) as part of the assessment process for obtaining a motorcycle licence.

The HPT – which measures a motorcyclist's ability to assess traffic situations and make safe driving decisions – uses high-fidelity computer generated videos commissioned by Austroads in 2016.

The videos were developed following an analysis of mass crash and in-depth crash investigation data to determine the most problematic road and traffic hazards for motorcyclists.

Motorcyclists undertake manoeuvres that lead to specific hazards and must be more aware of road surface hazards. The new test gives DoT greater assurance that motorcycle applicants have the necessary skills to identify potential hazards and respond with safe riding decisions.

"We want to test novice motorcyclists on hazards that are specific to them," Joan Brierley, Executive Director, Drivers and Vehicles said. "As motorcyclists have an elevated crash risk, they need well-developed hazard perception skills. Testing novice riders on hazards such as the need to slow down on degraded roads can reduce motorcycle accidents and increase road safety.



Changes to the Motorcycle Graduated Licensing System have been well received by the community, and have resulted in an improved customer experience through the application and assessment process."

DoT has also adopted the online car HPT commissioned by Austroads. Other states are preparing to adopt the HPT for learner car drivers too.

Embedding Safe Systems

Embedding the Safe System approach to improving road safety in its work program is a key focus for Austroads. Safe Systems incorporate safer road and roadside infrastructure, safer speeds and safer vehicles. The Safe System approach has been endorsed by the OECD and adopted in the NRSS and the supporting National Road Safety Action Plan. 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 in accordance with 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.

In **February 2019**, Austroads published an updated edition of *Guide to Road Safety Part 6: Managing Road Safety Audits*. The Guide provides advice on the procurement, management and conduct of road safety audits. It aims to:

- inform practitioners new to road safety audit principles and concepts, especially project clients and project managers, and promote the conduct of audits and other assessments to maximise their benefits
- ensure practitioners are aware of up to date operating environments and contexts (e.g. the Safe System approach to road safety), and recent developments in predictive risk assessments.
- Part 6 emphasises the responsibilities of road and transport agencies and key players such as project managers, project sponsors and auditors to maximise alignment with Safe System principles by integrating them into the road safety audit process. This can be achieved by:
- relating possible crash forces to tolerable levels of the human body when identifying hazards and assessing fatal and serious injury risks
- categorising road safety audit findings and treatment options by their Safe System alignment.

The 2009 edition of Part 6 has been temporarily moved to Part 6A. It is recognised that some degree of repetition and obsolescence exists between the two guides. Where this occurs, the new Part 6 shall take precedence.

Consolidation of the two guides into one standalone document has been proposed to commence in mid-2019.

austroads.com.au/publications/road-safety/agrs06

austroads.com.au/publications/road-safety/web-agrs06-19

In **March 2019**, Austroads published a new tool and report on Infrastructure Risk Rating (IRR), a simple road assessment methodology designed to assess road safety risk at a network level and set safe and appropriate speed limits. Speed limits should be set considering the function, design and safety of the road.

This report explores IRR, which was initially developed in New Zealand, in some detail, particularly emphasising ways it may be used by state and local governments in Australia to inform speed management on their road networks. Best practice case studies are provided to help practitioners design and implement their own speed management strategies.

The report also identifies good practice guidance for engagement and consultation to effectively implement actions to manage speed.

The report is accompanied by a manual that sets out the steps for undertaking an IRR assessment. It is divided into four parts:

1. Identify supporting data sources
2. Identify homogenous road sections
3. Code road and roadside features
4. Calculate IRR score and risk band.

An online map-based tool for calculating IRR can be accessed via http://www.irrtool.com/

austroads.com.au/publications/road-safety/ap-r587-19

austroads.com.au/publications/road-safety/ap-r587a-19 (manual)

austroads.com.au/publications/road-safety/web-r587-19

CASE STUDY

REDUCED SPEED LIMITS IN AREAS WITH MANY PEDESTRIANS AND CYCLISTS IN CAIRNS CBD

A case study in Austroads' *Road Risk Assessment, Case Studies and Engagement Guidance for Speed Management* was based in Hamilton, New Zealand, where the high level of community and stakeholder engagement before and after the speed limit had been reduced, resulted in residents and local government understanding the benefits of, and supporting, the change.

The learnings from the Hamilton case study were used to inform a communication strategy for a proposed speed reduction for the Cairns CBD in Queensland, from 50 kph to 40 kph. The crash data supported lower speeds as between 2013 and 2017 there were 171 casualties in Cairns CBD, compared with the regional CBDs of Townsville (47), Mackay (83) and Rockhampton (57).

Local community concerns for the proposal in Cairns were based on perceptions of increased travel times and congestion, so on behalf of the Queensland Government, community members were invited to attend focus groups. Engagements focused on the safety benefits of reduced speed for all road users which debunked negative perceptions, and were supported through written support from community leaders.

The government continued communicating throughout the project, resulting in changed community attitudes. At the beginning of the campaign, a local media outlet ran an article with the headline: 'Speed not the problem' but by implementation stage, the headline was: 'Slowdown a must in CBD'.

Local politicians, the business community and the public supported and owned the introduction of the lower speed limits in February 2019. The expected reduced numbers of casualties and crashes in Cairns CBD will be monitored over the coming years.

Driver Licensing and Vehicle Registration

The Registration and Licensing 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 experiencing barriers to obtaining and retaining driver licences.

In **August 2018**, Austroads and the National Motor Vehicle Theft Reduction Council (NMVTRC) developed a guide to support the consistent application of special assessment criteria for classifying heavy written-off vehicles (HWOVs).

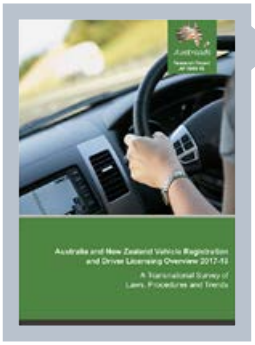
The pre-existing state and territory rules apply to light passenger and commercial vehicles, motorcycles and caravans. The new criteria apply to rigid trucks, prime movers, trailers and buses, and are designed to consistently identify and appropriately classify HWOVs that should not be repaired on safety grounds and are suitable only for dismantling or scrap.

This guide is intended to be used by insurance personnel and other notifiers who must classify HWOVs for regulatory purposes. It provides sufficient technical precision to be referred to as an incorporated instrument under state and territory law, should a jurisdiction wish to do so.

Austroads and the NMVTRC are collaborating on developing an appropriate industry training program and resources.

It is expected that NSW will be the first jurisdiction to implement a written-off heavy vehicle register, with implementation dates for other jurisdictions to be determined.

austroads.com.au/publications/registration-and-licensing/ap-g90-18



In **December 2018**, Austroads published a comparison of driver licensing and vehicle registration practices by all Australian states and territories and New Zealand. The report highlights the considerable progress made in harmonising registration and licensing regimes.

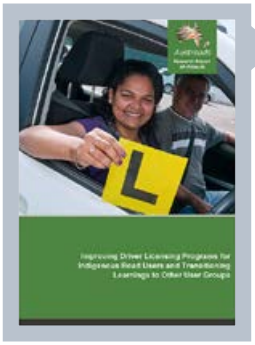
The report includes an outline of the road safety focus in Australia and New Zealand; a description of the key practices associated with vehicle and driver licence pathways; and an explanation of the major differences between the jurisdictions.

The publication aims to improve regulatory and service delivery policy, planning and coordination, with the overarching objective of improving road safety across Australia and New Zealand.

It will help road and traffic agencies understand how other jurisdictions are responding to ongoing policy and operational challenges, inform better policy development by all Austroads members, and assist discussions in transnational taskforces and forums.

The publication will also help other stakeholders—including other government agencies, peak bodies, research organisations, industry participants and the general public—to understand the practices and policy directions of Australian and New Zealand road and traffic agencies.

austroads.com.au/publications/registration-and-licensing/ap-r593-18



Indigenous people's and other road users' lack of appropriate access to driver licensing services is a barrier to employment, economic participation and access to government and non-government services.

In **January 2019**, Austroads published a report that presents the views of jurisdictions expressed at the 2016 Cairns Indigenous Licensing Forum. The report contained a literature review relating to driver licence acquisition and maintenance by Indigenous communities, an examination of barriers to access and participation, the impact of social and economic disadvantage experienced by Indigenous Australians in relation to transport access, and associated matters including transport related contact with the justice system and road trauma. Specific jurisdiction reports and evaluations, and literature relating to licence access by other harder-to-engage individuals and communities, were also referred to.

This project provided:

- service design proposals to mitigate licensing barriers to increase licence ownership and retention among Indigenous and other road users
- a proposed minimum dataset and data sharing arrangement to inform the development and delivery of best practice driver licensing services for Indigenous and other road users.

austroads.com.au/publications/registration-and-licensing/ap-r594-19

austroads.com.au/publications/registration-and-licensing/web-r594-19

Significant Outputs

Significant milestones have been achieved for two projects this year.

TP2056 Review the Guide to Road Design Part 6

The Austroads Road Design Task Force expressed concerns with the content of the *Guide to Road Design Part 6: Roadside Design, Safety and Barriers* and wished to provide a simpler, more comprehensive and more up-to-date version, which:

- avoided the use of complex assessment practices and contained simple graphs to encourage use
- recognised the rigour of existing practice which is based on lower precision information
- removed the default initial assessment of 'clear zones' as this was not considered to align with Safe System
- followed standard risk assessment practice and provided an estimate of the residual risk associated with different roadside treatments
- aligned with the Safe System Risk Assessment Framework and quantified exposure, likelihood and severity factors
- used the latest worldwide best practice and removed GRD outdated information.

A simple procedure has now been drafted, allowing designers to review the risk of hazards on links and networks holistically so there is a consistent level of safety, rather than some sites on a network having a high order of safety and other sections having a much lower level. This new simple graphical method enables designers to calculate a risk score from the road characteristics and roadside dimensions of a typical cross-section of the network.

The process converts the relatively complex evidence in terms of exposure, probability and consequence to a simplified graphical output.

This procedure is particularly relevant for time-poor practitioners in the many smaller jurisdictions and for local government, and may be a world-first due to its simplicity.

Release of the new procedure and its publication is due later in 2019.

SRD6108 Network-wide road design for road stereotypes including Safe System and supporting network safety plan development

This project aims to advise road design practitioners on current and emerging practices for different road stereotypes. These focus on the design of road cross-sections that meet Safe System objectives for specific road corridors.

These practices may deliver a world-first, and at least an Australian first, performance-based road design standard that integrates cross-sectional guidance, safety solutions and decision-making on speed management for both mid-blocks and significant intersections into one process. They enable each of the 600+ jurisdictions across Australia to develop network safety plans to meet the requirements of the National Road Safety Action Plan 2018–2020.

Key outcomes are:

- new road design practices that will provide value for money
- consistent outcomes for road corridors
- practices that will meet the *Guide to Road Design* principle of a self-explaining road, support the doctrine of 'no surprises for drivers', and create the safest motoring environment.

Consultation in preparation for release in late 2019 is about to commence.

Australasian Road Safety Conference 2018

Austroads is a major sponsor of the annual Australasian Road Safety Conference, which in 2018 was held in Sydney and attracted more than 700 attendees. The conference gave Austroads opportunities to profile several of its projects including the safety aspects of connected and automated vehicles, and several visitors to the booth subscribed to the *Roadwatch: Round-Up* monthly enewsletter.

Safety Program Manager David Bobbermen presented on the development of the NRSS, and sessions were held for local government road agencies on the Safe System approach.

Future Focus

The Safety Program will continue to work to prevent death and serious injuries on our roads by developing contemporary practices, progressing to network-wide decision-making methods and using a Safe System approach; and by ensuring the best network-wide outcome can be achieved.

The Safety work program for 2019–20 supports the program's and sub-program's objectives and outputs by:

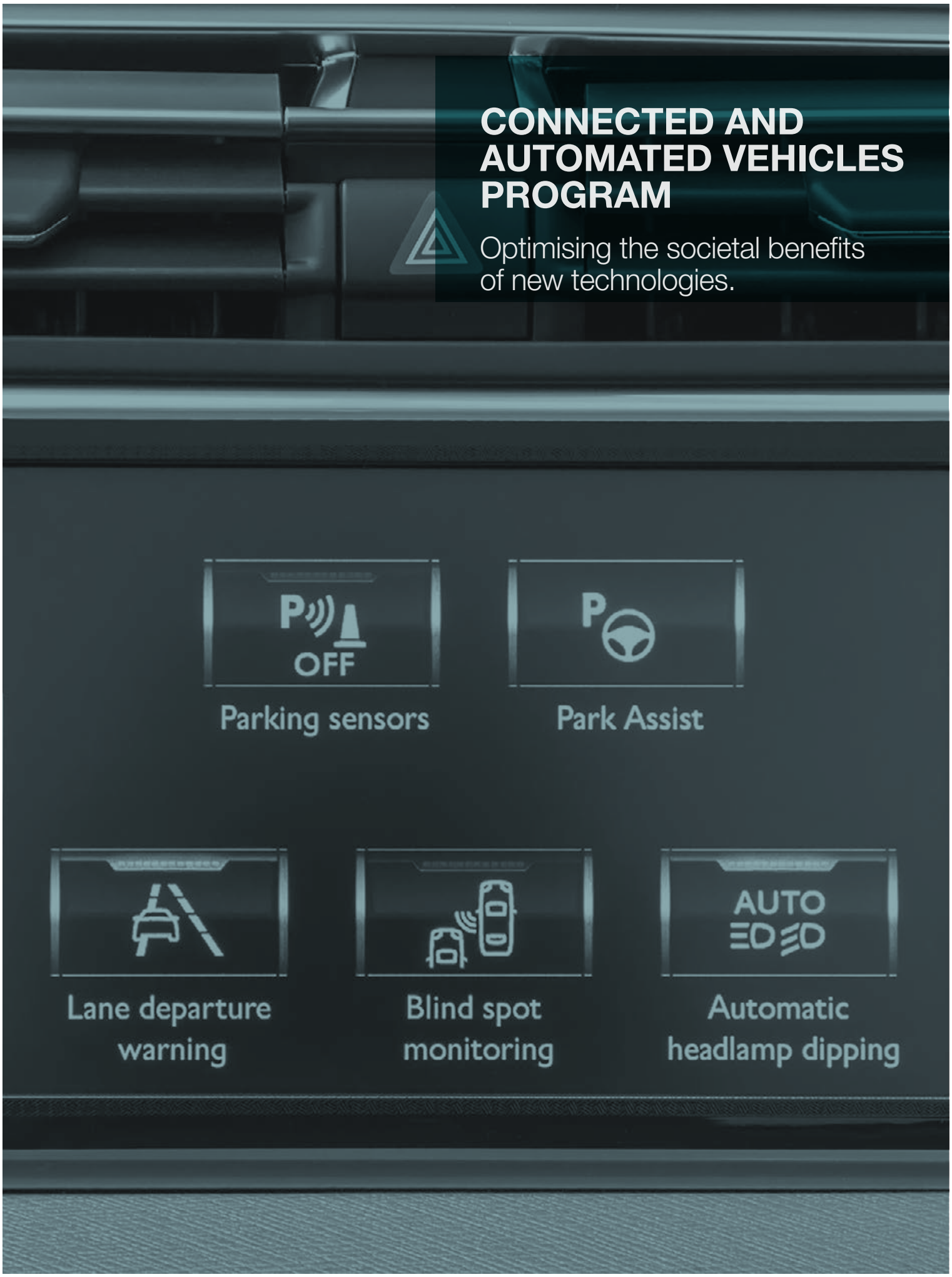
- further implementing the National Road Safety Action Plan for 2018–2020
- building on work with jurisdictions to address current and emerging safety challenges to reduce serious road trauma, including motorcycle accidents
- promoting harmonisation of road design practice, adoption of emerging technology and incorporation of the Safe System approach in Austroads Guides
- increasing consistency and efficiency in registration and licensing across jurisdictions, improving registration and licensing service delivery to enable more convenient and accessible services, and improving access to driver licences for Indigenous Australians and Australians experiencing disadvantage.

Projects approved for commencement in 2019–20 include:

Road Safety	
SAG6221	Revision of the *Guide to Road Safety – Part 6a: Implementation of Road Safety Audits* in the context of the new Part 6
SAG6222	Motorcycle rider perceptive countermeasures
SAG6223	National prediction model (Implications for the next National Road Safety Strategy)
SAG6226	Vehicles as a workplace: deployment and promotion
Road Design	
SRD6219	Inclusion of recent road safety research in the *Guide to Road Design* – Phase 2
SRD6220	Multiple small amendments to the *Guide to Road Design* for delivery efficiency and to accelerate guidance to practitioners
SRD6229	Update of *Guide to Road Design Part 5: Drainage – General and Hydrology Considerations (Australian Rainfall and Runoff Alignment)*
Registration and Licensing	
SRL6217	Heavy vehicle WOVR (coordination of pre-implementation development tasks)
SRL 6218	Nationally consistent framework for motorised mobility devices

CONNECTED AND AUTOMATED VEHICLES PROGRAM

Optimising the societal benefits of new technologies.



Overview

The world we live in is changing at a faster rate than ever before. New technologies such as smartphones, digital cameras and positioning technology such as GPS have thrust us into a new era of transportation, one that even a decade ago would have been hard to predict. Connected and partially automated vehicles are already using our road networks. The Connected and Automated Vehicles (CAV) Program is working with key government and industry stakeholders to prepare the way for even higher levels of automation that have the potential to offer substantial safety, efficiency and environmental benefits for the people of Australia and New Zealand.

Work Streams

The key focus areas for the CAV Program are automated vehicles and cooperative intelligent transport systems (C-ITS).

People

JOHN WALL, PROGRAM MANAGER CONNECTED AND AUTOMATED VEHICLES (FROM OCTOBER 2018)

John Wall is the Program Manager, Connected and Automated Vehicles at Austroads.

John established the Road Safety Technology Section in the former Roads and Traffic Authority of NSW in 2008 and he is recognised as one of Australia's leading specialists in applying intelligent transport systems to meet road safety goals. In 2014, his team established the CITI Project, the world's largest Heavy Vehicle Co-operative Intelligent Transport Systems test bed.

John is the author of numerous research papers on the role of technology in reducing the incidence and severity of crashes on the road network. His work has been published in several peer reviewed journals and he is a much sought after speaker both nationally and internationally. He has been an active member of the CAV Program Steering Committee since it was established in 2011.

John's qualifications include a Diploma of Applied Science, Graduate Diploma of Education and Master of Public Health. John is also a recipient of the National Medal for more than 30 years of active service with the NSW State Emergency Service.

PROJECT MANAGER – AUTOMATED VEHICLES: Chris Jones (VicRoads, Victoria)

PROJECT MANAGER C-ITS: Niko Limans (Transport and Main Roads, Queensland)

TECHNICAL SUPPORT CAV: Richard Zhou and Sui Yong (VicRoads, Victoria)

TECHNICAL SUPPORT C-ITS: Geoff McDonald (Transport and Main Roads, Queensland)

Program Governance

The Austroads CAV Program has a governance structure that provides effective guidance, decision making and program management controls. Key governance groups for the program include:

- the **Steering Committee** – provides technical endorsement and guidance for the work program, and links to jurisdiction projects and initiatives. It comprises representatives from Austroads road agency members, the Australian Government and the National Transport Commission.
- the **Industry Reference Group** – provides a forum to engage, consult, share knowledge, and seek guidance and direction. It comprises many peak industry groups and government stakeholders across a wide range of relevant domains.

CAV STEERING COMMITTEE

Dennis Walsh, QLD DTMR	Joanne Murray, DPTI SA
Wayne Harvey, VicRoads	Kamal Weeratunga, MR WA
Steven Shaw, RMS NSW	Roland Pittar, DITCRD
Benjamin Hubbard, TCCS ACT	Peter Hubble, DSG TAS
Aftab Abro, DIPL, NT	Dirk Van Der Valt, NZTA

Program Activities

Highlights

- As future connected vehicles will use standards developed in Europe to read each other and road infrastructure, we conducted research to better understand the threats, vulnerability and risks associated with the European Cooperative Intelligent Transport platform. This research will help Australian and New Zealand road agencies to better prepare for future cyber security risks.
- We completed a project to examine what data agencies will need to provide to connected and automated vehicles to enable them to effectively read the road and safely operate across the road network.

In **August 2018**, Austroads published a report that investigated the potential changes needed to the design, placement and maintenance of traffic signs to optimise their interpretation by traffic sign recognition systems (TSR).

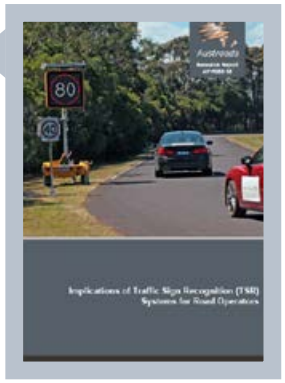
TSR is an in-vehicle technology that manufacturers are using in speed assistance and automated driving. One benefit of their successful introduction is improved road safety.

The report provides the results of:

- literature reviews relating to TSR systems and Australian and New Zealand road signage
- interviews with vehicle manufacturers and key technical committees to gain their input on suitable traffic signs
- on-road and off-road evaluations using a range of modern vehicles.

The report recommends changes to:

- enhance electronic traffic sign readability
- installation and maintenance of signs
- sign positioning and location
- sign face design
- vehicle mounted signs, and other advisory and information signs.



austroads.com.au/publications/connected-and-automated-vehicles/ap-r580-18

austroads.com.au/publications/connected-and-automated-vehicles/web-r580-18

In **August 2018**, Austroads published a report that set out the data road operators will need to supply for connected and automated vehicle (CAV) use in Australia.

While CAVs will rely heavily on data from their sensors, this will be complemented by external data.

The research found CAVs will need to accurately respond to the same stimuli as human drivers, pedestrians and cyclists. Even if road signs, lines and traffic signals are complemented by methods to assist CAV interpretation, the signs, lines and signals would remain the authoritative regulatory devices.

Road operator data identified as high priority for CAVs include:

- live feeds from traffic management systems for variable speed limits and lane closures
- live feeds of traffic signal phase and timing data (such as SPaT messaging)
- data for emergency road closures due to fires or floods, and temporary conditions associated with roadworks and incidents
- advance notification of new and changed roads that may not have been mapped.
- the need for road operators to collaborate on actions already occurring with speed limit data and future actions on vehicle size and mass.

The report suggests that data availability and quality may need to be improved to achieve the desired benefits for CAVs, recommends the use of open data methods to supply data for CAVs and recognises more consideration of data may be needed for private roads.

austroads.com.au/publications/connected-and-automated-vehicles/ap-r581-18

In **October 2018**, Austroads documented an evaluation of the European cooperative intelligent transport systems (C-ITS) platform including a threat, vulnerability and risk analysis (TVRA).

C-ITS uses wireless communications to share information between vehicles, roadside infrastructure, mobile devices and centres. It allows vehicle and transport applications to work together to deliver outcomes that are beyond what is achievable with standalone ITS and vehicle applications.

The European Telecommunications Standards Institute (ETSI) published a standard (ETSI TR 102 893 V1.2.1) that outlines the outcome of the TVRA of the 5.9 GHz DSRC C-ITS communications (ITS-G5/M5).

This report evaluates this standard in the Australian context, including an evaluation of the threats posed to vehicle and roadside ITS stations. Areas of interest not covered in the ETSI TVRA are provided, as well as a high-level overview of the central ITS stations, personal ITS stations and cellular communications.

austroads.com.au/publications/connected-and-automated-vehicles/ap-r584-18

austroads.com.au/publications/connected-and-automated-vehicles/web-r584-18

In **October 2018**, Austroads assessed options for developing a compliance assessment framework (CAF) for cooperative intelligent transport systems (C-ITS) in Australia and New Zealand.

This report covers the key findings from a literature review and stakeholder consultation, and describes the main CAF model options for C-ITS.

The C-ITS CAF options cover status quo, self-regulation, quasi-regulation and regulation, with the level of government regulation and assurance increasing with each option.

The report sets out the proposed approach to developing a C-ITS CAF based on hybrid model options, and guidance relating to key topics such as governance architecture and approval processes.

It recommends main tasks to be undertaken to implement a C-ITS CAF for Australia and New Zealand.

austroads.com.au/publications/connected-and-automated-vehicles/ap-r585-18

austroads.com.au/publications/connected-and-automated-vehicles/web-r585-18

CASE STUDY

COLLABORATING WITH INTERNATIONAL ORGANISATIONS ON CUTTING-EDGE RESEARCH AND DEVELOPMENT PROJECTS

Austroads, in partnership with Melbourne University and the Australian Department of Infrastructure, Transport, Cities and Regional Development, is collaborating with the State of Michigan in the US to enable all participating organisations to share research and collaborate on joint transport and mobility projects. Michigan is the home of the American Centre for Mobility, a $500-million automated vehicle test facility, and the University of Michigan Transportation Research Institute.

“This collaboration will enable us to learn more about future mobility technology and collaborate on research in mutually beneficial areas,” said CAV Program Manager, John Wall.

“Research is currently focused on deploying connected and automated vehicles. We’re looking forward to collaborating on projects dealing with the readiness of road infrastructure for automated driving, as well as how road authorities can use data from connected vehicles to improve the efficiency and safety of our road networks.”

The Australian delegation on board the Navya Driverless Shuttle Bus at the Mcity automated vehicle test facility, University of Michigan

In January 2019, John visited Detroit with representatives from the Australian Government, Melbourne University and ITS Australia, to discuss collaborative projects. The Australian delegation joined a panel at the AutoMobili-D symposium held in conjunction with the North American International Auto Show.

Significant Outputs

A major focus in the latter half of the year was a review of the program's operations and future direction. The review focused on how well the program's services and products were meeting the needs of Austroads members. A series of co-design workshops were held with industry stakeholders, road agency staff and the program's Steering Committee to design a new program that builds on the achievements of the past but prepares agencies for a more connected and automated future.

Road agency staff from across Australia came together to co-design the new Future Vehicles & Technology Program

Future Focus

From July 2019, the CAV program is being renamed the Future Vehicles & Technology (FVaT) Program. The program initially focused only on connected vehicles. Since then, it has expanded to include automated, and zero and low emission, vehicles. Future vehicles already under development including electric scooters, delivery drones and even flying taxis will all require some road agency management and input into their operation.

The new program has a more agile and adaptable scope, and a new vision, mission, principles and themes.

OUR VISION

All employees of our members understand how future vehicles can improve the capacity of their organisation to deliver services that improve the lives of the communities they serve.

OUR MISSION

To provide members with practical, impartial advice and guidance to support future mobility solutions.

PROGRAM PRINCIPLES

- Member-centred
- Collaborative
- Big issue focused
- Evidence-based
- Impartial

PROGRAM THEMES

- Connected & automated vehicles
- Digital & physical infrastructure
- Low & zero emission vehicles
- Member capability

In addition to the program's steering committee, Research Communities of Practice (RCoPs) will be formed around the new program's themes. RCoPs will meet regularly online rather than physically to minimise travel for agency staff. Initially, the RCoPs will develop detailed definitions of, and issue papers on, the 'big' problems or issues facing agencies working in the future vehicles sector.

The projects approved for commencement in 2019–20 are:

FVaT	
FCA6216	Road authority data (for) connected and automated vehicles – RADCAV
FCA6239	Vehicles and Technology Future State 2030

Additional projects will be proposed for commencement in 2019–20.

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 small communications team based in the Austroads national office.

2018 –19 Activities

On 1 July 2018 the PDFs of Austroads Guides were made freely available to all users online. This saw a sharp increase in Guide downloads (and an unexpectedly similar increase in report and test method downloads) and very positive feedback from users all over the world. Austroads online was launched on 3 September 2018. Our new website consolidated our corporate and publications websites into a single site and provided the Austroads Guides as a digital resource. The site had close to 34,000 registered users by the end of the financial year.

More than 2.7 million pages (140,000 more than the previous year) were viewed on the websites. While the count of users dropped in comparison to the previous year, this was largely the result of no longer double counting users who visited both the corporate and publications sites.

During the year we produced 103 publications including 32 Guides, 56 reports and 15 test methods. More than 400,000 publications were downloaded, a 15% increase on the previous year.

Austroads' webinar series continues strongly with 29 online sessions delivered to an audience of more than 3,600. More than 14,000 watched recordings of the sessions. The webinars have received consistently excellent feedback from participants. The availability of our webinars as vodcasts, streamed into subscribers' podcast feeds, has proved popular and we have significant numbers of subscribers in Australia, the United Kingdom, the United States, Germany and New Zealand.

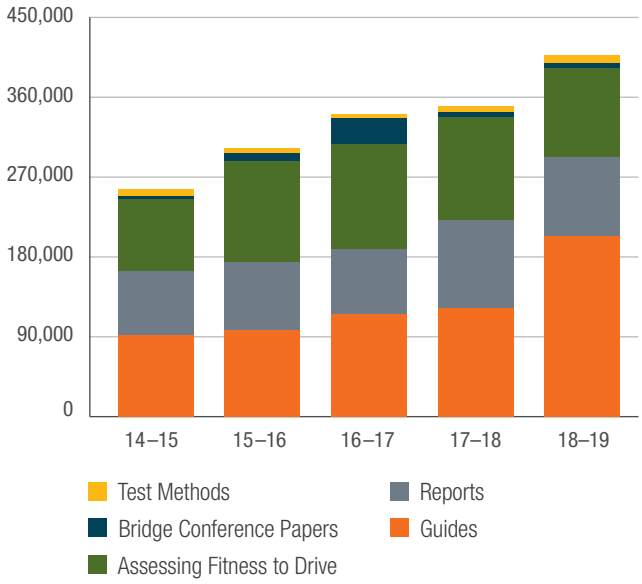
Austroads is a founding partner of the Australasian Road Safety Conference. The fourth conference was held in October 2018 in Sydney. Austroads' Chief Executive welcomed more than 700 delegates to the conference and Safety Program Manager, David Bobbermen presented on the development of the National Road Safety Strategy. Sessions were held for local government road agencies on the Safe System approach and several Austroads projects were profiled in presentations.

In March 2019 Austroads joined with the Heads of Workplace Safety Authorities (HWSA) in Brisbane to launch a new work health and safety guide *Vehicles as a Workplace*. Following endorsement by HWSA, the guide was published jointly by Austroads and Workplace Health and Safety regulators from Queensland, NSW, Tasmania, South Australia, Northern Territory, ACT and the Commonwealth. Speaking to 90 guests from government and industry, Austroads Chair, Neil Scales, commended the collaborative effort and Nita Maynard, Workplace Health and Safety Queensland, encouraged organisations to adopt a systematic approach to managing risks where vehicles are used as a workplace.

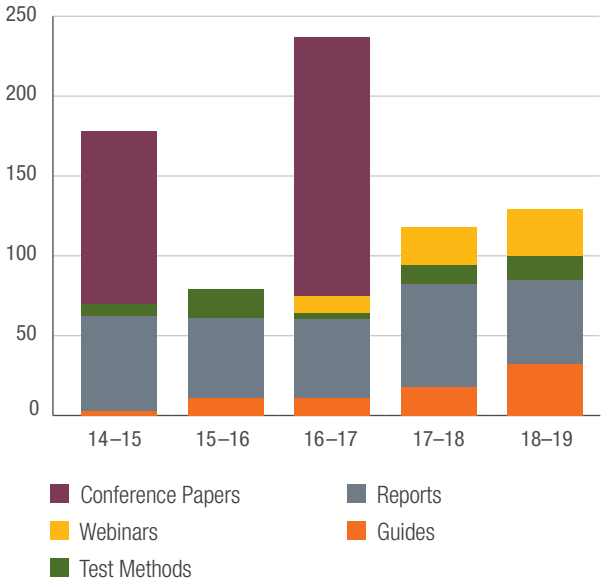
Australasian Road Safety Conference 2018

Launch of Vehicles as Workplace Guidelines

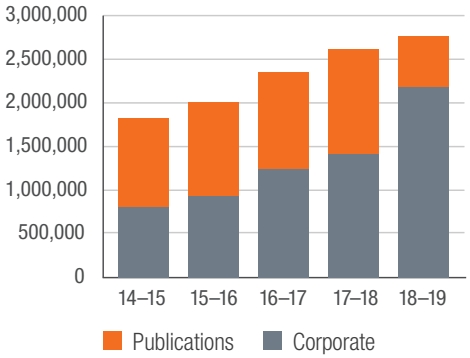
PUBLICATION DOWNLOADS AND SALES 5 YEAR COMPARISON



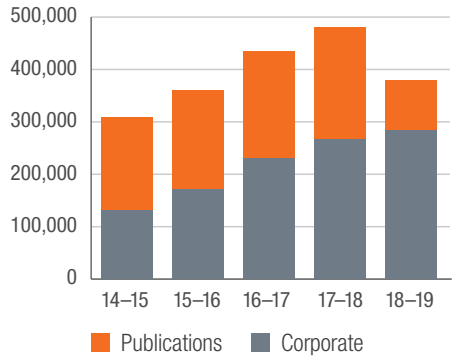
PUBLICATIONS AND WEBINARS PRODUCED 5 YEAR COMPARISON



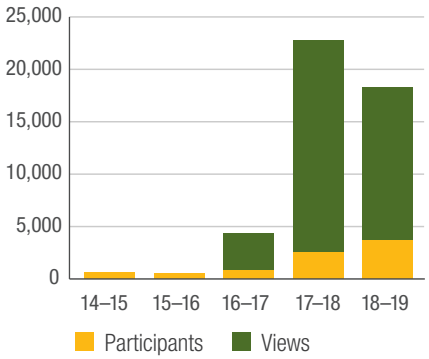
WEBSITE PAGE VIEWS 5 YEAR COMPARISON



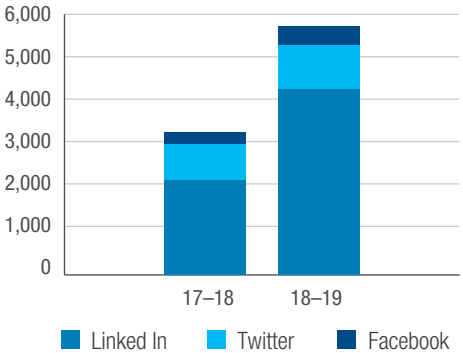
WEBSITE USERS 5 YEAR COMPARISON



WEBINARS 5 YEAR COMPARISON



SOCIAL MEDIA FOLLOWERS



PUBLICATIONS AND WEBINARS: 1 JULY 2018 – 30 JUNE 2019

Guides		Downloads
AGAM01-18	Guide to Asset Management - Overview Part 1: Introduction	801
AGAM02-18	Guide to Asset Management - Overview Part 2: Managing Asset Management	376
AGAM03-18	Guide to Asset Management - Processes Part 3: Scope of Asset Management	315
AGAM04-18	Guide to Asset Management - Processes Part 4: Customer Needs, Expectations and Levels of Service	349
AGAM05-18	Guide to Asset Management - Processes Part 5: Strategic Approach to Managing Road Networks	377
AGAM06-18	Guide to Asset Management - Processes Part 6: Defining and Understanding Asset Requirements	320
AGAM07-18	Guide to Asset Management - Processes Part 7: Program Development and Implementation	265
AGAM08-18	Guide to Asset Management - Processes Part 8: Financial Management	321
AGAM09-18	Guide to Asset Management - Processes Part 9: Asset Information Management Systems and Data	393
AGAM10-18	Guide to Asset Management - Processes Part 10: Implementation and Improvement	254
AGAM11-18	Guide to Asset Management - Technical Information Part 11: Techniques to Reduce Social and Environmental Impacts	301
AGAM12-18	Guide to Asset Management - Technical Information Part 12: Pavements	529
AGAM13-18	Guide to Asset Management - Technical Information Part 13: Structures	415
AGAM14-18	Guide to Asset Management - Technical Information Part 14: Other Assets	442
AGAM15-18	Guide to Asset Management – Technical Information Part 15: Technical Supplements	533
AGPT02-18	Guide to Pavement Technology Part 2: Pavement Structural Design	5699
AGPT04D-19	Guide to Pavement Technology Part 4D: Stabilised Materials	190
AGPT-04K-18	Guide to Pavement Technology Part 4K: Selection and Design of Sprayed Seals	954
AGPD05-18	Guide to Project Delivery Part 5: Road Construction Quality Assurance	504
AGRD02-19	Guide to Road Design Part 2: Design Considerations	2661
AGRS06-19	Guide to Road Safety Part 6: Managing Road Safety Audit	2300
AGRS06A-19	Guide to Road Safety Part 6A: Implementing Road Safety Audit	954
AGTM01-19	Guide to Traffic Management Part 1: Introduction to Traffic Management	422
AGTM05-19	Guide to Traffic Management Part 5: Road Management	659
AGTM06-19	Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings	977
AGTM07-19	Guide to Traffic Management Part 7: Traffic Management in Activity Centres	233
AGTM09-19	Guide to Traffic Management Part 9: Traffic Operations	531
AGTM10-19	Guide to Traffic Management Part 10: Traffic Control and Communications Devices	1033
AGTM12-19	Guide to Traffic Management Part 12: Traffic Impacts of Developments	557
AGRT01-18	Guide to Road Tunnels Part 1: Introduction to Road Tunnels	509
AGRT02-19	Guide to Road Tunnels Part 2: Planning, Design and Commissioning	751
AGRT03-18	Guide to Road Tunnels Part 3: Operation and Maintenance	208

For consultation		Downloads
COP-June19	Code of Practice for Temporary Traffic Management Part 9: Processes and Procedures	872
COP-MAY19	Code of Practice for Temporary Traffic Management Part 10: Sample Layouts	1950

For consultation		Downloads
COP-FEB19	Code of Practice for Temporary Traffic Management Part 7: Field Staff – Implementation and Operation	2091

Research and Technical Reports		Downloads
AP-R599-19	A National Approach to Measuring Non-fatal Crash Outcomes	535
AP-R598-19	Revised Priority Harmonisation Subsets (PHS) and Metrics for Data Standard for Road Maintenance and Investment.	214
AP-R597-19	Data Standard for Road Management and Investment in Australia and New Zealand: Version 3	790
AP-R596-19	Passing Lanes – Safety and Performance	594
AP-R595-19	Embedding Safe Systems in the Guide to Traffic Management	1291
AP-R594-19	Improving Driver Licensing Programs for Indigenous Road Users and Transitioning Learnings to Other User Groups	347
AP-R593-18	Australia and New Zealand Vehicle Registration and Driver Licensing Overview 2017-18: A Transnational Survey of Laws, Procedures and Trends	23
AP-R592-18	Australasian Pedestrian Facility Selection Tool [V2.1]: User Guide	308
AP-R591-19	Guidelines for the Provision of Heavy Vehicle Rest Area Facilities	467
AP-R590-19	Dangerous Goods in Tunnels: Application and Method	122
AP-R589-19	Dangerous Goods in Tunnels: Literature Review	168
AP-R588-18	Measuring and Reporting the Value of Road Maintenance and Renewal Works	1252
AP-R587B-19	Infrastructure Risk Rating Tool: Quick User Guide	59
AP-R587A-19	Infrastructure Risk Rating Manual for Australian Roads	530
AP-R587-19	Road Risk Assessment, Case Studies and Engagement Guidance for Speed Management	935
AP-R586-18	Establishing Extended Hours Delivery Trials	205
AP-R585-18	C-ITS Compliance Assessment Framework for Australia and New Zealand	254
AP-R584-18	Evaluation of the European C-ITS Platform including Threat Vulnerability and Risk Analysis	291
AP-R583-18	Suggested Good Practice for Road Tunnel Emergency Egress Signage	426
AP-R582-18	Higher Order Bridge Assessment in Australia	420
AP-R581-18	Connected and Automated Vehicles (CAV) Open Data Recommendations	512
AP-R580-18	Implications of Traffic Sign Recognition (TSR) Systems for Road Operators	112
AP-R579-18	Operations of Automated Heavy Vehicles in Remote and Regional Areas	435
AP-R578-18	Harmonisation of Pavement Markings and National Pavement Marking Specification	115
AP-R577-18	Guidelines for Minimum Levels of Asset Componentisation: Guideline	326
AP-R576-18	Guidelines for Minimum Levels of Asset Componentisation: Background Research	205
AP-R575-18	Design of Buried Flexible Pipes	350
AP-R574-18	Australia and New Zealand Roads Capability Analysis 2017-2027	234
AP-T344-19	Relationships Between Cutter Oil Properties and Sprayed Seal Performance	297
AP-T343-19	Deformation Performance of Foamed Bitumen Stabilised Pavements Under Full-scale Accelerated Loading	691
AP-T342-19	Long-term Pavement Performance Study - Final Report	1755
AP-T341-19	Fire Incident Data and Fire Safety Operational Data for Major Australian Road Tunnels	395
AP-T340-18	Level of Service Requirements for Freight on Rural Roads and Refinement of Heavy Vehicle Roughness Band Index	719
AP-T339-18	Long-term Pavement Performance Study - Final Summary Report 2017–18	207
AP-T338-18	Austroads Data Standard: Knowledge Sharing Framework	338
AP-T337-18	Performance of Asphalt and Spray Grade PMBs in Asphalt Mixes	391
AP-T336-18	Design and Performance of Foamed Bitumen Stabilised Pavements	811

Internal Reports		Downloads
IR-286-19	Translating Research into Practice: Advancing the Austroads Guide to Traffic Management: Discussion Document 3	NA
IR-285-19	Translating Research into Practice: Advancing the Austroads Guide to Traffic Management: Discussion Document 2	NA
IR-284-19	Translating Research into Practice: Advancing the Austroads Guide to Traffic Management: Discussion Document 1	NA
IR-283-19	Safety Assurance System for Automated Vehicles: Impacts on Registration and Licensing	NA
IR-282-19	Investigation and Development of Bridge Formulae for Inclusion in the Performance-Based Standards	NA
IR-281-19	Pavement Design for Tunnels: Update to Guide to Road Tunnels Part 2	NA
IR-280-19	Opportunities in Artificial Intelligence Applied to Road Network Operations	NA
IR-278-18	Review of Austroads Guide to Smart Motorways	NA
IR-277-18	Privacy Impact Assessment: Road Agency Participation in the National Driver Licence Facial Recognition Solution and Face Matching Services	NA
IR-276-18	Innovative Technologies Enhancing Freight Productivity	NA
IR-275-18	Questionnaire to scope the review of Austroads Guide to Pavement Technology Part 8 2018	NA
IR-274-18	Improving Driver Licensing Programs for Indigenous Road Users and Transitioning Learnings to Other User Groups	NA

Other Publications		Downloads
AP-C104-19	General Conditions of Contract for Construction - National Capital Works: NCW4	310
	Conditions of Subcontract for Construction - National Capital Works: NCW4	
	Explanatory Notes - National Capital Works: NCW4	
	Annexures - National Capital Works: NCW4	
AP-C103-19	Bridge Assessment: A comparison of approaches by bridge engineers and the Performance Based Standards Scheme	810
AP-C20-18	Austroads Annual Report 2017-18	135
AGPT-T125-18	Stress Ratio of Bituminous Binders using the Dynamic Shear Rheometer	292
AGPT-T190-19	Specification framework for polymer modified binders	799
AGPT-T221-18	Sampling of Bituminous Slurry	49
AGPT-T270-18	Determination of Optimum Amount of Added Water for Bituminous Slurry (Consistency Test)	52
AGPT-T271-18	Determination of set and cure for bituminous slurry (cohesion test)	30
AGPT-T272-18	Determination of Abrasion Loss of Bituminous Slurry (Wet Track Abrasion Test)	65
AGPT-T273-18	Determination of Excess Binder in Bituminous Slurry (Loaded Wheel Test)	52
AGPT-T530-18	Calibration of Bitumen Sprayers: General Introduction and List of Methods	150
AGPT-T531-18	Calibration of Bitumen Sprayers: Volumetric Calibration of Bitumen Pumps	92
AGPT-T532-18	Calibration of Bitumen Sprayers: Transverse Distribution by Fixed Pit Facility	40
AGPT-T533-18	Calibration of Bitumen Sprayers: Transverse Distribution by Field Mat	38
AGPT-T534-18	Calibration of Bitumen Sprayers: Transverse Distribution by Portable Trough	45
AGPT-T535-18	Road Speed Calibration	52
AGPT-T536-18	Viscosity of Calibration Fluid	67
AGPT-T600-18	Flexural Mean Test Methods for Cemented Materials	480

Webinars		Attendees	Recording views
WEB-LC-19	Lean Construction: Responding to the Productivity Challenge Faced by the Construction Industry	117	127
WEB-AGRT02-19	Updated Guidance for the Design of New Pavements for Road Tunnels	70	74
WEB-AGPT04D-19	Guide to Pavement Technology Part 4D Stabilised Materials	180	195
WEB-R599-19	A National Approach to Measuring Non-fatal Crash Outcomes	174	98
WEB-R587-19	Road Risk Assessment, Case Studies and Engagement Guidance for Speed Management	125	153
WEB-AGRD06-19	Guide to Road Safety Part 6: Managing Road Safety Audits	236	200
WEB-AAM6068-19	Developing the Data to Support Heavy Vehicle Road Reforms	56	56
WEB-T342-19	Long Term Pavement Performance	197	156
WEB-R596-19	Passing Lanes – Safety and Performance	149	94
WEB-R594-19	Improving Driver Licensing Programs for Indigenous Road Users and Transitioning Learnings to Other User Groups	31	28
WEB-R591-19	Guidelines for the Provision of Heavy Vehicle Rest Area Facilities	76	68
WEB-R595-19	Embedding Safe System in the Guide to Traffic Management	215	151
WEB-T340-18	Level of Service Requirements for Freight on Rural Roads and Refinement of Heavy Vehicle Roughness Band Index	94	67
WEB-R585-18	C-ITS Compliance Assessment Framework for Australia and New Zealand	45	83
WEB-R584-18	Evaluation of the European C ITS Platform including Threat, Vulnerability and Risk Analysis	66	66
WEB-R588-18	Measuring and Reporting the Value of Road Maintenance and Renewal Works	195	180
WEB-R586-18	Establishing Extended Hours Delivery Trials	36	121
WEB-R581-18	Connected and Automated Vehicles Open Data	188	201
WEB-R583-18	Suggested Good Practice for Road Tunnel Emergency Egress Signage	61	99
WEB-AGPT-4F-4K	Guide to Pavement Technology Parts 4F and 4K	204	272
WEB-R580-18	Implications of Traffic Sign Recognition Systems for Road Operators	130	175
WEB-R579-18	Operations of Automated Heavy Vehicles in Remote and Regional Areas	142	146
WEB-AGPD05-18	Guide to Project Delivery Part 5: Road Construction Quality Assurance	99	157
WEB-R577-18	Minimum Levels of Asset Componentisation	120	99
WEB-R574-18	Australia and New Zealand Roads Capability Analysis 2017-2027	65	80
WEB-R568-18	Scoping Study for a Location Referencing Model to Support the BIM Environment	81	314
WEB-T335-18	Appropriate Use of Marginal and Non-standard Materials in Road Construction and Maintenance	153	495
WEB-R573-18	Network Performance Indicators	104	468
WEB-CAVTRIALS-18	Connected and Automated Vehicles Trials	215	422

FINANCIALS AND DIRECTORS' REPORTS

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The directors of Austroads Ltd present this report on Austroads Ltd (the "Company") for the year ended 30 June 2019.

Directors

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

- Neil Scales OBE
- Shane Gregory
- Kenneth Kanofski (ended 30 June 2019)
- Adrian Beresford-Wylie
- Alex Foulds
- Emma Thomas (ended 29 April 2019)
- Peter Woronzow
- Louise McCormick
- Judith Formston (ended 27 February 2019)
- Anita Curnow (ended 5 April 2019)
- Brett Gliddon (commenced 9 July 2018)
- Tony Braxton-Smith (commenced 27 February 2019)

Directors have been in office since the start of the financial year and are still directors as at 30 June 2019 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 assists 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, knowledge 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. There were 50 projects scheduled for completion in 2018–19, of which 15 were completed on schedule. At 30 June there were five projects running more than six months late.

- **Take up of the Company outputs**

  In 2018–19, more than 400,000 publications were downloaded or sold, a 15% increase on the previous year. On average, more than 1,500 publications are downloaded every working day.

- **Adoption of Austroads Guides by road agencies**

  All road agencies across Australasia have adopted the Austroads Guides.

Information on Directors

Neil Scales OBE | 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

Neil 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, Neil 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 | Assoc Dip Eng (Civil)

Shane Gregory is the General Manager State Roads for the Department of State Growth, Tasmania. He 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 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.

Kenneth Kanofski (ended 30 June 2019)

Ken Kanofski was appointed Chief Executive of Roads and Maritime Services in August 2016. As Chief Executive, he is responsible for leading and managing the performance of the road and maritime networks to meet customer needs. This includes delivering substantial infrastructure building programs, as well as maintaining, operating and regulating the networks. Prior to his appointment as Chief Executive, Ken 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. Ken has served as a board member and chair on statutory authorities, industry bodies and community organisations.

Adrian Beresford-Wylie | BA(Hons) LLB

Adrian Beresford-Wylie was appointed Executive Director of the Australian Local Government Association (ALGA) in 2006. He was previously 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.

Alex Foulds | B. Hist, MBA

Alex Foulds came to the Infrastructure portfolio in 2009. He is currently Executive Director of Surface Transport Policy Division in the Department of Infrastructure, Regional Development and Cities. 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. 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.

Emma Thomas (ended 29 April 2019)

Emma 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. Prior to leading TCCS, Emma 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.

Peter Woronzow | BA (Economics), Grad Dip Public Sector Management, CPA

Peter Woronzow has been Acting Managing Director responsible for the day to day operations of Main Roads Western Australia since July 2016. He has worked for Main Roads for 36 years, most recently as Executive Director Finance and Commercial Services, a role that includes being the Chief Financial Officer. He has been part of the Corporate Executive Team for 12 years. Peter 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 ARRB Group Ltd.

Louise McCormick | B. Eng – Civil Engineering, Dip. Project Management

Louise McCormick is an Executive Engineer, Chartered Fellow and Senior Civil/Structural Engineer with 19 years' experience in the public and private sectors. In 2016, Louise was appointed as the General Manager for Transport and Civil Services Division within the Department of Infrastructure, Planning and Logistics NT. Louise has managed some of the largest transport infrastructure projects in the Territory, and contributed towards the Northern Territory's response to the White Paper on Developing Northern Australia from a transport and engineering perspective. Louise has played an active role in Engineers Australia, and her work has been recognised through industry awards for projects and individual awards including Young Professional Engineer of the Year for the NT in 2007; Winner of the 2010 NT Telstra Business Women's Award for Innovation; and National Finalist for the 2010 Telstra Business Women's Award for Innovation.

Judith Formston (ended 27 February 2019) | BCom

Judith Formston is Manager, Traffic Operations within the Department of Planning, Transport and Infrastructure, South Australia. Judith is responsible for network operations, the traffic management centre and heavy vehicle access. She is also responsible for heavy vehicle access and heavy vehicle road reform policy advice. Prior to undertaking her current role, she was engaged by the Office of the National Rail Safety Regulator, providing financial management and advice during the transition of jurisdictions into a National Regulatory Model. Over the past 17 years Judith has held a variety of senior policy, finance, budget and investment strategy positions, within the South Australian Government, including within the Department of Planning, Transport and Infrastructure and the Department of Treasury and Finance.

Anita Curnow (ended 5 April 2019)

Anita Curnow is the Executive Director Access and Operations at VicRoads, where she has worked in various executive roles over the last 15 years. She is responsible for the day to day operation of the road network and incident response, ITS standards, procurement and asset management, heavy vehicle access, productivity and compliance, road user behaviour policy and programs, and vehicle and motorcycling policy. She has been involved in significant organisational and cultural change at VicRoads, including encouragement of women in technical and leadership roles. Anita was named one of the 2017 Top 50 Public Sector Women in Victoria. She was also named Civil Engineering Alumnus of the Year for 2017, having undertaken both undergraduate and postgraduate studies there, and chairs the department's Industry Advisory Committee.

Brett Gliddon (commenced 9 July 2018) | BE (Hons) Cmeng NZ

Brett Gliddon is General Manager System Design and Delivery for the New Zealand Transport Agency and is responsible for overseeing design, delivery and management of a single integrated transport system. Brett is a qualified Civil Engineer and has more than 18 years' experience in infrastructure planning, design and delivery including maintenance and operations. During this time, Brett has been involved in the development of some of New Zealand's largest infrastructure projects including the $200M Multi Modal Northern Busway project, the $360M Northern Gateway Toll Road project (New Zealand's first Electronic Toll road), the $1.4B Waterview Tunnel Project and the iconic Te Ara Whiti – Pink Light Path.

Tony Braxton-Smith (commenced 27 February 2019) | MBA

Tony Braxton-Smith became Chief Executive of the Department of Planning, Transport and Infrastructure in October 2018. He is also the South Australian Rail Commissioner and Commissioner for Highways. This role encompasses overseeing a broad range of government objectives ensuring the effective delivery of services involving planning, transport and valuable social and economic infrastructure throughout the State of South Australia.

Formerly the Deputy Secretary Customer Services at Transport for New South Wales for seven years, Tony's prior career spans 20 years in senior executive roles in the private sector with Great Southern Rail and Serco; Dreamworld and the P&O Group.

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 2015 at the Austroads Board meeting. He is also a member of the Executive Committee.

Meetings of Directors

During the financial year, three meetings of directors were held. Attendances by each director were as follows:

Director	Eligible meetings	Meetings attended
Adrian Beresford-Wylie	3	1
Alex Foulds	3	3
Anita Curnow	3	3
Brett Gliddon	2	2
Emma Thomas	3	1
Judith Formston	2	2
Kenneth Kanofski	3	2
Louise McCormick	3	3
Neil Scales	3	3
Peter Woronzow	3	1
Shane Gregory	3	3
Tony Braxton-Smith	1	-

Alternate directors attended meetings as follows:

Alternate director	Alternate for	Meetings attended
Desmond Snook	Peter Woronzow	1
Emma Kokar	Tony Braxton-Smith	1
Jeff McCarthy	Kenneth Kanofski	1
Jim Corrigan	Emma Thomas	2
Kym Foster	Adrian Beresford-Wylie	1
Stephanie Werner	Alex Foulds	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 2019, the total amount that members of the Company are liable to contribute if the Company is wound up is $110 (2019: $110).

Auditor's Independence Declaration

The lead auditor's independence declaration for the year ended 30 June 2019 has been received and can be found on page 71 of the financial report.

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

Neil Scales OBE
Chair
Dated this 12th day of September 2019

Auditor's Independence Declaration

PITCHER PARTNERS

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AUDITOR'S INDEPENDENCE DECLARATION
TO THE DIRECTORS OF AUSTROADS LTD
ABN 16 245 787 323

In relation to the independent audit for the year ended 30 June 2019, to the best of my knowledge and belief, there have been:

(i) no contraventions of the auditor independence requirements of the *Corporations Act 2001*; and
(ii) no contraventions of any applicable code of professional conduct.

This declaration is in respect of Austroads Ltd during the year.

C MILLINGTON
Partner

PITCHER PARTNERS
Sydney

12 September 2019

Adelaide Brisbane Melbourne Newcastle Perth Sydney

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Statement of Profit or Loss and Other Comprehensive Income for the Year Ended 30 June 2019

	Notes	2019 $	2018 $
Revenue	2	26,024,700	27,296,378
Expenses			
Corporate Expenses	3(a)	5,553,923	4,713,589
Work Program	3(b)	10,470,894	10,802,661
Specific Projects	3(c)	985,024	716,049
Publications	3(d)	20,937	108,057
Other NEVDIS Related Expenses	3(e)	5,374,810	3,121,702
Total expenses		22,405,588	19,462,058
Surplus for the year		**3,619,112**	**7,834,320**
Other comprehensive income		-	-
Total comprehensive income for the year		**3,619,112**	**7,834,320**
Total comprehensive income attributable to members of the entity		**3,619,112**	**7,834,320**

Statement of Financial Position as at 30 June 2019

	Notes	2019 $	2018 $
ASSETS			
Current assets			
Cash and Cash Equivalents	4	4,601,586	6,852,760
Term Deposits		23,349,863	20,900,000
Trade and Other Receivables	5	2,506,302	2,374,554
Other Assets	6	103,841	132,437
Total current assets		30,561,592	30,259,751
Non-current assets			
Plant and Equipment	7	78,791	143,834
Intangible assets	8	6,971,467	4,041,236
Other Assets	6	123,526	120,004
Total non-current assets		7,173,784	4,305,074
Total assets		**37,735,376**	**34,564,825**
LIABILITIES			
Current liabilities			
Trade and Other Payables	9	2,898,246	3,409,486
Provision for Employee Benefits	10	391,337	292,721
Total current liabilities		3,289,583	3,702,207
Non-current liabilities			
Provision for Employee Benefits	10	93,731	129,668
Total non-current liabilities		93,731	129,668
Total liabilities		**3,383,314**	**3,831,875**
Net assets		**34,352,062**	**30,732,950**
Equity			
Accumulated Surplus		6,744,872	6,356,820
NEVDIS Reserve	1(m)	27,607,190	24,376,130
Total Equity		**34,352,062**	**30,732,950**

The accompanying notes form part of these financial statements.

Statement of Changes in Equity for the Year Ended 30 June 2019

	NEVDIS Reserve $	Accumulated Surplus $	Total Equity $
Balance at 1 July 2017	15,862,191	7,036,439	22,898,630
Comprehensive income			
Surplus for the year	-	7,834,320	7,834,320
Transfer to Reserve	8,513,939	(8,513,939)	-
	24,376,130	6,356,820	30,732,950
Balance at 30 June 2018	24,376,130	6,356,820	30,732,950
Comprehensive income			
Surplus for the year	-	3,619,112	3,619,112
Transfer to Reserve	3,231,060	(3,231,060)	-
	27,607,190	**6,744,872**	**34,352,062**
Balance at 30 June 2019	**27,607,190**	**6,744,872**	**34,352,062**

Statement of Cash Flows for the Year Ended 30 June 2019

	Notes	2019 $	2018 $
Cash Flows from Operating Activities			
Member Contributions		14,232,428	16,198,270
Receipts from Customers		11,074,213	11,389,105
Publication Sales		(23,748)	344,731
Interest Received		679,406	600,533
External Project Funding		37,051	1,166,159
Cash generated from operating activities		25,999,350	29,698,797
Salaries and Related Costs		(624,427)	(2,163,193)
National Office including Corporate Projects		(3,213,718)	(7,285,130)
Publications		(20,937)	(118,863)
Programs		(18,201,224)	(12,670,581)
Cash used in operating activities		(22,060,306)	(22,237,767)
Net Cash Inflow from Operating Activities	12	**3,939,044**	**7,461,031**
Cash Flow from Investing Activities			
Movement in Term Deposits		(2,449,863)	(2,900,000)
Purchase of Plant and Equipment		(56,031)	(59,348)
Purchase of Intangible Assets		(3,684,324)	(3,646,577)
Cash used in Investing Activities		**(6,190,218)**	**(6,605,925)**
Net increase in cash held		(2,251,174)	855,106
Cash at the beginning of the financial year		6,852,760	5,997,654
Cash at the end of the financial year	4	**4,601,586**	**6,852,760**

The accompanying notes form part of these financial statements.

Notes to the Financial Statements for the Year Ended 30 June 2019

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. Consolidation financial statements, including the results and operations of Austroads newly acquired subsidiary, Transport Certification Australia, have not been prepared as the directors have determined that the group is not a reporting entity.

These financial statements have been prepared in accordance with the recognition and measurement requirements specified by the Australian Accounting Standards and Interpretations issued by the Australian Accounting Standards Board ('AASB') and the disclosure requirements of AASB 101 'Presentation of Financial Statements', AASB 107 'Statement of Cash Flows', AASB 108 'Accounting Policies, Changes in Accounting Estimates and Errors', AASB 1048 'Interpretation of Standards' and AASB 1054 'Australian Additional Disclosures', as appropriate for not-for-profit entities. The principal accounting policies adopted in the preparation of the financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

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 financial statements were authorised for issue on 12 September 2019 by the directors of the Company.

Accounting Policies

(a) Revenue

Contribution 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.

(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 three 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 provision for expected credit loss allowance, 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) 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.

Software

Significant costs associated with software are deferred and amortised on a straight-line basis over the period of their expected benefit, being their finite life of 5 years.

(m) NEVDIS Reserve

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

(n) Comparative figures

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

(o) 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 – Provision for expected credit loss

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 and interpretations adopted

The entity has adopted all of the new or amended Accounting Standards and Interpretations issued by the Australian Accounting Standards Board ('AASB') that are mandatory for the current reporting period.

Impact of adoption

AASB 9 was adopted using the modified retrospective approach and as such comparatives have not been restated. There was no impact of adoption on opening retained profits as at 1 July 2018.

Any new or amended Accounting Standards or Interpretations that are not yet mandatory have not been early adopted.

Note 2 — Revenue

	2019 $	2018 $
(a) Contributions		
Membership Contributions	963,000	963,000
Work Program Contributions	11,720,500	11,720,500
Membership Contributions (NEVDIS)	1,531,653	2,042,200
	14,215,153	14,725,700
(b) Special Programs and Projects		
DIRD – Australian Bicycle Council Secretariat	-	45,000
Willingness to Pay Study	-	630,000
Australian Transport and Assessment Planning (ATAP)	312,000	308,970
NMVTRC Contribution	-	45,435
	312,000	1,029,405
(c) Fees and Charges		
NEVDIS		
PPSR Enhancements Recovery	2,500,000	2,500,000
VIRS Commercial Phase	-	1,203,488
Safety Recalls	653,586	745,132
AEC Extract Charges	219,573	214,916
Data Extracts	16,512	16,512
DVS Private Sector	4,785,842	5,164,991
VSA income	26,250	41,650
WMI income	22,400	40,250
P2V Income - Vehicle	1,575,050	407,657
NHVR - Staff	-	212,028
NHVR - Data fee Income	953,000	-
RAV Project	10,000	55,608
	10,762,213	10,602,232
(d) Publications		
Gross Sales Revenue	6,779	303,619
Royalties	12,098	1,076
	18,877	304,695
(e) Interest Received		
Short Term Investments	214,885	228,050
Rental Bond Deposit	2,203	1,267
Short Term Investments (NEVDIS)	454,937	362,305
Rental Bond Deposit (NEVDIS)	7,381	8,911
	679,406	600,533
(f) Other Income		
Other income	-	200
Other income (NEVDIS)	37,051	33,613
	37,051	33,813
Total revenue	26,024,700	27,296,378

Note 3 — Expenses

	2019 $	2018 $
(a) Corporate		
Salaries and Related Charges	932,265	832,944
Salaries and Related Charges (NEVDIS)	1,712,524	1,413,621
Program Management	2,229,573	1,960,578
Corporate Services	60,264	49,803
Depreciation	40,646	46,505
Other Expenses	578,651	410,138
	5,553,923	**4,713,589**
(b) Work Program		
Corporate Projects – Board Priorities	423,529	686,546
Safety	2,102,289	1,614,284
Assets	4,223,781	5,426,294
Network	2,956,456	2,461,670
Connected and Automated Vehicles	764,839	613,867
	10,470,894	10,802,661
(c) Specific Projects		
DIRD - Australian Bicycle Council Secretariat	-	90,200
AFTD Future Delivery	-	2,150
International Participation	110,164	47,913
NGTSM/ATAP Jurisdictions/ Commonwealth funding carried over from 13/14FY	77,902	-
Redevelop/Ongoing Austroads Databases and Publications Website	14,285	3,770
National Safety Barrier Assessment Panel - Independent Consultant	-	25,855
Australian Transport and Assessment Planning (ATAP)	145,807	168,119
CPEE Support	19,500	21,500
Support to ALGA Reps	12,384	17,880
Test Methods and Pavement Technology Worktips	20,000	-
Austroads Standards Development Related Activity	5,165	-
TCA Acquisition	189,729	-
Value of Travel Time Willingness to Pay	235,368	326,057
Cycling Participation Survey	154,720	-
Austroads Guide online analysis	-	12,605
	985,024	**716,049**

	2019 $	2018 $
(d) Publications		
Cost of Sales	20,501	66,057
Production and Distribution Management	436	42,000
	20,937	**108,057**
(e) NEVDIS expenses		
Fujitsu Subscription and Operating Costs	2,632,834	2,505,428
NEVDIS RAV Project	-	52,102
Amortisation	754,093	64,110
Depreciation	80,428	101,187
Rent	131,052	126,223
Other	1,776,403	272,652
	5,374,810	**3,121,702**
Total Expenditure	**22,405,588**	**19,462,058**

Note 4 — Cash and Cash Equivalents

CURRENT		
Cash at bank and on hand	2,025,455	1,482,016
Cash at Bank (NEVDIS)	1,076,131	1,370,744
Short-term deposits and deposits at call	1,500,000	4,000,000
	4,601,586	**6,852,760**
Cash at the end of the financial year is reconciled to the statement of cash flow as follows:		
Cash and cash equivalents	**4,601,586**	**6,852,760**

Note 5 — Trade and Other Receivables

CURRENT		
Trade debtors	-	17,275
Trade debtors (NEVDIS)	366,397	221,265
Sundry and other debtors (NEVDIS)	2,047,743	2,086,477
Accrued Income	92,162	49,537
	2,506,302	**2,374,554**

Note 6 — Other Assets

CURRENT		
Prepayments	40,359	42,422
Prepayments (NEVDIS)	63,482	90,015
	103,841	**132,437**
NON-CURRENT		
Rental Deposit Bond	57,792	56,243
Rental Deposit Bond (NEVDIS)	65,734	63,761
	123,526	**120,004**

	2019 $	2018 $

Note 7 — Plant and Equipment

NON-CURRENT		
Furniture and Office Equipment		
At Cost	269,738	239,850
Accumulated depreciation	(224,012)	(183,366)
	45,726	56,484
Furniture and Office Equipment (NEVDIS)		
At Cost	334,389	308,246
Accumulated depreciation	(301,324)	(220,896)
	33,065	87,350
Total Plant and Equipment	**78,791**	**143,834**

Note 8 — Intangible Assets

NON-CURRENT		
Computer Software (NEVDIS)		
At Cost	7,696,249	192,350
Accumulated depreciation	(871,297)	(117,204)
	6,824,952	75,146
Work in Progress - Computer Software	146,515	3,966,090
	146,515	3,966,090
Total Intangible Assets	**6,971,467**	**4,041,236**

Note 9 — Trade and Other Payables

CURRENT		
Trade and Other Payables	1,735,914	2,034,823
Other Payables	53,942	98,290
Trade and Other Payables (NEVDIS)	327,161	713,256
Other Payables (NEVDIS)	21,840	21,840
Net Payable to ATO	-	45,308
Accrued Expenses	437,033	182,800
Accrued Expenses (NEVDIS)	322,356	313,169
	2,898,246	**3,409,486**

Note 10 — Provision for Employee Benefits

CURRENT		
Provisions for Annual Leave	98,257	98,513
Provisions for Annual Leave (NEVDIS)	101,604	99,846
Provisions for Long Service Leave	191,476	95,176
	391,337	**293,535**
NON-CURRENT		
Provisions for Long Service Leave (NEVDIS)	93,731	64,425
Provisions for Long Service Leave	-	65,732
	93,731	**130,157**

Note 11 — 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 they are a member, or within one year after they cease 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.

Note 12 — Cash Flow Information

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

	2019 $	2018 $
Surplus for the year	3,619,112	7,834,320
Adjustment for non-cash-flow items:		
- Depreciation and amortisation	875,167	211,802
Change in operating assets and liabilities:		
- (Increase) in trade and other receivables	(131,748)	(263,784)
- Decrease/(increase) in other assets	25,074	34,322
- (Decrease)/increase in trade and other payables	(511,240)	(439,001)
- Increase in provision for employee benefits	62,679	83,372
Net Cash Generated from Operating Activities	**3,939,044**	**7,461,031**

Note 13 — Renumeration of Directors

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

Note 14 — Renumeration of Auditors

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

Audit of the financial statements	29,000	27,300
Other services	9,000	2,565
	38,000	29,865

Note 15 — Lease Commitments

Operating Lease Commitments – being for the rent of office:

Payable – minimum lease payments		
- Not later than 12 months	301,044	287,920
- Between 12 months and 5 years	314,774	615,819
	615,819	903,739

The lease for Austroads National Office expired on 30 June 2018 and a variation lease agreement was signed for a further term of 3 years. The current lease for Austroads NEVDIS will expire on 30 June 2020. A variation lease agreement was signed to align the termination date with Austroads National Office. Both leases for level 9 287 Elizabeth Street will now expire 30 June 2021.

Note 16 — Capital Commitments

	2019 $	2018 $
Contracted for:		
NEVDIS re-platform, re-write software projects, NHVR and Wan Refresh	-	1,105,337
Less: Paid to 30 June	-	(647,556)
Remaining Commitment	-	457,781

There are no other capital expenditure commitments contracted for as at 30 June 2019.

Note 17 — Contingent Liabilities or Assets

At 30 June 2019, the Company has no contingent liabilities or assets (2018: Nil).

Note 18 — Matters Subsequent to the End of the Financial Year

Transport Certification Australia (TCA) was folded into Austroads Ltd in January 2019 following a resolution by the Transport and Infrastructure Council (TIC) at its November 2018 meeting. The company remains a separate legal entity with Austroads Ltd becoming the sole member.

Note 19 — 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 2019

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 7 to 21, are in accordance with the Corporations Act 2001, and:

1. The financial statements are in accordance with the Corporations Act 2001 and:
   (a) comply with applicable Accounting Standards; and
   (b) give a true and fair view of the Company's financial position as at 30 June 2019 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.
2. 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

Neil Scales OBE
Chairperson
Dated this 12th day of September 2019

Independent Auditor's Report

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INDEPENDENT AUDITOR'S REPORT
TO THE DIRECTORS OF AUSTROADS LTD
ABN 16 245 787 323

Report on the Audit of 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 2019, 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 2019 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.

Adelaide Brisbane Melbourne Newcastle Perth Sydney

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INDEPENDENT AUDITOR'S REPORT
TO THE DIRECTORS OF AUSTROADS LTD
ABN 16 245 787 323

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Other Information

The directors are responsible for the other information. The other information comprises the information included in the Company's annual report and the directors report for the year ended 30 June 2019, 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 Management and Those Charged with Governance 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.

- As part of an audit in accordance with Australian Auditing Standards, we exercise 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.

INDEPENDENT AUDITOR'S REPORT
TO THE DIRECTORS OF AUSTROADS LTD
ABN 16 245 787 323

PITCHER PARTNERS

- 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 those charged with governance 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

PITCHER PARTNERS
Sydney

12 September 2019

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Abbreviations

AAPA	Australian Asphalt Pavement Association
AS	Australian Standard
ABC	Australian Bicycle Council
ACT	Australian Capital Territory
ALGA	Australian Local Government Association
ARRB	Australian Road Research Board
ATOG	Australasian Tunnel Operators Group
ATS	Australasian Tunnelling Society
Austtab	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
DITCRD	Department of Infrastructure. Transport, Cities 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 Australasia
ITS	Intelligent Transport Systems
LTPP	Long Term Pavement Performance
MoT NZ	Ministry of Transport New Zealand
MR WA	Main Roads Western Australia
NAU	NEVDIS Administration Unit
NEVDIS	National Exchange of Vehicle and Driver Information System
NHVR	National Heavy Vehicle Regulator
NMVTRC	National Motor Vehicle Theft Reduction Council
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
RMS NSW	Roads and Maritime Services New South Wales
SA	South Australia
TCCS ACT	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

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