Austroads

Annual Report 2014-15

Contents

2014-15 Overview 3
Chairman's Report 4
Chief Executive's Report 5
Governance 6
Activities 6
Structure 6
Awards 7
Strategic Direction 8
Assets Program 10
Freight Program 15
Network Program 19
Registration & Licensing Program 26
NEVDIS 29
Safety Program 31
Technology Program 37
Publications 50
Financial and Directors' Report 54
Abbreviations 66

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Address: Level 9, 287 Elizabeth Street,
Sydney NSW 2000, Australia
Phone: +61 2 8265 3300
Email: austroads@austroads.com.au
Web: www.austroads.com.au

Austroads is the association of Australasian road transport agencies

Austroads' purpose is 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.

Austroads member organisations are:

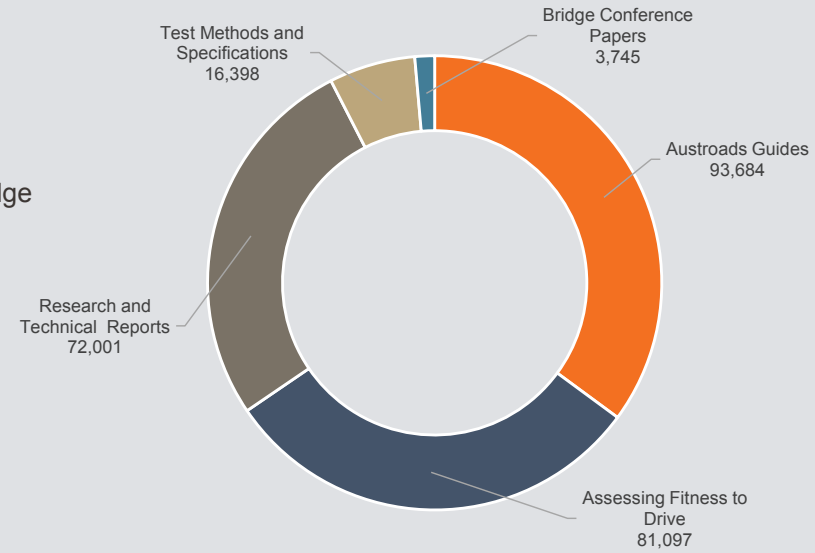
- Roads and Maritime Services New South Wales
- Roads Corporation Victoria
- Department of Transport and Main Roads Queensland
- Main Roads Western Australia
- Department of Planning, Transport and Infrastructure South Australia
- Department of State Growth Tasmania
- Department of Transport Northern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

The success of Austroads is derived from the collaboration of member organisations and others in the road industry. It aims to be the Australasian leader in providing high quality information, advice and fostering research in the road transport sector.

2014-15 Overview

- $9.5 m work program expenditure
- 8 national office staff
- 59 projects completed
- 77 publications released
- 340 bridge practitioners attend Austroads Bridge Conference in Sydney
- 1,000 Austroads publications sold and downloaded every working day
- 100 million NEVDIS database transactions

Publication downloads and sales



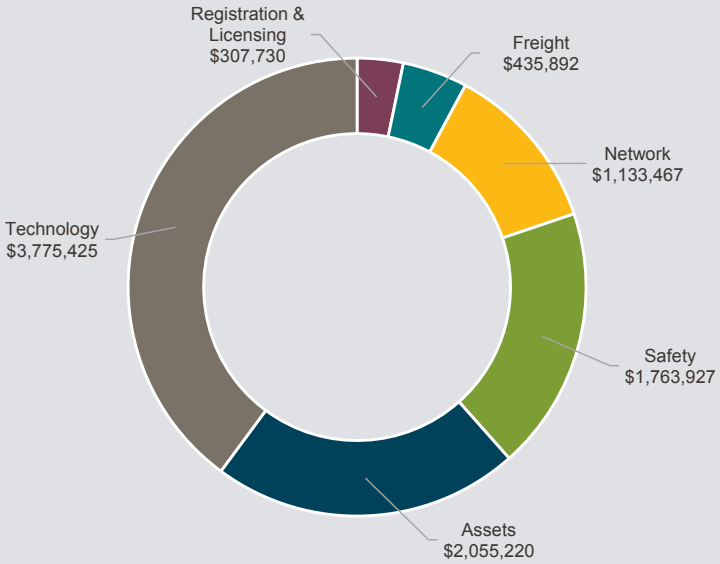
Work Program

Austroads tracks progress on all projects and reports to the Board at each meeting on the overall delivery of the work program.There were 166 projects approved in the 2014-15 work program, with 128 projects continuing from previous financial years and 38 new projects starting in 2014-15. There were 32 projects scheduled for completion by 30 June 2015. Eleven were completed by that date.

During 2014-15 a total of 59 projects were completed, four projects were cancelled and four were deferred, making a total of 67. The table below provides a comparison of work program status figures as at 30 June for the last five financial years.

In 2015-16, 99 projects will carry over from 2014-15 and there will be 46 new projects making a total of 145.

Expenditure by Program



Status of Austroads work program

	Number of projects					
	Completed	Cancelled or Deferred	12 months + late	6 - 12 months late	On time and < 6 months late	Total
2010-11	47	1	0	9	80	137
2011-12	44	5	3	4	81	137
2012-13	46	7	6	0	107	166
2013-14	39	6	7	11	110	173
2014-15	59	8	11	4	84	166

Chair's Report

Peter Duncan (centre) with Austroads and NEVDIS staff at the Austroads office.

This year has been a significant time of change for Austroads. Murray Kidnie, who served as Austroads Chief Executive for 13 years, retired and in November 2014 Nick Koukoulas stepped into the role.

The Board and I are grateful for Murray's outstanding contribution to Austroads. His leadership, commitment and dedication placed Austroads in a firm position for a strong future and we were pleased to award him an Austroads Medal for his achievements.

The Board and I also acknowledge the outstanding contribution of Andy Milazzo to Austroads. Andy was also awarded an Austroads Medal for his 27 year association with Austroads as Chair, Deputy Chair, long-standing Board member and Australian First Delegate to the World Road Association.

Nick Koukoulas was most recently Managing Director of BSI Group for Australia and New Zealand. We believe that, with his extensive experience in change management and integration projects, he will make a strong contribution to ensuring Austroads is responsive to the needs of its members and the Australasian road industry.

The Austroads Awards recognise the contribution of individuals to the work program. The 17 people recognised with awards this year have provided outstanding service to Austroads. Many of the people coordinating projects and serving on task forces undertake that work in addition to their regular duties for member organisations. It is only through their commitment that Austroads can succeed. On behalf of the Board I would like to thank them for their efforts.

This is the penultimate year for the delivery of the Austroads Strategic Plan 2012-16. I am pleased to note the significant progress delivering the strategic priorities outlined in the plan. The Program Managers and Coordinators have delivered an impressive program of work this year with 59 projects completed.

The Program Managers deserve particular recognition for their contribution. This role is undertaken in addition to their day-to-day role and the work commitment is substantial. I would like to thank them for leading their task forces and working groups to deliver the substantial body of work undertaken this year.

The Board has spent considerable energy this year working towards the development of the next strategic plan.

The new plan will challenge Austroads to design and implement an operational model that is sustainable and meets the future needs of its member organisations. Specifically the next four-year strategic plan will need to acquire research on a strongly competitive and value for money basis and drive a research base that is cutting edge. The project culture will be refocused from quantity to quality with a new focus on adoption and visibility of outputs, timely delivery and alignment/collaboration between work streams.

This is an exciting phase for Austroads and I am confident that the new plan will improve the agility and responsiveness of the organisation. I look forward to continuing to work with the Board on this important ongoing strategic development.

Peter Duncan AM
Chair, Austroads

Chief Executive's Report

In the first seven months as CEO of Austroads I have been impressed with both the professionalism and dedication of our national office staff, program leaders, task force members and project coordinators.

There is a strong culture of cooperation and sharing of experience and knowledge which is a credit to the organisation.

The completion of late running projects has been given a high priority and I am pleased that 59 projects have been completed this year - 20 more than the previous year. However we are still challenged by late running projects. New reporting processes will help address this and we are already seeing a significant number of late running projects closed in 2015-16.

As the financial summary below indicates, NEVDIS performed strongly in the 2014-15 financial year. This is the first year to account for the Document Verification Service income in full. There has also been a general increase in the demand for the services provided by NEVDIS year by year. We expect that the additional revenue raised through NEVDIS could partially offset jurisdictional contributions to Austroads in the future. This is a significant achievement given that NEVDIS was established to facilitate the exchange of data between jurisdictions.

In August 2015 the NEVDIS team will relocate from Roads and Maritime Services (RMS NSW) in North Sydney to the Austroads head office. I thank RMS NSW for hosting NEDVIS since it was established in 1998. The change will allow us to focus on developing commercial opportunities while retaining the core service for member organisations.

Austroads' collective approach delivers value for money, encourages shared knowledge and drives consistency for road users. As we reposition ourselves for a sustainable future, we will continue to embrace collaboration, cooperation and harmonisation.

I am looking forward to working with the Board and Programs to deliver an operational model that will support the new strategic plan. As a first step towards this, David Francis, our Chief Operating Officer, will assume a stronger general supervisory and management role, which will allow me to focus externally on stakeholder engagement and relationships.

Nick Koukoulas
Chief Executive, Austroads

2014-15 Financial Summary

Income and Expenditure to 30 June 2015

	Austroads	NEVDIS	Consolidated
Revenue	14,355,332	6,138,173	20,493,505
Expenses	(12,174,350)	(4,512,149)	(16,686,499)
Surplus for the year	**2,180,982**	**1,626,024**	**3,807,006**

Statement of Financial Position as at 30 June 2015

	Austroads	NEVDIS	Consolidated
Total assets	10,675,564	5,241,434	15,916,998
Total liabilities	(2,283,127)	(1,058,731)	(3,341,858)
Net assets	**8,392,437**	**4,182,703**	**12,575,140**
Equity			
Accumulated surplus b/f	6,211,455	-	6,211,455
Profit for year	2,180,982	-	2,180,982
NEVDIS profit	-	1,626,024	1,626,024
NEVDIS reserve b/f	-	2,556,679	2,556,679
Total equity	**8,392,437**	**4,182,703**	**12,575,140**

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 director from each member organisation. They are the chief executive or a senior executive officer of their 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 2014 meeting the Austroads Board determined new appointments to important leadership positions on the Board and Executive Committee.

Peter Duncan, Chief Executive, Roads and Maritime Services New South Wales, was appointed Chair of the Austroads Board for a two year term.

Clare Gardiner-Barnes, Chief Executive, Department of Transport Northern Territory, was appointed Deputy Chair.

As incoming Chief Executive, Nick Koukoulas was appointed Company Secretary and Public Officer of Austroads Ltd.

The Austroads Executive Committee comprises:

- Peter Duncan AM, Austroads Chair
- Claire Gardiner-Barnes, Austroads Deputy Chair
- Nick Koukoulas, Austroads Chief Executive
- Shane Gregory, Department of State Growth Tasmania
- Andrew Jaggers, Department of Infrastructure and Regional Development
- Stephen Troughton, Main Roads Western Australia

A priority for all Board members will be the development of the next strategic plan which will direct the work of Austroads from 2016-2020.

Activities

- Austroads conducts strategic research by undertaking projects which assist road agencies to address current and emerging issues that have the potential to have a major impact on their operation.
- Austroads develops and publishes Guides for adoption by road agencies to establish national consistency on the technical and operational aspects of road networks.
- Austroads facilitates the sharing of knowledge by promoting the wide dissemination of research outputs, conducting seminars, and promoting the use of Austroads work.
- Austroads conducts business activities on behalf of Australasian road agencies.
- Austroads 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 but in doing so they address the eight strategic priorities of Austroads by undertaking a range of projects and contribute to improving 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.

Awards

Each year Austroads Awards recognise the contribution of individuals 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 regular work for member organisations. The awards acknowledge their efforts and commitment on which our success depends. In 2014-15 Austroads recognised the following people for awards.

Austroads Medal

- Andy Milazzo – ex DPTI SA
  In recognition of his outstanding contribution to Austroads over 27 years, but particularly as Chair, Deputy Chair, long-standing Board member and Australian First Delegate to the World Road Association.
- Murray Kidnie – ex Austroads
  In recognition of his distinguished and outstanding contribution to Austroads and its activities as Chief Executive for 13 years. Murray's leadership, commitment and dedication placed Austroads in a firm position for a strong future.

Outstanding Service Awards

- John Goldsworthy – DIRD
  In recognition of his outstanding contribution to the Austroads Road Safety Program over many years; including his leadership of the 'Making it Happen' theme group, and particularly for strong leadership during the development of the National Road Safety Action Plan 2015-2017.
- Noel O'Callaghan – DPTI SA
  In recognition of his outstanding contribution to Austroads and its activities over a sustained period, particularly in the area of road design and his representation of Austroads in both national and international forums.
- Steve Clark – DPTI SA
  In recognition of his outstanding contribution to Austroads through the technical leadership of projects, participation of the Traffic Management Working Group and representation on Standards Committees.

Special Commendation Award

- Rob Grove – MR WA
  In recognition of his outstanding contribution to Austroads and its activities over a sustained period, particularly in the area of road design.

Achievement Awards

- Jose Arredondo – NTC
  In recognition of his successful project management and delivery of two Freight Program projects, FS1805: Quantification of Benefits of High Productivity Vehicles and FS1804: PBS Level 3 and 4 Standards Review.
- Simone Hewitt - VicRoads
  In recognition of her role as technical advisor to lead the harmonisation of traffic management practice projects for Australia and New Zealand with the Traffic Management Working Group.
- Wayne Harvey – VicRoads
  In recognition of his project management and technical leadership of project NT1913: ITS Performance Benchmark.
- Phil Stratton – DPTI SA
  In recognition of his leadership and specialist knowledge in the development of an accredited training scheme for traffic control at worksites.
- Jacqui Blake - NZTA
  In recognition of her technical knowledge and project management for the improving accessibility with network operations planning project.
- Gordon Farrelly – RMS NSW
  In recognition of his project management for the techniques for signal management to improve network operations project.
- Dave Landmark – MR WA
  In recognition of his project management and technical knowledge in the review and updating of various parts of the Austroads Guide to Traffic Management.
- Nerida Leal – DTMR QLD
  In recognition of her management of a complex project for the Safety Program: SS1755 Options for rehabilitation in alcohol interlock programs.
- Olivia Sherwood – DIRD
  In recognition of her management of an important project for the Safety Program: SS1937 Assistance with the 2014 National Road Safety Strategy (NRSS) Review.
- Colin Brodie – NZTA
  In recognition of his ongoing contributions to the Safety Task Force and management of an important project for the Safety Program: ST1888 Strategic Review of the Austroads Guide to Road Safety.
- Claire Thompson – MRWA
  In recognition of her management of a complex project for the Safety Program: SS1753 Review of BAC Limits in Australia and New Zealand.

Strategic Priorities in Action

Our future direction is outlined in the Austroads Strategic Plan 2012-2016. The plan identifies eight strategic priorities that are the current focus of Austroads efforts.

Leadership | Austroads will play a leadership role in the Australasian transport sector and be a major contributor to the national reform agenda

- Implementation of the new Identity Proofing Guidelines and the proposed National Facial Image Biometric Capability will help prevent identity theft and improve national security outcomes. Both initiatives are key enablers of Australia's future digital economy.
- Our future National Road Safety Action Plan 2015-2017 will focus national efforts to deliver long-term improvements to the safety of Australia's road transport system.

Relationships | Austroads will build strong relationships with stakeholders in the transport sector and foster a collaborative approach across the sector

- We regularly collaborate with a wide range of industry stakeholders, including the National Transport Commission, the Bureau of Infrastructure, Transport and Regional and Economics, and the National Heavy Vehicle Regulator.
- We engage with the World Road Association and have collaboration agreements in place with equivalent organisations in several other countries to keep abreast of emerging trends and to share knowledge and technical good practice.

Knowledge Sharing | Austroads will create improved distribution, sharing, learning and innovation to support decision making

- Our Task Forces and Working Groups provide an important forum for road and transport agencies to exchange information on national and international projects and issues.
- The Austroads Guides are Australasia's leading road engineering guidelines. Respected internationally, they cover the full range of road agency operations and have been adopted as primary references by all member agencies.
- We have published 16 updates to existing Austroads Guides, four new Guides and 150 reports. More than 400,000 documents were accessed by 300,000 people.

Customer Service | Assisting member agencies to identify and understand community needs and achieve social outcomes

- Our collaboration with the Commonwealth provides motor vehicle dealers, business and consumers with a national "one stop" consumer protection service, via the Personal Property Securities Register.
- Our heavy vehicle research identified ways to reduce road noise and improve drivers' braking techniques on steep descents, resulting in direct safety and environmental benefits to communities.
- An Austroads learning resource and assessment model is working to close the gap between urban mainstream and remote indigenous learner drivers.
- Our three tiered overseas driver licensing system effectively balances the need to strengthen bilateral relationships against the need to maintain strong road safety outcomes.
- Our ongoing management and development of the National Exchange of Vehicle and Driver Information System (NEVDIS) enables critical registration and licensing processes to be undertaken by every state and territory. The database of licensed drivers and vehicles in Australia processed around 98.6 million transactions in 2013-14 alone.

Asset Management | Assisting member agencies to provide the road network services the community needs at least long term cost

- Our improved understanding of the impact of high productivity freight on pavements has informed policy development about freight access and user charges.
- Our advice about the potential impact of emerging technology on asset management has enabled jurisdictions to improve their asset management practices.
- Our research into pavement decay and condition measurement has made the asset management of pavements more effective.
- Our agreed approaches to harmonising test methods have improved the comparability of condition and performance metrics.

Productivity | Assisting member agencies to maximise the contribution that roads and related infrastructure make to the economy

- Our National Prequalification System for Civil Construction has reduced red-tape, administrative burden and cost overheads to contractors working across borders.
- Collaboration with the Australasian Procurement and Construction Council delivered the *Building and Construction Procurement Guide* providing a consistent and clear approach to procurement for government and industry.
- Our vehicle information services streamline insurance quotation processes and reduce the potential for fraud.
- Our research identified $12.6 billion in safety, productivity and environmental savings by 2030 through the use of high productivity vehicles.
- New guidelines standardising bridge barrier designs have provided consistency and cost savings to designers, contractors and agencies.
- Our pavement research has allowed agencies to significantly reduce their costs while maintaining safety.
- A new robust pavement design software tool will cut the costs to jurisdictions of having to regularly purchase commercial pavement design software.
- The development of a regulatory and operational framework for C-ITS will ensure that emerging C-ITS equipment and services can be deployed locally and operate effectively.
- The adoption of our national ITS Architecture will improve road agency responsiveness to the adoption of emerging technologies through improved system integration, interoperability and standardisation of specifications.
- The adoption of our Network Operational Planning Framework will improve planning for an integrated, multi-modal network.

Road Safety| Assisting member agencies to reduce the impact of road trauma

- Our road safety research has contributed to the ongoing reduction in the number and severity of road crashes and the resultant cost of road trauma.
- Our research is helping road agencies move towards Safe System principles as they design, build and operate their networks.
- Introducing nationally consistent, engineering based, criteria for the assessment of written-off vehicles has reduced the potential for re-birthing severely damaged vehicles.
- Improved road design guidance to accommodate newer types of heavy freight vehicles and establishment of the national Heavy Vehicle Competency Framework, has improved safety for heavy vehicle users and the community.
- Comprehensive national medical standards for licensing have helped health professionals and driver licensing authorities to assess driver capability.
- Consistent national criteria that restrict access to high powered vehicles by novice drivers has made it easier for law enforcement agencies and car sellers to identify a high powered vehicle.
- Current work will establish a national library of Hazard Perception Test scenarios for motor vehicles and, in a world first, for motorcycles.

Environmentally Sustainable Transport | Assisting member agencies to manage the delivery of infrastructure services and use of the road network in a more sustainable way

- Our research will maximise the use of geopolymer concrete (made from waste or industrial by-products) and reclaimed asphalt.
- The Australian Bicycle Council provides a forum for sharing information between stakeholders implementing the National Cycling Strategy 2011-16 which aims to double the number of Australians riding a bicycle.

Assets Program

providing the road services the community needs at least long term cost

People

Program Manager: David Darwin
State Highway Outcome Delivery Manager, NZ Transport Agency

Program Coordinator: Sarah Mayne
NZ Transport Agency

The Program's work program is determined by the Assets Task Force, which has representatives from state and territory road agencies, the National Transport Commission, the Commonwealth Department of Infrastructure and Regional Development, and the Institute of Public Works Engineering Australasia. The Program Manager chairs the meetings of the Assets Task Force.

Assets Task Force

Michelle Baran, TMR Qld	Alex Foulds, DIRD	Mick Savage, IPWEA
Karl Cloos, TAMS ACT	Gary Rykers, RMS NSW	Shane Tepper, DoT NT
Mick Lorenz, DPTI SA	Catherine Dear, VicRoads	Craig Thew, IPWEA
John Robertson, MRWA	Martin Blake, TAS	Ramon Staheli, NTC

Other technical groups

- National PMS Users Working Group
- Road Authority Pavement Making Working Group
- Telecommunication in Road Reserves Working Group

Overview

The work of the Assets Program aims to provide the road services the community needs at least long term cost.

Australia and New Zealand invest more than $21 billion annually in road construction and maintenance. Austroads plays an important role helping agencies to understand how to maximise their return on this significant investment made on behalf of the community.

Outputs include:

- customer defined levels of service integrated into asset management practice
- road and bridge wear under increased loads quantified and cost impact identified
- Guide to Asset Management updated
- guidance on non-pavement asset management
- the efficiency of asset management intervention strategies improved.

2014-15 Highlights

A key strategic priority for Austroads is the harmonisation of road asset data across its member agencies. In November 2014 the Austroads Board asked the Assets Program to quantify the strategic merit of harmonising road data standards. The resulting Business Case will assist Austroads to understand the benefits, costs and likely risks involved in the development of a metadata standard and taxonomy for harmonising road asset data for implementation across Australia and New Zealand.

The estimated benefits range between $65 million and $133 million each year. It is estimated that the total cost to develop and implement harmonised road asset data standards will likely range between $6 million and $14 million each year. While these costs are relatively small when compared to the potential benefits, it is acknowledged that achieving agreement on harmonised standards will be a challenge. The business case and an implementation plan will be further developed in 2015-16.

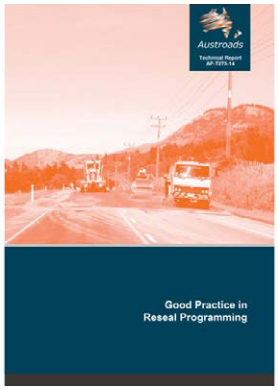
Significant progress has been made on the review of the Austroads Guide to Asset Management. The Guide set will be updated to respond to stakeholder needs, reflect modern practice, incorporate the findings of recent research and include guidance on aligning asset management practices with the requirements of the forthcoming Asset Management Standard ISO55000. It is expected the revised Guide will be available in 2017.

Current work includes projects that will:

- develop a Reliability Centred Maintenance strategy and framework for Intelligent Transport Systems
- improve our understanding of good practice unsealed road maintenance, gravel resheeting and management works
- develop the data and cost information required to support heavy vehicle charging and investment reform
- define asset management level of service requirements of non-freight customers and freight on rural arterial roads
- provide guidelines for the development of a framework for the asset management of road reserves
- develop nationally consistent pavement performance models which enable reliable predictions of long term performance which underpin maintenance and funding strategies
- help agencies understand the impact on pavement surfaces and structures caused by changing configurations and loadings of freight vehicles.

Completed Projects

Good Practice Reseal Management



The cost of resurfacing a pavement is significant (typically in excess of $30,000 per kilometre for a two lane rural road) and the value of road surfacings is high (perhaps $10 billion in Australia and New Zealand). The benefits of resurfacing roads at the right time are considerable. Too early is a waste of money and too late can result in pavement asset value loss and increased road safety risk.

This three year project was designed to provide asset managers with practical guidance in the development and implementation of effective resealing programs. The work built on accumulated experience of previous studies and reviewed sprayed seal performance throughout Australasia.

The report *Good Practice Reseal Programming* was published in September 2014 and downloaded more than 600 times.

Economics of Material Availability and Recycling

Traditional pavement materials are becoming increasingly expensive as sources are being exhausted, and haulage distances are escalating. As a result, jurisdictions are seeking alternative solutions, one of which is the use of recycled materials.

The two year project aimed to determine the economic costs associated with the decreasing availability of traditional road building materials and the extent to which the future availability of pavement materials will impact on road maintenance and construction activities.

The report *Economics of Material Availability and Recycling* suggests there are significant economic and environmental benefits associated with the incorporation of recycled aggregates in pavement bases. Two detailed case studies examine the experience of a local council in New South Wales and industry in South Australia.

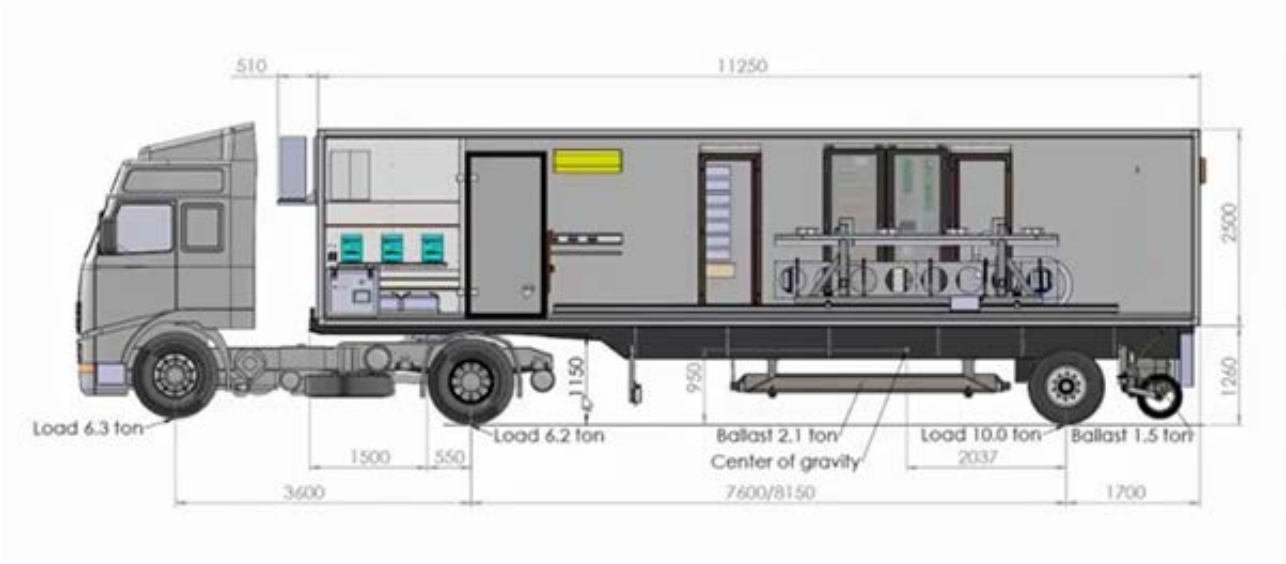
Investing in Network Level Deflection Data Collection

In 2011 Austroads embarked on a project to help road agencies understand the benefits and risks of investing in network level strength data collection and determine if and how this data could be used to improve decision making.

Deflection measurements are a key parameter in determining the pavement and subgrade strength; the current value of the road pavement and its remaining life.

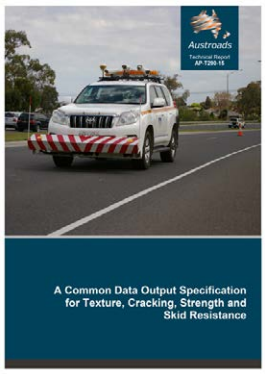
The lessons learnt from UK, European and US experience will aid Australasian Traffic Speed Deflectometer (TSD) practice, particularly the quality assurance and reliability of the data. The project outputs proved very useful in the collaborative purchase of a TSD by ARRB with several member agencies. This second generation TSD will provide network strength testing and has also been equipped to measure roughness, rutting, cracking and road geometry.

In 2014-15 two reports were published. *Traffic Speed Deflectometer: Data Review and Lessons Learnt* compares Falling Weight Deflectometer and TSD data. *Traffic Speed Deflectometer: Data Analysis Approaches in Europe and USA Compared with ARRB Analysis Approach* documents discussions about international TSD data analysis and reporting.



The TSD uses seven Doppler lasers to monitor the response of a pavement to the application of a mass at highway speeds. TSD data provides continuous pavement deflection profiles, from which bearing capacity indices can be derived and pavement fatigue can be estimated. The high accuracy and resolution of the TSD enables engineers to pin point areas where the pavement may be subject to failure.

Standardising Road Condition Measures



This five year project was developed to ensure that uniform test methods and specifications for measuring and collecting road condition could be widely applied by all jurisdictions.

The project produced nine test methods and five reports, the last of which was published in March 2015.

The Austroads Board directed senior asset managers from all Austroads member agencies apply a harmonised approach to road management data. *A Common Data Output Specification for Texture, Cracking, Strength and Skid Resistance* documents the development of an approach to help member agencies to harmonise road condition data outputs. It contains the concepts and methodology for harmonisation as well as the agreed data output specifications for texture, cracking, strength and skid resistance.

Better Estimating the Cost of Accelerated Road Wear

In 2011 Austroads embarked on a project to improve the predictions of pavement life cycle performance models to reflect the impacts of higher axle mass limits on agency costs. The project produced a series of interim road deterioration (RD) models that will allow the cost of accelerated deterioration to be estimated.

The final project report, *Interim Road Deterioration Models During Accelerated Deterioration,* provided: a cumulative rutting model, cracking model and roughness model; and an exploratory RD model for the prediction of the loss of surface area in both the gradual and rapid deterioration phases.

While the interim models are based on a relatively limited dataset, they are expected to be a useful tool for the initial assessment and prediction of the road wear cost consequences of reduced maintenance on pavement conditions and increased axle mass loading. These RD models can also be used to limit the number of high productivity freight vehicles on roads identified as being at risk of serious failure.

Analysing the Impacts of Dynamic Wheel Loading

The impacts of dynamic loadings from heavy vehicles on road networks are poorly understood. As such, it is difficult to know how changes in the types of heavy vehicles, heavy vehicle suspensions or heavy vehicle axle mass limits will impact on the network, or how deterioration of the pavement affects its loading.

In 2015 Austroads completed a three-year project designed to quantify the impacts of dynamic wheel loads applied by vehicles to pavement surfaces and bridges.

Analysing Dynamic Wheel Loading and its Effects on the Network documents the project which used a new approach to overcome limitations in previously trialled models for linking vehicle/road characteristics and dynamic wheel loads. In particular, a physical dynamics model replaced previous statistical models, which provided a more reliable and accurate link between wheel loads and road profile, and enabled calculations of spatial repeatability. This approach, and the selected dynamic parameters to study, was supported through a comprehensive literature review. A test program, specifically designed to collect data to support this revised modelling approach, was also carried out successfully.

Other Significant Achievements

Long-term Pavement Performance Project Continues to Build Knowledge

Austroads established its long-term pavement performance (LTPP) project in 1995. Since its commencement the project has monitored more than 40 inservice pavement sites under different climate and traffic loading regimes in all Australian states except for Western Australia. The sites include sealed granular, asphalt, cemented-treated and concrete pavement sections on rural and urban major roads and highways.

LTPP Site Establishment in South Australia details the replacement of two test sections of pavement in South Australia: the Port River Expressway (PRExy), Port Adelaide; and the Dukes Highway, Cooke Plains.

Austroads LTPP/LTPPM Study - Summary Report 2013-14 summarises the long term pavement performance monitoring project activities undertaken in the year.

Mobile Surface Wear Rig Undergoes First Trials

The horizontal shear stresses applied to pavement surfacings by new configurations of freight vehicles are not yet known.

Initial Field Trials with Surface Wear Rig details the first suite of testing activities undertaken with a mobile pavement surface wear rig developed by ARRB. The rig has been designed to gain an improved understanding of the failure mechanisms particular to the pavement surface layer – as distinct from the structural layers – that may be caused by changing axle configurations and the loadings applied by freight vehicles.

Probabilistic Road Deterioration Modelling Showing Promise

The accurate prediction of pavement performance is a key to the efficient management of road infrastructure. By reducing errors in predictions of road deterioration, agencies can obtain significant savings through timely intervention and accurate planning.

The deterministic approaches to predicting road deterioration currently widely used by asset managers can result in underfunding for road maintenance budgets or failure to meet level of service goals. *Further Development of Probabilistic Road Deterioration Modelling: Pilot Application* indicates that probabilistic approaches can provide a way to resolve these issues.

Future Focus

The focus of the Asset Program is on cost effectiveness and efficiency of asset management and supporting productivity enhancements for freight. Projects starting in 2015-16 include work to:

- clarify the effectiveness of pavement maintenance activities such as routine, periodic and rehabilitation on pavement condition and performance
- deliver a proposed Austroads road asset data standard and implementation strategy.

Freight Program

improving productivity and safety outcomes in meeting the road freight task

People

Program Manager: Marcus James
General Manager, Surface Transport Productivity, DIRD

Program Coordinator: Tracey Wilkinson
DIRD

The Program's work program is determined by the Freight Task Force, which has representatives from state and territory road agencies, the National Transport Commission, the National Heavy Vehicle Regulator, the Commonwealth Department of Infrastructure and Regional Development, and the Australian Local Government Association. The Program Manager chairs the meetings of the Freight Task Force.

Freight Task Force

Jeff Potter, NTC	Patricia Grunert, RMS NSW	Lisa Braid, DoT NT
Anita Curnow, VicRoads	Andrew Hyles, DIRD	Russell Ingham, DTMR Qld
Matt Elischer, NHVR	Russell Hoelzl, DTMR Qld	Lindsay Oxlad, DPTI SA
Kevin Loftus, MR WA	Craig Hoey, State Growth Tas	Tim Wyatt, EPD ACT
Kym Foster, ALGA	Marinus La Rooij, NZTA	Brett Clifford, DoT NT

Overview

The Freight Program enables the Commonwealth and state and territory road agencies to collaborate to improve productivity, sustainability and safety in the movement of freight on the road network. The Program provides a unique environment for road agencies, policy officers and research agencies to work towards a common goal.

Integral to the operation of the Freight Program is the coordination of ongoing and new work across relevant agencies to ensure that duplication of work is minimised and that any identified gaps can be rectified, where appropriate.

Outputs include:

- national standards and guidelines to improve the productivity, sustainability and safety of road freight movement
- policy framework for light freight vehicles
- research reports, guidelines and tools to improve outcomes relating to road freight access, including access to roads, bridges and intermodal facilities
- guidelines and tools to improve bridge access decision making
- national performance indicators related to heavy vehicles and freight to inform policy development and decision-making
- national competencies and capability framework for road freight regulators
- best practice guidelines for the management of road access and amenity at freight terminals and facilities.

2014-15 Highlights

The significance of freight to Australia's national economy was recognised in Australia's first National Land Freight Strategy released in 2013. The Freight Program provides research and advice that will be critical to delivering on the objectives of the Strategy. One of the Programs' current initiatives – relating to a Route Assessment Tool to assist access decisions for heavy vehicles – is specifically mentioned in the Strategy.

Significant progress was made on two projects of critical importance to the national agenda. The final report from the project Framework for Direct Private Investment in Public Roads will be published in September 2015. The project Improving High Productivity Vehicles (HPV) Access through Potential Charging Regimes is expected to be completed by the end of 2015.

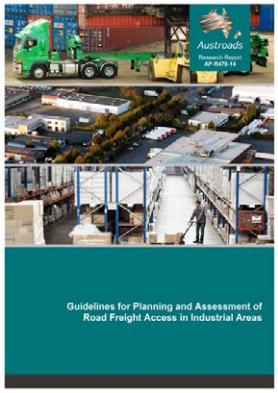
Workshops were held across Australia and New Zealand to progress the development of a policy framework supporting improved safety, efficiency and productivity for urban freight vehicles. The project will identify best practice business models within the supply chain which align with the lowest impact on road users and the road environment, with special consideration given to the 'last kilometre' of freight movement.

Other work progressed during the year include projects to:

- develop braking standards to ensure heavy vehicles brake effectively and safely on steep declines
- establish optimum steer axle mass limits that will accommodate the needs of the transport industry into the future, while ensuring road network sustainability
- determine the costs and benefits of upgrading HPV routes, and the ability of potential future charging regimes to provide the required funding outcomes to justify or expedite investment
- identify how jurisdictions move essential freight, and keep general freight moving, in emergency situations such as floods, fires and earthquakes
- overcome barriers to the off-peak movement of freight in urban areas.

Completed Projects

Planning and Development of Industrial Estates

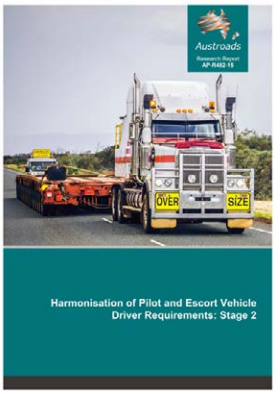


Many local councils are eager to attract the development of new industrial estates to drive regional economic growth and provide employment opportunities for their local community.

In 2014 Austroads published *Guidelines for Planning and Assessment of Road Freight Access in Industrial Areas*. The guidelines are designed to help councils to make consistent and robust decisions when planning and assessing road freight access to industrial areas, including ensuring that infrastructure provision by developers is adequate to meet access needs for many years.

The guidelines should allow councils and developers to work together to facilitate industrial developments and to ensure that the costs of developments are recognised and managed fairly. The publication was downloaded more than 800 times.

Harmonisation of Pilot and Escort Vehicle Driver Requirements



In 2015 Austroads finalised an industry consultation in relation to a nationally harmonised pilot and escort vehicle driver accreditation scheme and operational guideline proposed in 2013.

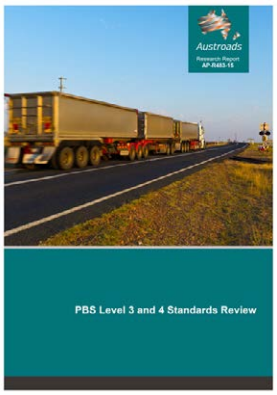
Industry consultation workshops were held in various jurisdictions to engage with the oversize transport industry and obtain a consensus on the final composition of the scheme including, most importantly, the nationally consistent training requirements that would form part of the accreditation process.

The consultation workshops focused on graduated pilot accreditation, agricultural exemptions, driver licensing and background checks, and traffic control powers and road rule exemptions.

It is envisaged that implementation will be best handled via the coordinated efforts of the National Heavy Vehicle Regulator and the National Transport Commission, with a decision to be made on whether the scheme will be centrally administered or decentralised with functions in the various jurisdictions.

The consultation process and recommendations are documented in the report *Harmonisation of Pilot and Escort Vehicle Driver Requirements: Stage 2*.

Performance Based Standards Review



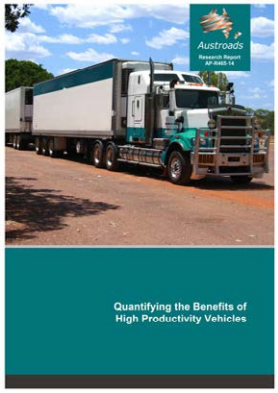
There is strong incentive to increase the use of Performance Based Standards (PBS) vehicles. Austroads research found that high productivity vehicles cause 63% fewer major accidents than their conventional counterparts and provide indirect community freight exposure benefits (less vehicle kilometres travelled, fewer trucks, reduced noise, emissions and accidents), conservatively estimated to be worth $12.6 billion in direct and indirect economic benefits by 2030.

The objective of this review was to identify potential issues that are limiting the uptake of the PBS Level 3 and 4 vehicles and provide recommendations for improving the standards to increase the use of safer and more productive freight vehicles.

This review recommended retaining the existing national PBS framework and all performance standards, but argues that for some measures a re-calibration of test conditions and/or performance limits is required in order to meet the review objectives. It also recommended using the PBS framework to facilitate access to Class 3 freight vehicles that fall outside the boundaries of the four PBS network access levels.

The review process and recommendations are included in the report *PBS Level 3 and 4 Standards Review*.

Other Significant Outputs



In July 2014 Austroads published *Quantifying the Benefits of High Productivity Vehicles* which outlines the direct and indirect benefits of High Productivity Vehicles (HPV) in Australia.

If adopted, the HPV initiative is poised to conservatively deliver $12.6 billion in real benefits to Australia by 2030, through $6.9 billion in discounted direct benefits and $5.7 billion in indirect discounted flow-on economic benefits.

Direct benefits examined include safety, productivity, fuel and environmental savings. An attempt has also been made to estimate indirect benefits of HPV adoption, which include the stimulated economic flow-on benefits, lowering community freight exposure, and slightly lowering infrastructure maintenance costs.

This is the first study of its type to create national heavy vehicle accident benchmarks for Australia, and to use those benchmarks to measure the national HPV fleet accident performance rates. Over the last three years the estimates for the productivity of HPVs have risen significantly as operators have supplied more precise kilometre savings estimates than was available prior this study.

Future Focus

The Freight Program will continue to improve its strategic focus on matters of national importance, utilising the benefit of access to operational and policy officers working in collaboration across Australia and New Zealand.

New projects have been added to the Freight Program for 2015-16 to:

- establish a national strategic weigh-in-motion network for Australia and New Zealand, so that data can be shared across jurisdictions to better manage and plan for the impact of the growing freight task
- identify a closure risk indicator for freight routes that can be considered to be ‘life line’ routes, which are routes that are of high value to regional communities and provide vital access during emergency situations
- re-assess the impacts of the use of high productivity vehicles on Australian highway pavements
- assess the future challenges of changing agricultural equipment over the next 5-10 years in terms of size, shape, and road access requirements
- investigate the potential benefits of enhanced end to end supply chain visibility.

Network Program

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

People

Program Manager: Craig J Moran
General Manager, Road Network Operations, RMS NSW

Program Coordinator: Jill Hislop
Austroads National Office

The Program's work program is determined by the Network Task Force, which has representatives from state and territory road agencies, and the Bureau of Infrastructure, Transport and Regional Economics. The Program Manager chairs the meetings of the Network Task Force and the Program's other technical groups.

Network Task Force

Glenn Bunting, NZTA	Geoff Horni, DoT NT	Andrew Wall, VicRoads
Andrew Excell, DPTI SA	Tom McHugh, MRWA	Dennis Walsh, DTMR Qld
Richard Burk, DSG Tas	Rifaat Shoukrallah, TAMS ACT	David Mitchell, BITRE

Other technical groups

- Traffic Management Working Group
- System Managers Working Group
- Australian Bicycle Council
- Cooperative ITS Industry Reference Group
- Cooperative ITS Steering Committee

Overview

The Network Program provides road agencies and practitioners with contemporary technical guidance on managing road networks for all road users through a national research program and the Guide to Traffic Management. An integral part of the program is to ensure that Australia and New Zealand are positioned to adopt advances in technology and to respond to emerging priorities in managing the road network.

Outputs include:

- ITS architecture and protocols agreed nationally
- harmonisation of traffic system requirements
- network operations planning for all modes
- network performance measures
- National Cycling Strategy 2011-16 implementation
- sandardised Information services for users
- Guide to Traffic Management updated.

2014-15 Highlights

National ITS Architecture

The National ITS Architecture will provide a common framework for planning, defining and integrating intelligent transportation systems in Australia.

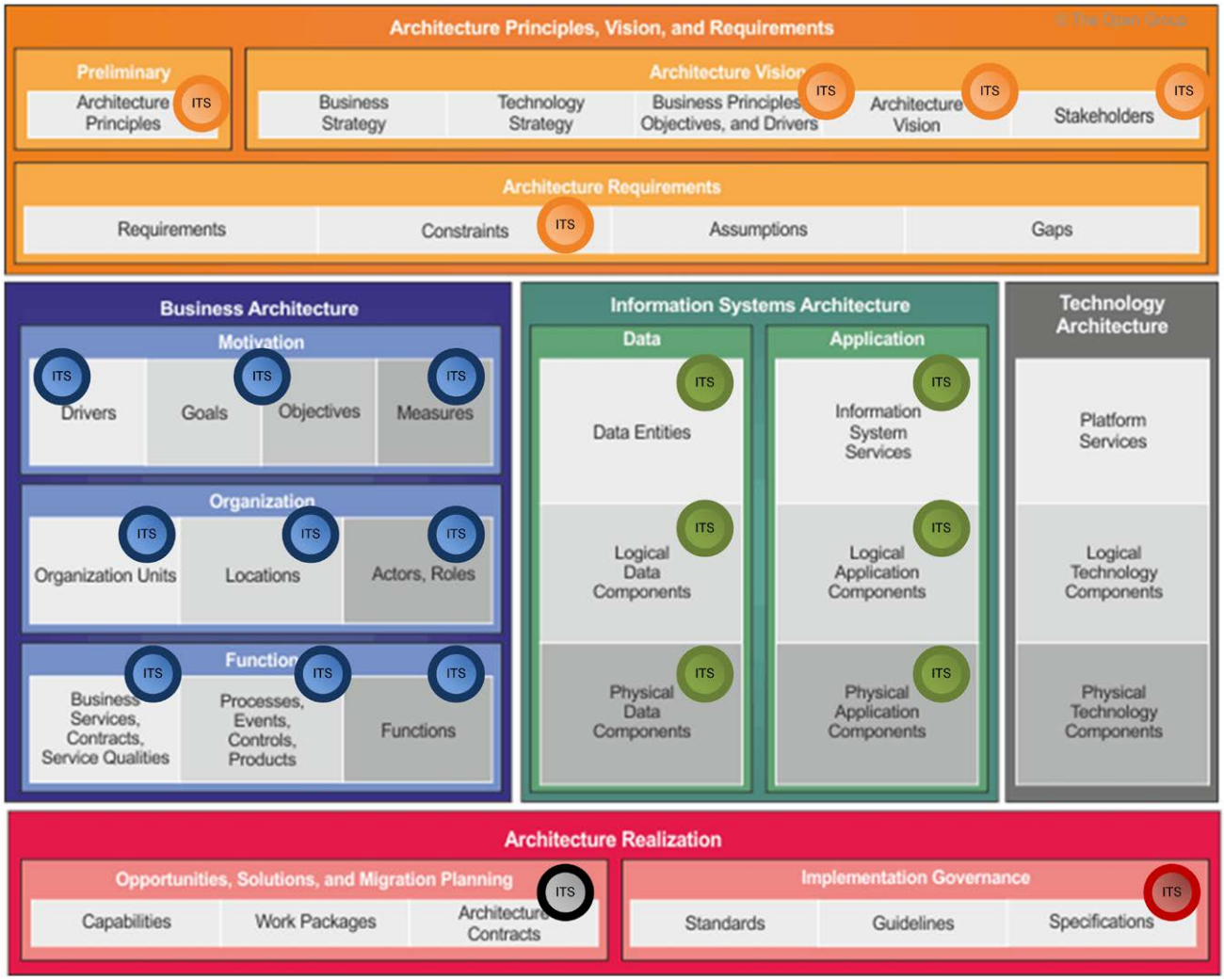
Development of a National ITS Architecture is listed as a priority action in the Policy Framework for ITS in Australia 2012 endorsed by Australia's Transport and Infrastructure Council.

In 2014 Austroads completed Stage 1 of this initiative by recommending a reference ITS architecture.

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

Stage 1 of the national reference ITS architecture includes a *Context and Vision* and an initial *Business Architecture* (incorporating the reference, functional and service models).

Assessment of international ITS architectures identified the European ITS Framework Architecture (usually called the "FRAME Architecture" or often just "FRAME") as the best basis for the Australian national ITS architecture.



National ITS Architecture Content Meta-model.

Austroads is progressing the national ITS architecture with the development of an ITS Architecture Roadmap and Transition Planning for road agencies to inform the future customisation of FRAME content for local requirements.

The need for a national ITS architecture is even more critical with the potential emergence of Co-operative ITS (C-ITS) and automated vehicles. In this respect, C-ITS will open up the next frontier of ITS to enhance safety, productivity, efficiency and environmental benefits beyond what has been currently made available through ITS.

Cooperative ITS (C-ITS)

Cooperative Intelligent Transport Systems (C-ITS) is an emerging platform that can be applied to motor vehicles and roadside infrastructure to enable direct two-way communication between them. Australia needs to be prepared for the advent of C-ITS equipped vehicles. Austroads is taking a lead role in establishing an operational framework that will enable emerging C-ITS to be deployed in Australia and New Zealand.

In March 2015 Austroads published *Concept of Operations for C-ITS Core Functions*. The publication defines the C-ITS platform core functions including their objectives and capabilities, identifies user needs and describe how the system will operate. The Concept of Operations is intended to be an input to future decision making and System Engineering documents, including system requirements and design documentation.

In January 2015 Austroads published *Cooperative Intelligent Transport Systems (C-ITS) Standards Assessment* an assessment of the emerging C-ITS standards designed to provide guidance for determining which standards should be adopted locally.

The project reviewed more than 160 standards and considered two scenarios for possible adoption by Australia and New Zealand – a US scenario comprising IEEE and SAE standards and the EU scenario comprising standards from ETSI release 1 and CEN/ISO release 1. The assessment identified there is a need to seek further clarity on scenarios by participating and/or engaging in trials and initiatives; work with local stakeholders to establish a confirmed consensual direction with respect to C-ITS deployment locally; adopt the required minimum set standards for the chosen scenario; and confirm the compliance level and type required for each adopted standard and whether compliance is regulated or not.

National Cycling Strategy Implementation

In June 2015 the Australian Bicycle Council published the *National Cycling Strategy: Implementation Report 2014* which outlines the progress made on the National Cycling Strategy in 2014. In this, the fourth year of the National Cycling Strategy 2011-16:

- Australian states and territories invested $112.8 million in cycling related infrastructure, education and promotion in 2013-14.
- Bicycles outsold cars for the 15th year running with over 1.3 million bicycles sold in the 2013-14 year.
- The National Road Safety Action Plan for 2015-17 focused heavily on the safety of vulnerable road users.
- Level of Service Metrics, National Guidelines for Transport Systems Management and other projects integrated bicycle transport considerations.

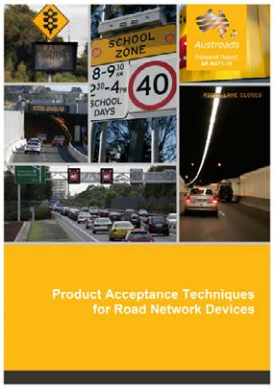
The *National Cycling Participation Survey* (NCPS) was repeated in March and April 2015. The NCPS is a standardised survey that has been repeated biennially since 2011. It provides data on cycling participation at a national level and allows for estimates of participation for each state and territory, and the capital cities and non-capital areas within each state and territory. The 2015 results were published in July 2015.

Key findings from the 2015 study were:

- Four million people or 17.4% of the Australian population had ridden in the previous week, 24.3% had ridden in the previous month and 36.3% had ridden at least once in the previous year.
- Participation rates are highest in Western Australia, the Northern Territory and Australian Capital Territory.
- Young children have the highest levels of cycling participation: 49% of 2 to 9 year old children had ridden in the previous week, decreasing to 37% of 10 to 17 year olds.
- Of those who cycled in the past month, a much higher proportion did so for recreational purposes (85.5%) compared to those who cycled for transport purposes (30.2%).
- Males are more likely to participate in cycling than females with 22% of males and 13% of females having ridden in the past week.
- Among those who had ridden in the past week, the average time ridden was 2.75 hours.
- Around 54.3% of households have at least one bicycle in working order.

Completed Projects

Harmonised Product Acceptance for Network Devices

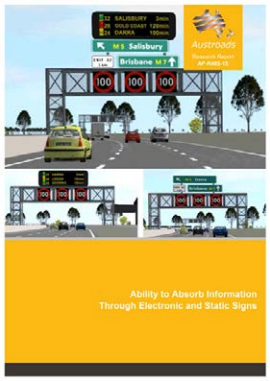


In 2012-13 a two year project was initiated to develop a nationally consistent assessment process for road network devices.

The development of an agreed product acceptance process and the future development of a nationally accessible register will enable road agencies to accept products that have been assessed against the agreed process by another road agencies, delivering a harmonised national approach to the assessment of ITS field devices and improved efficiency for road agencies.

A report *Development of Product Acceptance Techniques for Road Network Devices*, documenting the development of an assessment process, was published in early 2015.

Understanding the Limits of Sign Information Absorption



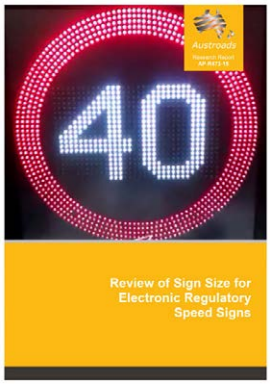
The co-location of signs on a road network allow road agencies to provide a number of critical messages over a short time or distance and fully use existing or proposed gantries. But how much information is too much for road users to absorb and act?

In May 2015 Austroads published *Ability to Absorb Information Through Electronic and Static Signs*. The report details current practices and research evidence on the co-location of three types of signs: directional signs, variable message signs and variable speed limits/lane control signs.

The project employed an advanced driving simulator from the Centre for Accident Research and Road Safety (CARRS Q) to further investigate the possible impacts of sign co-location on drivers' responses and behaviour.

Findings suggest that although there is no clear evidence showing that triple co-location gives rise to riskier behaviour, this proposition should be viewed with caution, but should not rule out further evaluation of triple co-location in a real life setting. It also recommended that triple co-located signs should be used only in situations where other arrangements for displaying essential sign information are impractical.

Review of Sizes for Electronic Regulatory Speed Signs

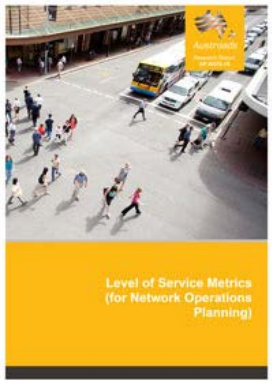


In January 2015 the Network Program finalised a project designed to determine if the size of electronic regulatory speed signs (ERSS), such as variable speed limit signs, could be reduced without adversely impacting efficiency of driving or safety.

A review of current practice found that the sizes of electronic regulatory speed signs (ERSS) used in Australia are largely similar to those described in Australian Standard AS 1742.4, although some minor differences were identified in a few areas, such as tunnels and managed motorways. Brightness requirements and the minimum number of red annuli from jurisdictions largely follow AS 5156. However, the number of red annuli and the required number of flashing annuli during speed limit changes still vary amongst jurisdictions.A review of overseas literature and practice concluded that the sizes required for ERSSs are generally equivalent or larger than that of standard static speed signs. Many road agencies tend to recommend larger sign sizes and letter heights for ERSS than for standard static speed signs (e.g. the UK Department for Transport, the US Department of Transportation, NZTA and RMS).

The project team successfully achieved consensus on the harmonisation of ERSS specifications regarding sign size, sign brightness and sign annulus flashing requirements. The findings and recommendations to be considered by Austroads and relevant Australian Standard Committees were published in the report *Review of Sign Size for Electronic Regulatory Speed Signs*.

Level of Service Metric



In January 2015 Austroads published a level of service (LOS) framework from the perspective of all road users, *Level of Service Metrics (for Network Operations Planning)*.

The LOS framework is designed to help practitioners identify an appropriate LOS for different road users and support decision-making within the context of network operations planning. The framework includes motorists, transit users, freight, pedestrians and cyclists with needs for mobility, safety, access, information and amenity.

The use of the LOS framework will supplement, rather than replace, the need for detailed computer modelling analysis to verify the impacts of proposed changes as part of the design process.

The case studies in the report demonstrate the application of the LOS framework within the context of Network Operations Planning.

Encouraging Increased Cycling

In 2014 Austroads released two reports showcasing low cost interventions to increase cycling and innovative Australian and New Zealand urban and regional bicycle infrastructure.

Low Cost Interventions to Encourage Cycling: Selected Case Studies provides practitioners with easy and effective methods to encourage cycling while working within limited budgets. The "low cost" nature of the case studies is especially useful for practitioners operating within local government where cycling budgets are limited.

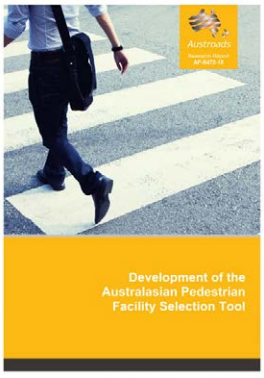
The case studies include infrastructure, education and encouragement projects that remove barriers to cycling such as unsafe road environments, disjointed bicycle networks, lack of parking facilities and lack of cycling skills or confidence. Several case studies provide examples of bicycle parking and end of trip facilities, others provide examples of behaviour change campaigns that aim to encourage cycling, particularly for journeys to work and school.

Cycling Infrastructure: Selected Case Studies includes 29 case studies showcasing innovative Australian and New Zealand urban and regional bicycle infrastructure.

The design of the built environment to support active transport is an emerging discipline. In the absence of local precedents, many treatments adapt designs from overseas examples and trial new intersection, signage and pavement surface treatments in addition to experimenting with shared environments.

'Non-standard' Infrastructure treatments were sought which were not detailed in Austroads Guides and cover: at-grade intersections, grade separated intersections, mid-block treatments, separated cycleways, shared paths, lighting and bicycle detection, off-road bicycle trails and parking and end-of-trip facilities.

Pedestrian Facility Selection Tool



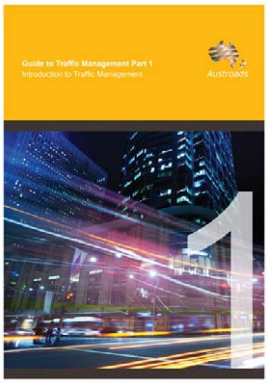
In February 2015 Austroads released an online tool to help Australian and New Zealand practitioners select the most appropriate type of pedestrian crossing based on walkability, safety and economic outcomes.

The online tool assesses the viability of different types of pedestrian crossing facilities according to the physical and operational parameters of a site and its safety performance. It can be used to assess both mid-block and intersection locations.

Practitioners are required to enter a range of site variables into the tool. For each feasible option, the tool then evaluates pedestrian and vehicle delay, safe sight distances, pedestrian level of service and, using default economic parameters developed for each Australian jurisdiction and New Zealand, calculates a benefit cost ratio.

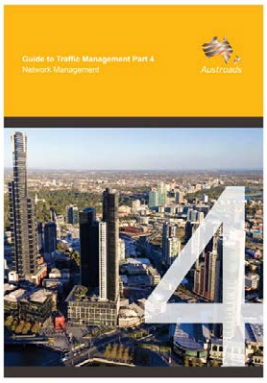
Development of the Australasian Pedestrian Facility Selection Tool details the research that informed the development of the tool. The tool and user guide can be accessed from the Austroads website *bit.ly/austroads_pedestrian*

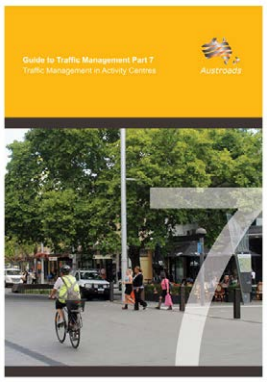
Updating the Guide to Traffic Management



The Guide to Traffic Management has 13 parts and provides comprehensive coverage of traffic management guidance for practitioners involved in traffic engineering, road design and road safety. In 2014-15 updates to Part 1, Part 4 and Part 7 were published.

Guide to Traffic Management Part 1: Introduction to Traffic Management provides an introduction to the discipline of traffic management and an overview of the structure and content of the Guide. This third edition includes updated descriptions of each Part, additional information on the functional road hierarchy and a new section on road environment safety. It also includes updated referencing to relevant legislations, standards and guidelines. The PDF version of Part 1 was made available for no charge. It was downloaded more than 1,000 times.





Guide to Traffic Management Part 4: Network Management addresses network needs of the various categories of user, the characteristics of various types of network and, importantly, describes a planning process for balancing or prioritising the competing needs of different users. This third edition of the Guide updates the content relating to Network Operation Plans. A Network Operation Plan aims to guide the operation and development of the road/transport network towards contributing to this vision by setting out how competing priorities between transport modes and adjacent land uses are to be managed.

Guide to Traffic Management Part 7: Traffic Management in Activity Centres is designed to balance the management of traffic in activity centres, the vibrant hubs where people shop, work, meet and relax. This second edition of Part 7 has been updated to reflect emerging and evolving practices related to the management of activity centres. It includes updates to network operation planning, traffic calming and speed management, and cycling implications for traffic management practice. It also incorporates a new appendix with case studies, updates to design considerations for pedestrians with special needs, and a new appendix with guidance on passenger transport interchanges.

Assessing Traffic Management Consistency

The Austroads project Harmonisation of Practice – Assessment of Traffic Management Consistency was initiated to strategically consider jurisdictional differences in traffic management practice. This was undertaken through a process of mapping jurisdictional supplements and technical documents to each part of the Austroads Guide to Traffic Management (AGTM).

The review identified a number of areas of practice where jurisdictions have existing supplemental material to the AGTM. However, the types of material included in this category varied between jurisdictions. Further review may be required as to how this material can be better classified to assist in harmonisation efforts. This is likely to require a more detailed review of the supplemental material identified by the jurisdictions for each individual part of the AGTM.

Options for the Annual Reporting of NPIs

Each year, jurisdictions are required to provide information for Austroads reporting of National Performance Indicators. This project investigated options for sourcing national speed data and a centralised tool to support the states congestion NPI reporting requirements.

The project examined jurisdictions' current and future NPI processes; analytics and systems maturity; sought expressions of interest for speed probe data and associated tools; and tool options. Active road agencies include New South Wales (RMS), Queensland (TMR), Victoria (VicRoads) and Western Australia (MRWA). Road agencies have expressed an interest in purchasing national probe data and are open to considering a national NPI tool.

Future Focus

The Network Program has an ongoing commitment to invest in C-ITS, ITS architecture, network operations planning, delivering activities that support the National Cycling Strategy and the continued update of the Guide to Traffic Management. This focus will ensure that Australian and New Zealand road agencies are positioned to successfully deploy next generation ITS solutions to improve the operational efficiency of the road network, plan holistically to consider the needs of all road users and provide technical guidance on contemporary network and traffic management practice.

Projects starting in 2015-16 include work to:

- harmonise ITS Technical Specifications
- operationalise the product acceptance process
- document incident management techniques that support optimisation of network operations
- encourage the consistent application of network operations planning through the use of VicRoads' SmartRoads tool
- improve the guidance on bicycle parking and end-of-trip facilities
- update the Guide to Traffic Management Parts 6, 9 , 10, 11 and 12
- publish a Guide for Managed Motorways
- assess key road agency actions to support automated vehicles.

Registration and Licensing Program

enhancing consistency, security and integrity of Australia and New Zealand's driver licensing and vehicle registration systems

People

Program Manager: David Shelton
Executive Director Registration and Licensing, VicRoads

Program Coordinator: Leonie Pattinson
Austroads National Office

The Program's work program is determined by the Registration and Licensing Task Force, which has representatives from state and territory registration and licensing agencies, the National Transport Commission, the Commonwealth Department of Infrastructure and Regional Development, the National Motor Vehicle Theft Reduction Council and the NEVDIS Administration Unit. The Program Manager chairs the meetings of the Registration and Licensing Task Force.

Registration and Licensing Task Force

Martin Crane, DSG Tas	Andrew Lee, DoT WA	Paul Rajan, DoT NT
Paul Davies, NTC	Faye Daikos, VicRoads	Kelly Miller, TfNSW
Julie Holmes, DPTI SA	Matthew Squire, DIRD	John Wroblewski, DTMR Qld
Geoff Hughes, NMVTRC	Cate Quinn, NZTA	Andrew Mahon, DTMR Qld
Marcus James, DIRD	Geoffrey Davidson, JCSD ACT	

Other technical groups

- Registration and Licensing Working Group

Overview

The Registration and Licensing Program aims to enhance consistency, security and integrity of Australia and New Zealand's driver licensing and vehicle registration systems. Improvements to these systems have the potential to improve economic and social outcomes for the nation, its states and territories, and individuals.

The program works to improve social outcomes specifically for Indigenous Australians and promote national consistency by closing existing gaps through the development of best practice frameworks and policy amendments, and strengthening security and integrity through improved enrolment processes and technology.

The program has a significant touch point with customers through the policy and service delivery models of the Australian road agencies which support most of the Australian population to access vehicle registration and driver licensing services.

Outputs include:

- Improved integration and efficient utilisation of data through NEVDIS
- Enhanced security of Australian driver licences and vehicle identification
- Improved management of higher risk drivers
- Improved online and digital R & L service delivery to enable more convenient and accessible services
- Increased consistency and efficiency in registration and licensing across jurisdictions
- Vehicle registration schemes which encourage use of safe and efficient vehicles
- Improved access to driver licences for indigenous Australians.

2014-15 Highlights

Evaluation of the Operation and Use of Segways

This in-house project was a desk top review of international and national practices and legislation for the use and operation of Segways.

The purpose was to document the legislative and policy frameworks that have been developed to enable the operation and use of a personal mobility device (PMD) in Australia. The most common brand of PMD is the "Segway."

National Policy Framework – Power Assisted Pedal Cycles and Motorised Mobility Devices

In 2011-12 the Registration and Licensing Program embarked on a project to determine a national policy framework for Power Assisted Pedal Cycles and Motorised Mobility Devices, including motorised wheelchairs and mobility scooters.

Power Assisted Pedal Cycles

In May 2012, the new electric bicycle category "Pedelec" as per EN15194 Standard was added to the Australian Design Rules. Jurisdictions then amended their legislation to adopt the European Standard. By April 2015 EN15194 compliant bicycles could be legally used in all states and territories except Northern Territory. The change has allowed an expanded range of bicycles to be imported into Australia.

Motorised Mobility Devices

A review of the Australian Road Rules (ARR) related to motorised mobility devices (MMDs) identified a need for design and construction requirements for MMDs that use public infrastructure, and that the ARR should require compliance with these requirements.

MMDs are routinely used on public infrastructure such as footpaths and mix with pedestrians. It is estimated that there are now more than 150,000 MMDs in use across the country and with an aging population this number is expected to increase significantly over the coming years.

The project determined that Standards Australia would develop Australian Technical Standard DR SA TS 3695.3 which will provide a framework for regulating powered wheelchairs and scooters that are used on public transport and /or road related areas. The process to develop the standard is expected to take 12 months, with an initial stakeholder workshop to be held in July 2015.

Future Focus

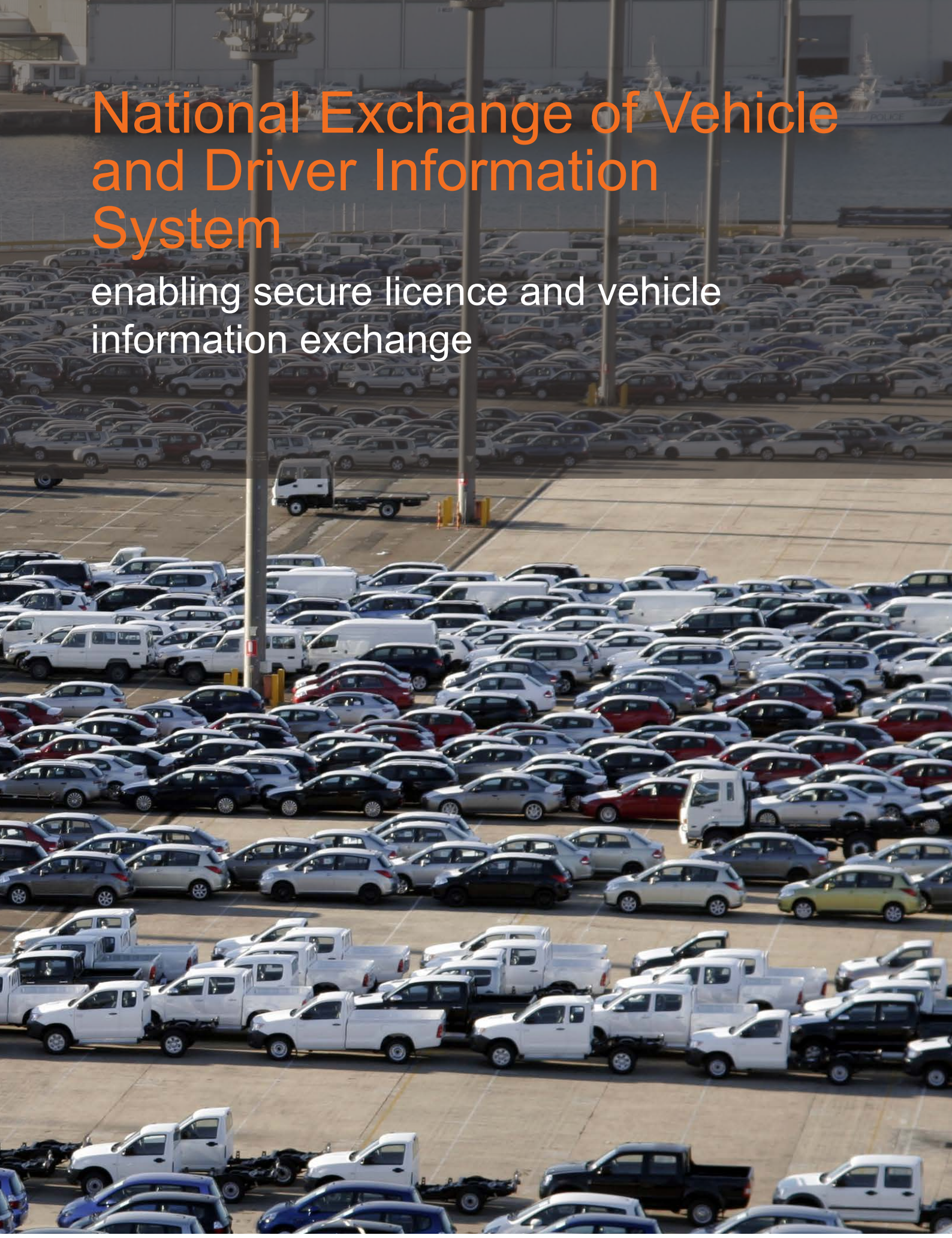
In 2015-16 the Program will continue to focus on national registration and licensing frameworks, the harmonisation of policy positions and practices across jurisdictions, Indigenous programs, and identity and vehicle security.

The Program will also focus on opportunities for road agencies to work together to reduce duplication and unlock savings in the delivery of registration and licensing services nationally through a more strategic end to end view of services.

The program recognises that customer behaviours are increasingly driven by the electronic and digital economy and as a consequence customer expectations in the registration and licensing space drive a need to keep pace with changes in technology. A key area the Program will explore will be online service reform which has strong links to the Austroads strategic priorities of Customer Service, Productivity and Road Safety.

National Exchange of Vehicle and Driver Information System

enabling secure licence and vehicle information exchange



Overview

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

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

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

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

2014-15 Highlights

The system processed more than 100 million enquiries in 2014-15.

The NEVDIS team works tirelessly to maintain a high standard of service to stakeholders with a reliability uptime of 99.9% in 2014.

Current trends and figures suggest that NEVDIS is well on the path to process over 120 million transactions in 2015 with service levels at a continual high.

Austroads has been successful in securing new revenue through the NEVDIS Administration Unit (NAU) that has reduced jurisdiction contributions to NEVDIS from 90% of total income in 2008/09 to 60% in 2012-13. This is a significant achievement given that NEVDIS was established to facilitate the exchange of data between jurisdictions, not for commercial purposes.

During the year the NEVDIS administration unit completed four projects which:

- developed integrated NEVDIS business process documentation, including licence, VIN and vehicle processes
- investigated commercial opportunities and developed an action plan for initiating business development
- developed a solution to allow the verification of driver licences with single names through the Commonwealth Document Verification Service
- implemented new functionality to allow jurisdictions to store and exchange overseas driver licences information where overseas licences are exchanged for Australian licences.

Future Focus

The NEVDIS core application is now over 12 years old and reliant on specialist skills and outdated architecture. NEVDIS will be modernised to enable new functionality and enhancements without invoking considerable and expensive changes to jurisdiction's systems.

There is a recognised and unmet demand from business and government for information held within NEVDIS. Analysis has identified that the existing commercial arrangements could be standardised and that there are a number of additional opportunities to develop products that can safely be taken to the market. These opportunities have the potential to generate sufficient surplus to fund NEVDIS' future investment requirements and partially negate the need for future funding of NEVDIS by jurisdictions.

In August 2015 the NEVDIS Administration Unit will relocate to the Austroads national office. Austroads National Office is working with RMS NSW human resource staff to transition the NEVDIS staff and potentially engage them as Austroads employees. In conjunction with this a review of the organisation structure and skill sets will also be undertaken.

In the future it is envisaged that NEVDIS will play a leading role in the modernisation of registration and licencing practices and in national security.

Safety Program

preventing death and serious injuries using a Safe System approach

People

Program Manager: Iain Cameron
Executive Director, Office of Road Safety, MRWA

Program Coordinator: Natalie Lockwood
MRWA

The Program's work program is determined by the Safety Task Force, which has representatives from state and territory road agencies, the National Transport Commission, the Commonwealth Department of Infrastructure and Regional Development, and Australia New Zealand Policing Advisory Agency. The Program Manager chairs the meetings of the Safety Task Force.

Safety Task Force

Colin Brodie, NZTA	Craig Hoey, DSG Tas	Leo Mortimer, MoT NZ
Bernard Carlon, TfNSW	Robert Hogan, DIRD	Jeff Potter, NTC
Antonietta Cavallo, VicRoads	Julie Holmes, DPTI SA	Jane Richards, TMR Qld
Geoff Davidson, DJCS ACT	Marcus James, DIRD	Simon Saunders, DoT NT

Overview

The work of the Safety Program aims to prevent death and serious injuries using a Safe System approach. The Austroads Safety Program is well placed to understand current and emerging safety challenges facing jurisdictions working together to reduce serious road trauma. In addition to initiating and managing the Austroads research program, the Task Force is responsible for advice on road safety policy and strategy advice and development. Through the Commonwealth Department of Infrastructure and Regional Development the Program reports to TISOC on the implementation of the National Road Safety Strategy (NRSS) and National Road Safety Action Plan (NRSAP).

Good progress has been made in reducing extreme risk taking behaviour through education, enforcement and legislative initiatives to reduce the incidence of speeding, drink and drug driving and to increase the wearing of appropriate restraints (seatbelt reminder technology now fitted will make an increasing contribution in the future).

Safe System responses to the interaction between safe road and roadside infrastructure, active safety systems in vehicles (including C- ITS) and safe speeds will be increasingly important if further reductions in serious trauma are to be achieved.

As serious trauma is reduced among vehicle occupants it is expected that an increasing proportion of the residual trauma problem will involve vulnerable road users including pedestrians, cyclists and motorcyclists and Safe System responses will remain vital.

Outputs include:

- Austroads guides and other documents incorporating safe system principles and practices
- National Road Safety Strategy and NZ's 'Safer Journeys' initiatives including;
  - guidelines for graduated licensing
  - risk-based speed limit setting methodology
- initiatives effectively supporting the Global Decade of Action for Road Safety
- investigation of emerging road safety issues
- investigation of potential applications of cooperative ITS to produce improved safety outcomes
- Guide to Road Safety updated.

2014-15 Highlights

In November 2014 Austroads Safety Program Manager, Iain Cameron, was presented with the prestigious 2014 ACRS Fellowship by the ACRS Patron, the Governor-General of Australia Sir Peter Cosgrove. The award is recognition of exemplary contribution being made by an individual to road safety in Australasia.

In October 2014, Iain was also recognised for his long term international road safety work, accepting the role of Chair of the Organisation for Economic and Co-operation Development's (OECD) Working Group on Safe System Implementation. Iain's participation is supported by the Austroads Board.

As directed by the Austroads Board, the Program undertook a transition towards competitive tendering of all research projects. The Program also made good progress with respect to completing projects, particularly a range of legacy projects. Ten projects were completed and a plan is in place to achieve zero projects late by October 31 2015.

A key outcome of the Program was work led by Transport for New South Wales, on behalf of Austroads, to develop an evidence-informed Australian Graduated Licensing Scheme policy framework that could be applied in Australian jurisdictions. The framework approach allowed jurisdictions to apply the findings of the research in accordance with their local constraints and opportunities and provides a useful model for future research outcomes. The project also built on earlier Austroads research that examined the effectiveness of different components of graduated driver licensing.

In March 2015, Austroads published the outcomes of the first year of a four-year project to establish crash rates for different road stereotypes across Australia's state road networks and New Zealand's national network.

Road Fatalities and Serious Injuries in Australia and New Zealand 2001–10 aggregates all fatalities and serious injuries resulting from the different types of road crashes in Australia and New Zealand. This is the first time that analyses combine the entire casualty dataset for Australia.

Casualty crash data was supplied by each jurisdiction for the period 2001 to 2010.

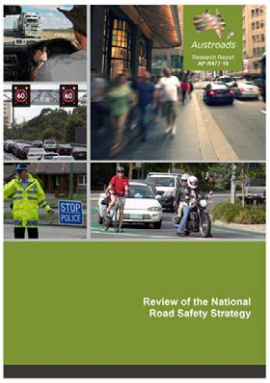
The following results from this study represent significant insights into the current climate of road trauma and factors associated with casualty crashes in Australia and New Zealand:

- road injuries of all severities have declined in both Australia and New Zealand since 2006
- there are marked differences in some of the analyses when all casualty crash data (i.e. fatal, serious and other) are compared to fatal and serious casualty crash data (i.e. the key performance measures under the Safe System)
- key crash types based on fatal and serious injury outcomes for Australia are off-path, head on, adjacent approaches, and same direction. For New Zealand key crash types are loss-of-control on curve, crossing/turning, loss-of-control on a straight, and rear end/obstruction
- same direction/rear-end crashes result in a significant number of fatal and serious injuries, and this is worthy of further research
- the largest number of fatal and serious injuries appear to occur on roads zoned at 60 km/h or 70 km/h in Australia (generally the urban arterial road network), while in New Zealand, the greatest number of fatalities and serious injuries occur on rural roads.
- there is a peak in deaths and serious injuries for both Australia and New Zealand at 18 years of age; and for both countries, the severity outcomes (fatal and serious injury compared to other injury outcomes) appear to increase with age.

Subsequent stages of the project will involve benchmarking of crash performance between jurisdictions and with overseas jurisdictions where this is possible. Of particular interest is the safety performance of road infrastructure. To address this issue, information on traffic volumes and road configuration will be linked to the crash data. This will allow comparison of crash performance for different types of infrastructure. For instance, the crash performance (in terms of crashes of different types per 100 million vehicle kilometres travelled (VKT)) on rural freeways could be compared, or performance of roundabouts in different states assessed. This is likely to help individual jurisdictions identify areas for potential improvement. It is also likely to allow for more evidence-based decision making at the national level.

Completed Projects

Review of the National Road Safety Strategy



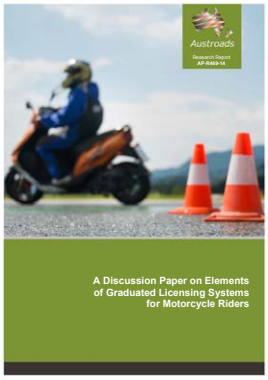
The National Road Safety Strategy (NRSS) was released in May 2011 and was based firmly on Safe System principles. At its core was the aspiration that no one should be seriously injured or killed as a result of using the road system. The strategy provided a guide for road safety directions, priorities and initiatives until 2020 and was initially supported by an action plan (the "First Steps" agenda) covering the years 2011-13.

The strategy included a requirement for a review in 2014 of progress in implementing the "First Steps" agenda and further consideration of the implementation of the other proposed initiatives.

In January 2014, work started on the first review of the strategy. *Review of the National Road Safety Strategy*, published in February 2015, recommends increased emphasis across 13 priority areas including developing a Safe System for vulnerable road users, improving safety for older road users and better understanding serious injuries. It was also recommended that more support be provided for the introduction of new technology for vehicles and infrastructure.

The research informed the development of the National Road Safety Action Plan 2015 – 2017, which was endorsed by the Transport and Infrastructure Council in November 2014. The Action Plan focuses national efforts on activities that will deliver or support significant long-term improvements to the safety of Australia's road transport system, especially through strategic investment in infrastructure safety, vehicle safety and capacity building work.

Development of a National Graduated Licensing Scheme for Motorcycle Riders

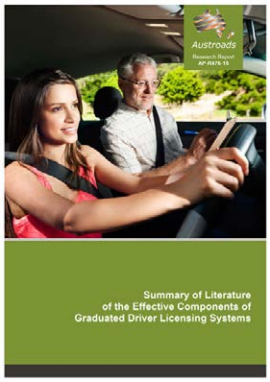


Motorcycle riders are disproportionately represented in road trauma statistics around the world. Improving the safety of this vulnerable group is a priority for road safety strategies in Australia, New Zealand and overseas.

In 2011, the Austroads Safety Task Force initiated research to review licensing arrangements for motorcycle riders in support of related actions in the Australian National Road Safety Strategy 2011 2020.

Regrettably, while the final report was being prepared the author passed away and the report could not be finalised. Austroads decided to publish the report, *A Discussion Paper on Elements of Graduated Licensing Systems for Motorcycle Riders*, in its unrevised form as an important first contribution to the literature on the still emerging topic of motorcycle safety and licensing. The report presents a desktop analysis of the state of knowledge and is informed by the consultant's own expertise and opinion. It does not purport to represent the position of Austroads or its member organisations, and has not been subject to the usual revision process for Austroads reports. Nevertheless, Australian and New Zealand transport agencies will use this unrevised report as well as other research to inform further policy and program development.

Graduated Licensing Scheme for Car Drivers



In February 2015, Austroads published the results of a review of literature examining the effectiveness of different components of graduated driver licensing (GDL).

Components examined included: minimum learner age, minimum learner period, minimum learner supervised driving hours, supervisory driver requirements, formal education requirements, licence tests, minimum provisional age, minimum provisional period, night driving restriction, peer passenger restriction, blood alcohol concentration limit, mobile phone or other technology restriction, vehicle power restriction and specific sanctions for speed, alcohol or other offences.

The project considered whether there was evidence that the component addresses a contributing factor to young driver crashes and/or injuries, and is effective in reducing young driver crashes and/or injuries.

The most well evaluated components, and therefore having the most examples of quantified benefits in terms of crash and/or injury reductions, were a minimum learner age of 16 years, a minimum learner period of 12 months, minimum provisional age greater than 16 years (with increasing benefits with increasing age), night driving restrictions, peer passenger restrictions and a zero BAC limit.

Much of the literature reviewed in *Summary of Literature of the Effective Components of Graduated Driver Licensing Systems* originated from North America, which differs to Australasia in both GDL and enforcement practices. It recommends that jurisdictions continue to monitor GDL research, but also evaluate their own data to the extent possible to ensure the appropriateness of each GDL component to their jurisdiction.

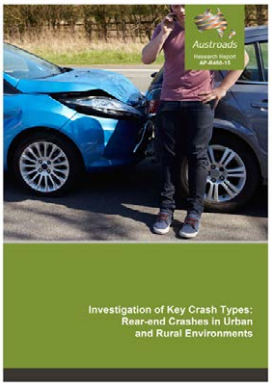
The research found that jurisdictions should continue to monitor GDL research, but also evaluate their own data to the extent possible to ensure the appropriateness of the recommendations to their jurisdiction. Jurisdictions might also choose to introduce or strengthen GDL components on a gradual basis rather than all at once. Public discussion papers could also be released prior to significant changes in order to stimulate and canvass public debate to provide insights into community acceptance and potentially identify issues not yet considered.

The outcomes of this research provided a basis for work led by Transport for New South Wales, on behalf of Austroads, to develop an evidence-informed Australian GLS policy framework that could be applied in Australian jurisdictions. The framework approach allowed jurisdictions to apply the findings of the research in accordance with their local constraints and opportunities and provides a useful model for future research outcomes.

Investigation of Key Crashes Types – Rear-end Crashes in Urban and Rural Areas

Rear-end crashes feature significantly in jurisdictions' road crash statistics. While most rear end crashes do not lead to fatalities, about one-quarter result in fatal or serious injuries. About two fifths of CTP insurance claims are for rear-end crashes, amounting to a quarter of all CTP costs.

The National Road Safety Strategy identified intersection crashes as one of the most frequent crash types occurring on Australian roads. As rear-end crashes are a common collision type at intersections, they have been targeted as part of the strategy.



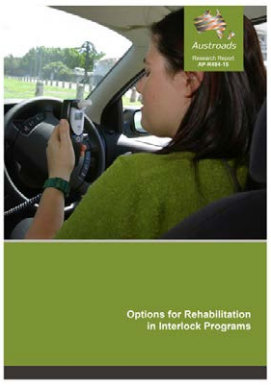
In March 2015, Austroads finalised a research project which explores the contributory factors for rear end crashes, especially those leading to fatal and serious injuries. The project considered urban and rural locations and sought to identify appropriate solutions, discussing both current and potential engineering treatments.

Investigation of Key Crash Types: Rear-end Crashes in Urban and Rural Environments found factors related to an increased incidence or severity of rear-end crashes include:

- driver characteristics: distracted, younger, and male drivers have all been identified as at greater risk of being the striking driver in a rear-end crash. Older and female drivers are at greater risk of sustaining more serious injuries
- vehicle factors: larger vehicles have an increased risk of both being struck and being the striking vehicle in a rear-end collision; collisions involving larger vehicles with passenger cars can be more severe due to vehicle incompatibility
- road environment: rear-end crash risk is highest on highly trafficked, high-speed roads and at intersections, particularly when signalised and/or featuring poor horizontal and vertical alignment.

The research identified short-term measures that could be undertaken as part of a road maintenance program and more substantial improvements that could be undertaken as part of a capital works or road safety program.

Options for Rehabilitation in Alcohol Interlock Programs



In March 2015 Austroads finalised a project that that examined the effectiveness of national and international programs that treat and rehabilitate drivers with alcohol dependence and the criteria used to approve the removal of interlocks.

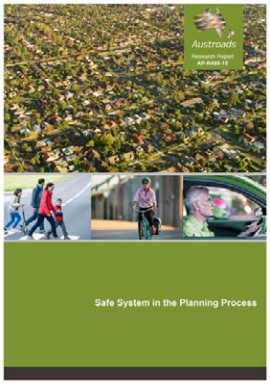
Options for Rehabilitation in Interlock Programs recommends a stepped care model which requires all participants to attend education and screening and then requires participants who fail to change their behaviour to attend increasingly intensive rehabilitation programs. Failure to complete an interlock program could result in participants having their licence revoked.

The project was designed to inform action 36(d) of the National Road Safety Strategy 2011-2020: Investigate the option of requiring demonstrated rehabilitation from alcohol dependence before removal of interlock conditions.

The project provided a matrix of existing policies in national and international jurisdictions with respect to treatment and rehabilitation programs and criteria for eligibility for interlock removal; a critical review of the available literature with a focus on evaluation outcomes regarding the effectiveness of treatment and rehabilitation programs; an analysis and assessment of the strengths and weaknesses of the programs/approaches identified; and presented options with an evidence base for consideration by licensing authorities.

The outcomes of this project may inform further research to develop implementation guidelines for Australian and New Zealand licensing authorities.

Safe System in the Planning Process



The Safe System approach aims to support development of a forgiving transport system that is better able to accommodate human error and road user vulnerability. Both the Australian and New Zealand National Road Safety Strategies are built on the Safe System approach.

Urban planners play a pivotal role in providing a safe environment for all people, irrespective of their mode of travel and travel purpose. Good planning and design sets the foundation for a safe road environment. Transport and land-use planning influences the design and location of roads, how the road network is used; and what infrastructure safety investments are required in the future. Often, the extent to which Safe System principles are included depends on the experience of individual practitioners.

Safe System in the Planning Process promotes the consideration of Safe System principles in planning decisions.

The report includes material that can inform a brochure or article to introduce planners to the Safe System. The content could be adapted by jurisdictions to raise awareness and build support for the benefits from considering and applying Safe System principles into land-use planning processes. In addition, a checklist resource is provided, which may be adapted and incorporated into planning guidance.

The report identifies a need to develop linkages with bodies who prepare planning guidelines, to ensure that Safe System considerations are embedded when the opportunity arises. It also recommends collaborating with the planning community to develop further material to help promote awareness and also raise the profile of road safety in the planning process. The report has been downloaded more than 900 times.

Harmonisation of Best Practice Speed Limits

This project reviewed speed management practices in Australia and New Zealand with a view to developing a technical basis for the harmonisation of best practice speed limits across all jurisdictions. Best practice speed limits can be defined as those based on Safe System principles with the aim of setting speed limits that achieve a safer road environment, while balancing the requirements of safety and mobility.

The project identified speed management practices in Australia and New Zealand which are aligned with the Safe System approach. It also identified the barriers that may prevent the implementation of best practice speed limits and possible solutions.

Review of Blood Alcohol Concentration Limits

Drink driving is one of the most significant causes of deaths and serious injuries on Australasian roads. Clear relationships exist between a driver or rider's Blood Alcohol Concentration (BAC) level and crash risk, with an exponential increase in the likelihood of a fatal crash with increased BAC level. All Australasian jurisdictions have penalties for drink driving offences, with legal BAC limits set between 0.05% to 0.08% for most drivers. Significant reductions in drink driving-related crashes occurred following the legislation of driver BAC limits.

In 2012 Austroads commissioned research designed to address Action 35 of the National Road Safety Strategy 2011-2020: 'Review, in consultation with stakeholders and the community, the application of BAC limits currently applying to certain licence categories'. The project reviewed current BAC limits applied in Australian and New Zealand jurisdictions and explored the effectiveness of reducing BAC limits in comparison to alternative drink driving initiatives.

The Road Safety Task Force is considering the research findings and will recommend future actions.

Strategic Review of Austroads Guides

In 2013 the Road Safety Task Force identified a need for a thorough review of the Austroads Guide to Road Safety (GRS) to ensure that its content is appropriately targeted to its audience, meets their current and future needs, and was delivered in a format which makes the material as accessible as possible.

The review included:an analysis of sales and download data; an assessment of linkages with other Austroads Guides; a user survey; and focus groups and interviews with stakeholders.

The Road Safety Task Force is considering the research findings and will recommend future actions.

A separate project reviewed select parts of the Guide to Road Design series in relation to the Safe System approach and recommended amendments to strengthen or incorporate these principles. The recommendations will be considered by the Road Design Task Force in future updates of the Guides.

Future Focus

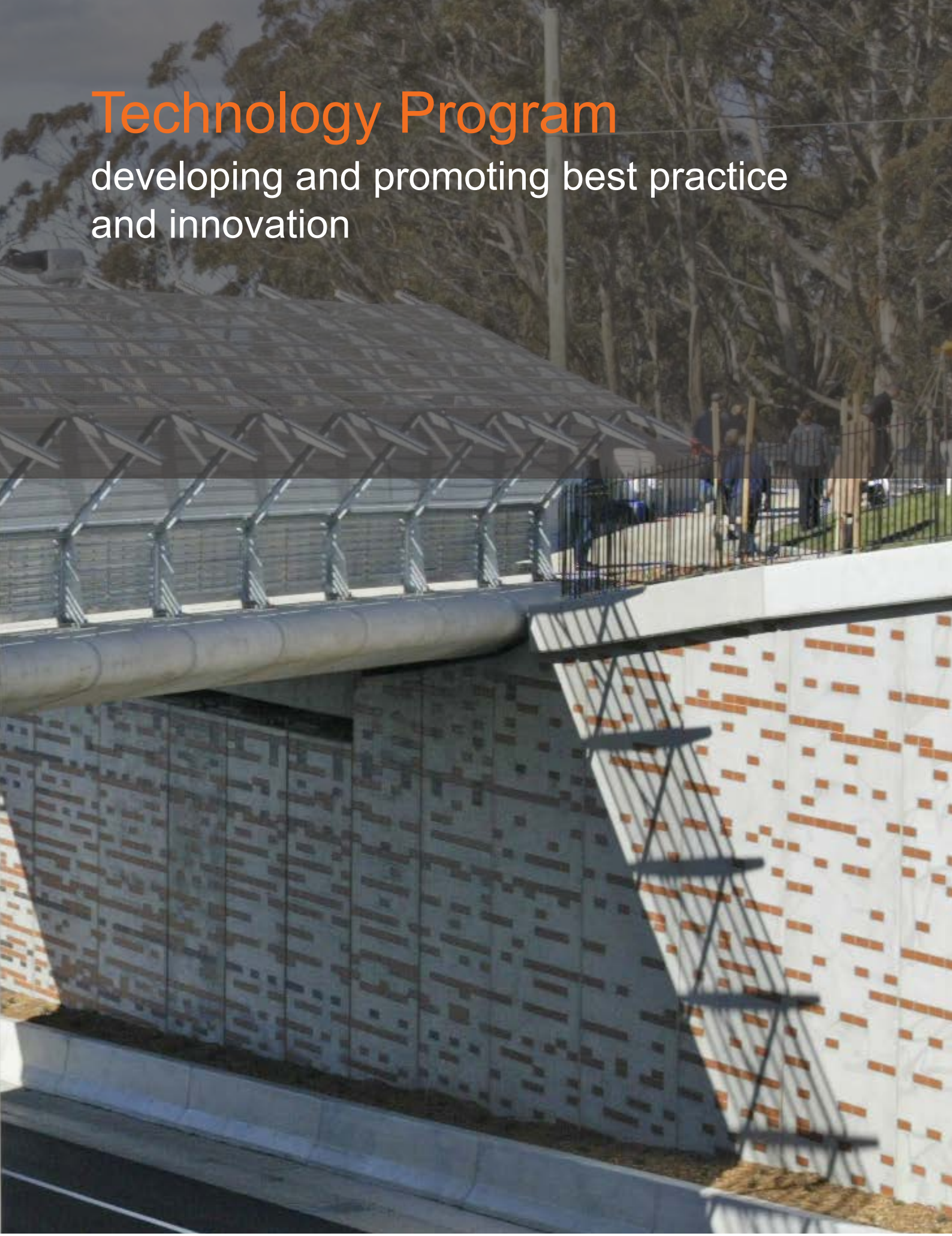
The Program's research will continue to address the road safety objective in the Austroads Strategic Plan 2012-16 by setting a program of strategic and technical research addressing each of the four cornerstones of the Safe System (safe roads and roadsides, safe vehicles, safe speeds and safe road users). This will be achieved primarily through its alignment with the National Road Safety Strategy 2011-2020 and Safer Journeys 2010-2020 (NZ).

Projects commencing in 2015-16 are designed to:

- better understand how the Safe System approach can be applied to urban arterials balancing the demands of efficiency with safety of all road users
- encourage leadership, build capacity and support the cultural and practice changes in road agencies to achieve the transformations required from current to safe system practice
- provide proof of concept for a national approach to reporting data on non-fatal hospitalised road injuries
- investigate emerging Cooperative Intelligent Transport Systems (C-ITS) and automated vehicle systems and applications, and to assess their potential safety benefits for Australia and New Zealand.

Technology Program

developing and promoting best practice and innovation



People

Program Manager: John Spathonis
Principal Manager (Research & Development). DTMR Qld

Program Coordinator: Craig Smith
DTMR Qld

The Program Manager chairs the meetings of the Technology Program Task Forces. The Technology Program Task Forces are:

- Bridge Task Force
- Road Design Task Force
- Pavement Task Force
- Road Tunnels Task Force
- Economic Evaluation and Planning Task Force
- Project Delivery Task Force

Cheif Engineers Group

Julie Mitchell, DTMR Qld	Kevin Reid, NZTA	Mick Lorenz, DPTI SA
Chris Harrison, RMS	Bob Given, Stategrowth	Doug Morgan, MRWA
Agnelo Duarte, VicRoads	Ernie Wanka, NT	Karl Cloos, ACT
Mark Bondietti, WALGA		

The Chief Engineers Group was established by the Board in June 2014 to provide ongoing advice and guidance to Austroads on:

- Emerging technical issues which are expected to impact on the Australasian road system and Australasian road agencies where a national response would be appropriate.
- Prioritising the work of Austroads across technical areas and particularly in relation to bridges, pavements, road design and tunnels.
- Adoption and implementation of research outputs in these areas by road agencies and ensuring that they provide real business benefits .
- Oversighting the current operation and future development of Austroads work in national product assessment (TIPES).
- Austroads structures and groups within the current Technology Program.
- Strategic priorities for Austroads technical research.

The Group is issues based and meets on a needs basis, generally after a Board meeting to action or discuss the outcomes of that meeting.

Technology Program Overview

The work of the Technology Program aims to develop, implement and promote best practice and innovation in the field of road infrastructure design and construction.

Program outputs include:

- Guidance on improved design and materials management for enhanced pavement structural performance
- Improved understanding of material characteristics and vehicle interactions for improved quality and life of road surfacings including enhanced test methods and delivery techniques
- Guidance on management of scarce and quality resources (particularly in rural locations)
- Enhanced bridge design guidelines including improved evaluation methods for bridge load capacity including deterioration models
- Guidance on road design to improve safety for road users and provide efficiency, consistency and value for money designs
- Guidance of the design, management and safety of road tunnels
- Enhanced economic evaluation, methodology and data
- Austroads Guides updated and improved with integration of jurisdictional supplements
- Promote national harmonisation of standards, specifications, material test procedures and project delivery initiatives.

Bridge Technology

The Bridge Task Force coordinates research that is working towards:

- developing enhanced bridge design guidelines
- improving evaluation methods for bridge load capacity including deterioration models
- ensuring the Austroads Guides are up-to-date and and better integrated with jurisdictional supplements
- the revision of Australian Standard AS5100: Bridge Design.

Bridge Task Force

The Bridge Taskforce has representatives from state and territory road agencies, the National Transport Commission and the ARRB Group.

Richard Underhill, DoI NT	Nigel Powers, VicRoads	Adam Lim, MRWA
Neil Wong, NTC	Ross Pritchard, DTMR Qld	Vincent Tang, DSG Tas
Phil Molloy, DPTI SA	Parvez Shah, RMS NSW	Barry Wright, NZTA
Rudolph Kotze, ARRB		

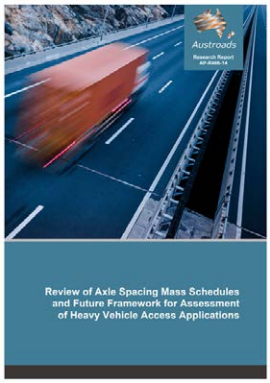
2014-15 Highlights

Austroads Bridge Conference

The Austroads Bridge Conference was held in Sydney from 22-24 October 2014. With 340 participants, 115 papers and speakers from 12 countries, the event was an important opportunity for bridge practitioners to share expertise and experience.

In February 2015 Austroads published the *Bridge Conference papers online*, making the content freely available to all. By the end of June 3,745 copies of the papers had been downloaded. The next Austroads Bridge Conference is planned for 2017 in Melbourne.

Unlocking Freight Productivity with Faster, Consistent Bridge Assessments



Improving freight productivity in Australia requires better access to the road network for heavy vehicle operators. Bridge capacity assessment is critical in this process.

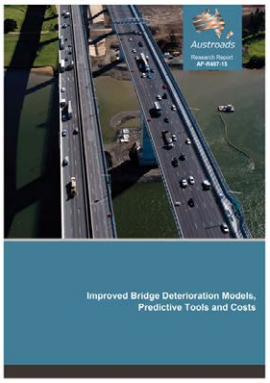
A significant number of applications by heavy vehicle operators to access the bridge network are currently assessed using performance based standards. To improve the timeliness of the assessment a processes is required that can cater for high loading levels without the need to go to a more rigorous analysis for every access request.

Review of Axle Spacing Mass Schedules and Future Framework for Assessment of Heavy Vehicle Access Applications provides a framework which could allow fast assessment of bridges using a simple line model comparison.

The framework allows each bridge to be assessed by a managing jurisdiction against a set of nationally consistent loading service levels. Each loading service level consists of a loading configuration including a primary reference vehicle and co-existing vehicles. Load effects are calculated and compared to the bridge capacity to determine the maximum loading service level that the bridge can safely withstand.

It is envisaged that the system would be administrated through a web interface, hosted by the National Heavy Vehicle Regulator, allowing 24 hour access to the permitting system and rapid issuing of singular permits for multiple jurisdictions. This immediate feedback will allow applicants to fine tune their vehicle configuration and allow for route optimisation.

Improving Bridge Deterioration Models



The management of Australia and New Zealand's bridge stock involves the development of forward works programs which include scheduling maintenance, rehabilitation and replacement. However asset managers often find it difficult to estimate when these costs will be incurred and plan accordingly.

Bridge deterioration modelling and prediction tools have the potential to improve the scheduling of maintenance and replacement works for bridges. *Improved Bridge Deterioration Models, Predictive Tools and Costs*, published in June 2015, evaluates state-of-the-art deterioration modelling techniques. The findings indicate that deterioration modelling can be difficult to implement given the lack of integration of the data sets with existing bridge asset management tools. The report identifies differences in approaches between member road agencies and recommends a harmonised approach to inspections, inventory information and bridge management will enable the implementation of a national deterioration model for bridge asset management.

Future Focus

The Bridge Task Force will continue to work to:

- develop material and practice specifications to achieve a greater than100 years of service life for major bridge structures
- investigate and develop the use of geopolymer concrete in the manufacture of bridge and road related structural components
- develop tools for rapid identification of the level of supplementary cementitious materials, that would suppress damaging expansion caused by alkali-reactive aggregates
- refine, validate and finalise the proposed national framework for bridge assessment

New projects starting in 2015-16 will:

- develop an advanced assessment process to assist in the analysis of higher tier bridge load assessments
- review and update all parts of the Austroads Guide to Bridge Technology
- investigate the properties of general purpose cement with increased percentages of limestone.

Road Design

The Road Design Task Force has progressed projects which:

- determine the efficacy, including safety performance, of the various treatments used to gradually reduce vehicle speeds in high speed environments
- review the Austroads Guide to Road Design Parts 1, 2, 3, 4B, 4C & 6B
- determine the optimum acceleration lengths for entrance ramps onto motorways
- reduce the incidence and severity of crashes involving cyclists at roundabouts by employing best practice road design practice.

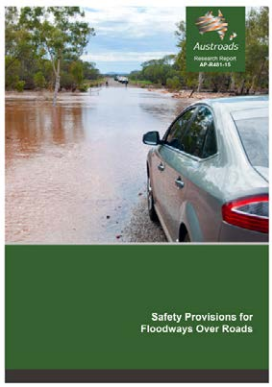
Road Design Task Force

The Road Design Task Force has representatives from Australian and New Zealand road agencies, the Australian Local Government Association (ALGA), Consult Australia and the ARRB Group.

Tom Brock, Consult Australia	Albert Wong, MRWA	William Moodie, DoI NT
Peter Ellis, RMS NSW	James Hughes, NZTA	Mike Whitehead, DTMR Qld
Richard Fanning, VicRoads	Gemma Kernich, ABC	Michael Tziotis, ARRB
Tony Napoli (ALGA)	Ben McHugh (ACT)	Rudolph Kotze, ARRB

2014-15 Highlights

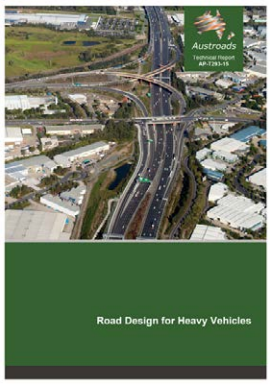
Improving Floodway Safety



Despite public campaigns warning drivers about the risk of crossing a flooded floodway, fatalities continue to occur. *Safety Provisions for Floodways Over Roads* indicates that the vast majority of designated floodways are not to the required design and hydraulic standards, have inappropriate signage, and depth gauges can provide misleading information. This can lead to drivers under-estimating the risk of crossing a flooded floodway.

There are a number of new devices and technologies including automatic warning systems that could be applied to better inform motorists when not to cross a floodway. These devices can provide real-time information to alert drivers of floodway conditions however they are costly and only suitable for critical sites and on high-volume roads. Improving safety measures at floodways should include a management strategy that assesses risk, appropriate treatments, and the resources needed to bring about improvements over time.

Road Design for Heavy Vehicles

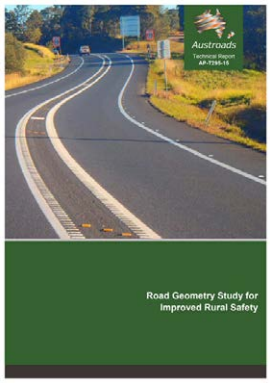


While road design is a major factor in facilitating heavy vehicle movement, many road design criteria are not based on the requirements of heavy vehicles.

Road Design for Heavy Vehicles details a four year project designed to: update intersection design criteria to allow appropriate opportunities for heavy vehicle entry; to investigate gap acceptance behaviour of heavy vehicle drivers; and identify improvements in the current road design standards that will more safely accommodate heavy vehicle movements.

The methodology included: obtaining field data on the gaps accepted by heavy vehicle drivers at different types of intersections; reviewing literature to identify road design standards and practices that accommodate heavy vehicles; analysis of heavy vehicle crashes across Australia and New Zealand; identification of sections the Austroads Guide to Road Design that have implications for heavy vehicle operation; and consulting with a representative group of key jurisdictional and heavy vehicle industry stakeholders to identify key safety issues and possible solutions.

Road Geometry to Improve Rural Safety



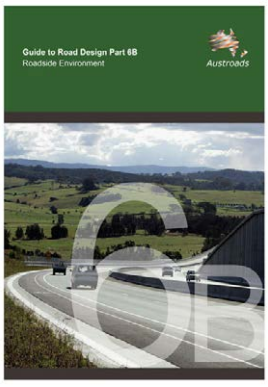
Road design geometry is a key aspect in the design of safer roads. Analysis of crash data shows that almost 60% of fatal crashes occur on rural roads in Australia, while in New Zealand, the proportion is markedly higher at about 70%. In-depth crash studies have also shown that the road is a causation factor in about 30% of all crashes, while it is known to be a factor in the severity outcome of all crashes.

Road Geometry for Improved Rural Safety identifies geometric road design elements which contribute to the occurrence and severity of casualty crashes on rural roads, including lack of sealed shoulders, steep downhill grades combined with curves, roadsides with narrow offset to roadside hazards, and high-flow rural at-grade intersections.

The report, which was downloaded more than 1,200 times, proposes a number of possible changes to Austroads Guide to Road Design and Guide to Traffic Management. Most proposed changes involve clarification of guidance, e.g. for selection of design speed in challenging alignments, use of speed limits to control speeds, use of sealed shoulders, selection of barriers and clear zones, and greater guidance for design of low speed roundabouts.

It also recognises the need to focus on severe crashes in future research and guidance to evolve road design towards the Safe System principles.

Updating Guide to Road Design Part 6B: Roadside Environment



Guide to Road Design Part 6B: Roadside Environment provides guidance for road designers on environmental issues including the design of roadside facilities to manage water quality, control noise, manage fauna movement across roads, enhance roadside amenity and provide suitable landscaping of the road environs. The second edition of the Guide, published in July 2015, includes updates to sections on: road safety including the Safe System principles; the cost and safety considerations for landscaping; the safety aspects of roadside furniture and road lighting.

Future Focus

The Road Design Task Force will continue to work to:

- reduce the incidence and severity of crashes involving cyclists at roundabouts by employing best practice road design
- better understand the safety performance, of the various treatments/measures used to gradually reduce vehicle speeds in high speed environment
- determine acceleration lengths for entrance ramps onto motorways
- revise the Guide to Road Design Parts 1, 2, 3, 4, 4A, 6 and 6A.

New projects starting in 2015-16 will:

- explain for practitioners, the fundamental objectives of road design
- verify Austroads design criteria that are based on objective safety evidence
- determine improved railway level crossing road design for heavy vehicles
- investigate road design options to improve bicycle safety at roundabouts.

Pavement Technology

The Austroads Pavement Task Force coordinates research that is working towards:

- providing guidance on improved design and materials management for enhanced pavement structural performance
- improving our understanding of material characteristics and vehicle interactions for improved quality and life of road surfacings including enhanced test methods and delivery techniques
- providing guidance on the management of scarce and quality resources (particularly in rural locations)
- ensuring the Austroads Guides are updated and improved with integration of jurisdictional supplements.

Pavement Task Force

The Pavement Task Force, the lead forum in Australia and New Zealand on road pavement technology. The Task Force is comprised of senior representatives from Austroads jurisdictions, the Australian Local Government Association (ALGA), and key industry stakeholders including AAPA, AustStab, CCAA, ARRB and Civil Contractors NZ.

Michael Caltibiano, AAPA	Paul Morgan, DPTI SA	Bryan Pidwerbesky, CC NZ
John Donbavand, NZTA	John Nichols, CCAA	George Vorobieff, RMS NSW
John Esnouf, VicRoads	Andrew Papacostas, VicRoads	Barry Walker, DSG Tas
Paul Keech, ALGA	Bob Pemble, DoI NT	Greg White, AustStab
Les Marchant, MRWA	Mike Pickering, DTMR Qld	Kym Neaylon, Opus International
Michael Moffatt, ARRB	Robert Urquhart, ARRB	

Other technical working groups

- **Bituminous Surfacings Working Group** This group is chaired by a member of the Pavements Task Force but is generally composed of practitioners and industry representatives who have an interest in projects related to bituminous sprayed seals.
- **Asphalt Reference Working Group** This group is chaired by a state road authority representative and is generally composed of practitioners and industry representatives who have an interest in projects related to the use of asphalt.
- **Pavement Structures Working Group** This group is comprised of jurisdictional representatives, AAPA, AustStab and ARRB and reviews in detail, projects relating to pavement design.

2014-15 Highlights

Updating the Bitumen Sealing Safety Guide

In February 2015 Austroads published the fourth edition of the *Bituminous Materials Safety Guide* which describes safe working practices and disposal of waste materials when handling hot bituminous products in sprayed sealing, asphalt and bituminous stabilisation operations.

This Guide provides basic material to assist with the training of inexperienced users and a refresher for experienced personnel. It is designed to be used as a ready reference to compliment site specific Safe Work Method Statements and has been published in a handy glovebox A5 size.

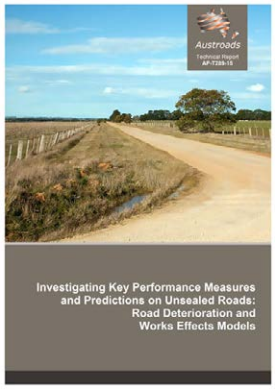
This edition of the Guide includes revisions related to updates to the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code) and Australian Standards. The Guide has also been modified so that it predominantly contains only safety related information.

Five months after publication, more than 380 copies of the Guide had been sold.

Modelling the Impacts of Unsealed Road Maintenance

Australia has about 484,000 kilometres of unsealed roads which are commonly maintained with grading and compaction. Despite the importance of unsealed roads to local communities and the economy, we lack reliable models which help predict the impact of maintenance activities on these roads.

In 2012 Austroads and the Institute of Public Works Engineering Australasia (IPWEA) jointly funded a project which allowed ARRB and Moorabool Shire Council in



Victoria to collaborate to collect road roughness data before and after maintenance works on a number of unsealed roads.

ARRB loaned a Roughometer to the council, including support for its fitting, testing and calibration and Moorabool Shire collected the data both pre and post works at 16 sites. Works consisted of both surface blading by grader and rehabilitation using grading and compaction of gravel resheets.

The results of the data collection are detailed in *Investigating Key Performance Measures and Predictions on Unsealed Roads: Road Deterioration and Works Effects Models*.

Further refinements and model development, including a wider range of explanatory variables, are now planned by seeking additional unsealed road data from rural shires in Queensland and New South Wales, which have distinctly different environments to that in Moorabool.

Of particular interest will be the assessment and reliable quantification of the road wear associated with heavy vehicles operating on the unsealed roads. Outcomes of this work will also assist in developing future maintenance strategies and planning.

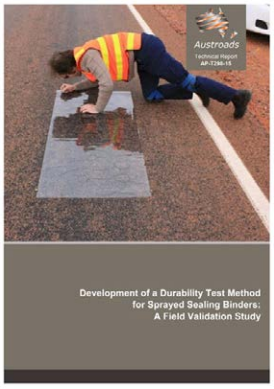
Pavement Wear Effects of Heavy Vehicle Axle Groups

This research investigated improved methods for assessing the pavement damage caused by different multiple-axle group loads, and developed a framework that can be used to quantify this pavement damage for use in Austroads flexible pavement design processes.

The Influence of Multiple Axle Group Loads on Flexible Design determined that the thickness and modulus of the asphalt and the underlying pavement structure are key to the fatigue of asphalt and cemented materials. As a result, a potential design procedure was developed for the design of bound materials in flexible pavements that determines the damage resulting from each axle load and each axle group within a traffic load distribution. In principle, this is the same approach used in the Austroads procedure for the design of rigid pavements, and its use for flexible pavements would align the design traffic characterisation for the two types of pavement.

An examination of the implications of pavement design outcomes in using this method determined that in general, reductions in both asphalt and cemented material thicknesses of up to 50 mm would result.

New Long-term Aging Test for Bitumens and Polymer Modified Binders



Durable binders are used in road construction to produce long-lasting surfacings. For more than 40 years the durability of bitumen binders in sprayed seals has been assessed in Australia using an established laboratory test method known as the durability test. The durability test method, however, has a number of issues and Australian practitioners identified an urgent need for a more robust test method.

Post-ageing Characterisation of Sprayed Sealing Binders: A Laboratory Study published in August 2014 presents the research outcomes of the second year of work on a three-year Austroads project designed to develop and validate a new long-term aging test for bitumens and PMBs.

Development of a Durability Test Method for Sprayed Sealing Binders: A Field Validation Study published in early July 2015 presents the findings from the final year of work which involved a field validation study of the new durability test method which uses the pressure ageing vessel (PAV) and the dynamic shear rheometer (DSR). The study found a reasonable agreement between PAV ageing and field ageing, in terms of changes in rheological and chemical properties. PAV treatment of binders therefore appears to be a suitable approach for ageing binders in the new durability test method.

Hot Storage of Polymer Modified Binders

Polymer modified binders (PMBs) are increasingly used in road construction as they provide enhanced performance properties, such as resistance to permanent deformation and low temperature cracking, compared with conventional bitumen. They are produced by blending bitumen with materials such as synthetic or natural polymers, or crumb rubber obtained from the recycling of vehicle tyres.

Even though PMBs show enhanced service properties, a number of studies have indicated that their test properties degrade or change during hot storage. The results obtained in this study appear to indicate that degradation of the polymer in a PMB during hot storage may not necessarily reduce the performance of material on the road. The study outcomes were published in *Effects of Hot Storage on Polymer Modified Binder Properties and Field Performance*.

Monitoring National Sprayed Seal Trials

Austroads has commissioned a non-modified binders trial near Gisborne, Victoria and two polymer modified binder (PMB) trials near Coober Pedy, South Australia and Cooma, New South Wales.

Inspections of Sprayed Seal Trials reports on the results of inspections of the trials.

The non-modified binders trial near Gisborne is designed to investigate the performance of a more viscous grade of bitumen in sprayed seals. After seven years of life, the seals in the trials are performing well with little sign of distress. There are small and isolated incidences of crocodile cracking, which is caused by a failure in the pavement, as well as some unsound and broken aggregate, but very little stripping or flushing.

The objective of the PMB trials is to validate and rank the performance of PMB sprayed seal binder as a crack inhibitor and as a seal. After two years the PMB trials were performing well in all cases at the Coober Pedy site, but showing signs of distress in some sections at Cooma.

Double/Double Primer Seal Inspections

Double/double primerseals with crumb rubber modification have been constructed on a variety of sites in Victoria. It is not typical practice to use two-layer primerseals, or polymer modification in primerseals, and methods to do so are not described by Austroads specification or guidance documents.

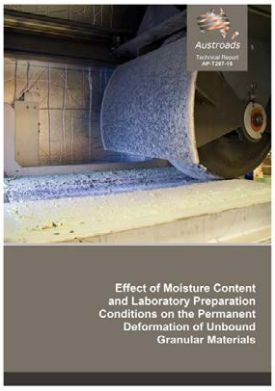
Double/Double Primerseal Inspections reports on the inspections of seven of the double/double primerseal sites and rate their performance. The sites were found to be performing well, and providing a viable option for an initial seal over a pavement where stresses can be expected to be higher than ideal for a typical single/single primerseal.

Incorporating Heavy Vehicles into Sprayed Seal Design

Traffic loadings on Australia's extensive sprayed seal network have increased, particularly with freight efficiency resulting in longer and heavier loads being transported by prime movers.

Towards Incorporating Heavy Vehicles into Sprayed Seal Design – Stage 2 details the development of a model to describe how different axle loads and axle groupings combine to cause surface texture decay on a sprayed seal. The research findings can be used to investigate if the Austroads seal design method needs refinement in terms of equivalent heavy vehicles calculation.

Evaluating the Rutting Performance of Unbound Granular Materials



Effect of Moisture Content and Laboratory Preparation Conditions on the Permanent Deformation of Unbound Granular Materials documents research to validate the wheel-tracking approach as a complementary means of evaluating the rutting performance of granular bases.

The project assessed the influence of the moisture content on the laboratory wheel-tracking performances of four typical crushed rock materials and evaluated the effect of dry-back on both the performance under repeated load triaxial tests and aggregate particle orientation.

The results show an improved analysis of wheel-tracking data, based on both deformation and rut depth measurement, and offers encouraging results for assessing the moisture sensitivity of crushed rock material to rutting. The findings will help to consolidate the development of a new wheel tracking test method for unbound granular materials, which can be validated against pavement performance.

Maximising the Use of Reclaimed Asphalt Pavement

The use of reclaimed asphalt pavement (RAP) material in the production of new hot mix asphalt has become standard practice. In many countries, including Australia, RAP is by far the most recycled construction waste product. Maximising the use of RAP in its highest value application, i.e. as new asphalt product, has significant economic and environmental benefits. However the inclusion of RAP in asphalt mixes requires careful consideration during the mix design process to ensure satisfactory performance of the final product.

Austroads is now finalising a three-year study to provide guidance on the design and specification of asphalt mixes containing RAP and to reduce uncertainty surrounding the performance of these mixes.

Maximising the use of Reclaimed Asphalt Pavement - Outcomes of Year Two: RAP Mix Design presents the findings from the second year of the project and includes a guideline for the design of RAP mixes. To coincide with the report's release, three new test methods were

published: Extractions of Bituminous Binder from Asphalt; Characterisation of the Viscosity of Reclaimed Asphalt Pavement (RAP) Binder Using the Dynamic Shear Rheometer (DSR); and Design of Bituminous Binder Blends to a Specified Viscosity Value.

EME2 Technology Shows Promise for Australia

French Enrobés à Module Élevé Class 2 (EME2) technology offers the prospect of reduced asphalt thickness for heavy duty pavements, and lower construction and maintenance costs.

High Modulus High Fatigue Resistance Asphalt (EME2) Technology Transfer details the first year of a three-year project to transfer EME2 technology to Australia. In this first year of the project, an Australian specification framework for EME2 mixes was developed and the requirements for manufacturing, paving and compliance were provided.

This project supports the move towards a unified performance-based mix and pavement design for asphalt in Australia. In the second year of the project, a draft EME2 mix design guideline will be developed.

Improving the Design of Foamed Bitumen Stabilised Pavements

In 2012 Austroads commissioned research to: improve the Austroads procedures for the structural design of foamed bitumen stabilised materials for new pavements and structural rehabilitation treatments; identify distress modes of bitumen stabilised pavements from a series of trial sites; and improve and harmonise national mix design procedures for bitumen stabilised materials.

In October 2014 Austroads published *Design and Performance of Foamed Bitumen Stabilised Pavements: Progress Report 2* which reports on the project's developments and findings to date.

The report summarises the draft test methods which are currently being reviewed by road agencies and industry. It also describes research findings on the effect of mixing moisture content used in the mix design on modulus and the extent to which modulus varies due to laboratory compaction process.

Future Focus

The Pavement Task Force will continue to work to:

- maximise the use of reclaimed asphalt pavement in asphalt mix design
- develop effective methods to evaluate the performance of unbound granular base materials and increase the use of low-cost modified granular materials in new and rehabilitated pavements
- maintain sprayed sealing as a viable low cost surfacing treatment over Australasia's vast existing flexible pavement network
- identify best practice binder use to achieve optimum pavement performance
- improve design procedures for foamed bituminous stabilised pavements and asphalt pavements
- develop guidelines for the design of high modulus asphalt mixes as well as for the design of pavement structures containing high modulus asphalt layers.

New projects starting in 2015-16 will:

- investigate a common performance based bitumen specification for Australia and New Zealand
- develop a cost effective laboratory test which can rank the low temperature cracking performance of binders in sprayed seals
- assess the change in properties of general purpose cement if the limestone content was raised from 7.5% up to 12% as being considered by Australian Standards committee BD-010
- update the suite of Australian Standards and test methods used to determine if bitumen and related materials are suitable for use in road construction
- improve pavement design processes through an update to the Austroads Guide to Pavement Technology Part 2
- review five Centre for Pavement Engineering Education distance learning units offered in the Graduate Certificate and Master in Pavement Technology.

Tunnel Technology

The Road Tunnels Task Force coordinates research program that is working towards providing guidance relating to the safety, design and management of road tunnels.

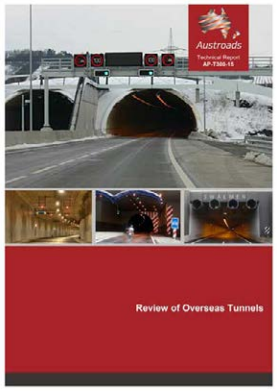
Road Tunnels Task Force

The Road Tunnels Task Force consists of jurisdictional representatives from around Australia and New Zealand, and representatives of the Australasian Tunnelling Society (ATS), Australasian Tunnel Operators Group (ATOG) and Transurban.

Bob Allen, ATOG	Geoff McKernan, Transurban	Ross Pritchard, DTMR Qld
Nigel Casey, RMS NSW	Ted Nye, ATS	Michael Tziotis, ARRB
Mary Darcy, VicRoads	Kingsley Noble, DPTI SA	John Venables, MRWA
Nigel Lloyd, NZTA	Greg Pipikios, Transurban	

2014-15 Highlights

Review of Overseas Tunnels



Review of Overseas Tunnels contains information about the design, construction and maintenance of 122 road tunnels in Europe, Asia, North and Central America, Australia and New Zealand.

The project was designed to assemble information on the construction and operation of a large number of recently completed road tunnels from across the world. With this information it was proposed that standards applicable to road tunnel construction in Australasia be reviewed to reduce the costs of designing, building and operating Australasian road tunnels.

A considerable data searching process was undertaken during this project, with a number of sources of information utilised, including a literature review of printed and on-line media, consultation with industry experts and industry bodies and a survey issued to tunnel operators.

The project was not able to obtain a high level of quality tunnel information which could be used to identify best practices, however, a large number of tunnels were identified for which at least partial information was obtained on the targeted attributes to be collected.

Future Focus

The Road Tunnels Task Force will continue to work on a revision of the Guide to Road Tunnels Part 2: Planning, Design and Commissioning. A new project starting in 2015-16 will investigate measures to reduce crashes adjacent to and within tunnels.

Economic Evaluation and Planning

The Evaluation and Planning Task Force coordinates research that is working towards providing enhanced economic evaluation, methodology and data.

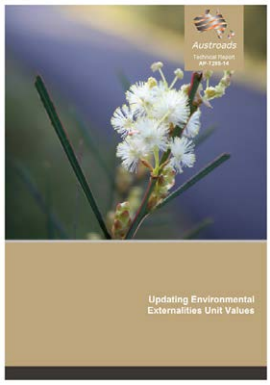
Evaluation and Planning Task Force

The Evaluation and Planning Task Force has representatives from Australian and New Zealand road agencies and the Bureau of Infrastructure, Transport and Regional Economics.

Tony Brennand, NZTA	Ed McGeehan, VicRoads	Wesley Soet, MRWA
Brett Clifford, DoT NT	Robin Murray, DTMR Qld	Peter Tisato, DPTI SA

2014-15 Highlights

Updating Externalities Unit Values



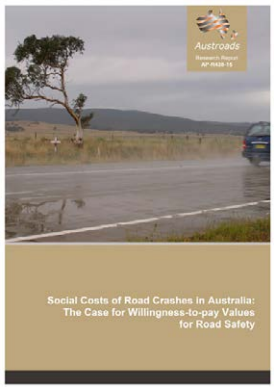
In December 2014 Austroads published *Updating Environmental Externalities Unit Values*, an update to the parameter values used to estimate environmental costs in the economic evaluation of Australian road projects.

The methods used to update environmental costs had become outdated and central agencies have increasingly demanded that accurate costs be included in the evaluation of road infrastructure and transport projects.

This update uses a new method and drew on new data sources to derive the estimates. The revised methodology is the result of a two year project that included an extensive literature review and an in-depth assessment of seven international and Australian studies.

The report informed the provision of environmental parameter values in the revision of the *National Guidelines for Transport System Management*.

Estimating the Social Costs of Road Crashes



The National Road Safety Strategy has clearly indicated a desire to shift from a human capital to a willingness to pay (WTP) approach as the basis for estimating the social cost of crashes applied to cost-benefit analysis of road projects in Australia. Austroads research indicates that a national WTP study would costs around $1 million (in 2012 prices) and take 3–4 years to complete.

A review of selected local and international experience, with special focus on NSW and New Zealand case studies, has identified the key elements required to plan and deliver a national WTP study.

The project report, *Social Costs of Road Crashes in Australia: The Case for Willingness-to-pay Values for Road Safety*, provides a broad indication of the methodology, project components, expertise available and indicative costs required to produce a robust national WTP estimate.

The project included interviews with a number of Australasian experts to obtain information on their experience, their advice on the key research components and indicative costs that might be anticipated for a national WTP study for Australia. The study also identified and assessed several interim options for WTP values that may be used until a national WTP study for Australia is completed.

Future Focus

From 2015-16 most of the work undertaken by the Economic Evaluation and Planning Task Force will be managed by the National Guidelines for Transport System Management Steering Committee. Austroads will continue to support the work of the Committee by providing project and communications assistance. Funding will also be considered for road related research required for the ongoing development and maintenance of the Guidelines.

The final project undertaken by the Task Force will be to finalise the production of a software tool to enable rapid estimation of indicative traffic impacts, including benefits or costs, for small projects at intersections, namely roundabouts, new traffic signals, modifications to existing traffic signals and turning lanes. The tool will help road agencies and local governments balance traffic impact benefits or costs with safety benefits and infrastructure costs when making decisions about changes to intersections.

Project Delivery

The Project Delivery Task Force is managing a multi-year project which aims to expand the National Prequalification System to include additional specialist categories.

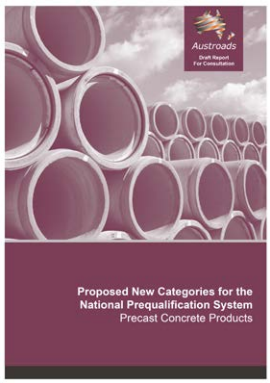
Project Delivery Task Force

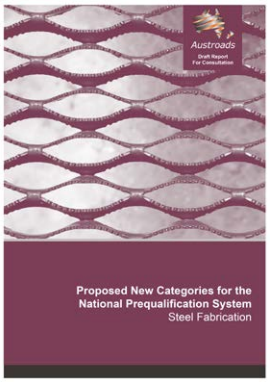
Project Delivery Task Force has representatives from Australian and New Zealand road agencies.

Leo Coci, MRWA	Graham Hobbs, DTMR Qld	Colin MacKay, NZTA
Richard Edwards, DPTI SA	Stephen Hoyne, NT	George Mavroyeni, VicRoads
Peter Letts, RMS NSW		

2014-15 Highlights

New Prequalification Categories Proposed





In late 2014 Austroads sought industry and public feedback on a proposal to add two new specialist categories, precast concrete products and fabricated steel products, to Australia's *National Prequalification System*.

The National Prequalification System classifies contractors who wish to tender for road and bridge construction contracts. The classification is based on the contractor's technical and managerial expertise, financial capacity and previous performance. The scheme is locally administered by the state and territory road agencies.

The inclusion of the new categories within the National Prequalification System aims to: promote safe, consistent and high-quality manufacturing of precast concrete and complex steel products that meet the participating authorities' specifications and requirements; and ensure that all precast concrete and complex steel products used in the participating authorities' projects are obtained from facilities that are appropriately prequalified.

The dicussion paper, *New Prequalification Categories Proposed: Steel Fabrication and Pre-cast Concrete Products*, provided an overview of the proposal, and detailed information about the new categories and making a submission.

Future Focus

The project to expand the National Prequalification System is expected to be completed in late 2015.

Although no projects have been approved for 2015-16, the Task Force aims to develop a Guide to construction quality assurance and investigate efficiency measures for national prequalification in the near future.

Publications

Reports and Guides Published 2014-15

Guides and Corporate Reports

AGTM01-15	Guide to Traffic Management Part 1 Introduction to Traffic Management
AGTM07-15	Guide to Traffic Management Part 7: Traffic Management in Activity Centres
AP-G41-15	Bituminous Materials Safety Guide
AP-C20-14	Austroads Annual Report 2013-14
AP-C87-14	Austroads Glossary of Terms
AP-C93-14	National Cycling Strategy: Implementation Report 2013
AP-C94-14	New Prequalification Categories Proposed: Steel Fabrication and Pre-cast Concrete Products

Research Reports

AP-R438-15	Social Costs of Road Crashes in Australia: The Case for Willingness-to-pay Values for Road Safety
AP-R453-14	Australia and New Zealand Roads Capability Analysis 2013-2023
AP-R465-14	Quantifying the Benefits of High Productivity Vehicles
AP-R466-14	Review of Axle Spacing Mass Schedules and Future Framework for Assessment of Heavy Vehicle Access Applications
AP-R467-14	National ITS Architecture: Context and Vision
AP-R468-14	National ITS Architecture: ITS Business Architecture
AP-R469-14	A Discussion Paper on Elements of Graduated Licensing Systems for Motorcycle Riders
AP-R470-14	Guidelines for Planning and Assessment of Road Freight Access
AP-R471-15	Development of Product Acceptance Techniques for Network Devices
AP-R472-15	Australasian Pedestrian Crossing Facility Selection Web Tool - Research
AP-R472A-15	Australasian Pedestrian Crossing Facility Selection Web Tool - User Guide
AP-R473-15	Review of Sign Sizes for Electronic Regulatory Speed Signs
AP-R474-15	Cooperative Intelligent Transport Systems (C-ITS) Standards Assessment
AP-R475-15	Level of Service Metrics (for Network Operations Planning)
AP-R476-15	Summary of Literature of the Effective Components of Graduated Driver Licensing Systems
AP-R477-15	Review of the National Road Safety Strategy
AP-R478-15	Road Fatalities and Serious Injuries in Australia and New Zealand 2001–2010
AP-R479-15	Concept of Operations for C-ITS Core Functions
AP-R480-15	Investigation of Key Crash Types: Rear-end Crashes in Urban and Rural Environments
AP-R481-15	Safety Provisions for Floodways over Roads
AP-R482-15	Harmonisation of Pilot and Escort Vehicle Driver Requirements: Stage 2
AP-R483-15	PBS Level 3 and 4 Standards Review
AP-R484-15	Options for Rehabilitation in Interlock Programs
AP-R485-15	Ability to Absorb Information Through Electronic and Static Signs
AP-R486-15	The Influence of Multiple Axle Group Loads on Flexible Pavement Design
AP-R487-15	Improved Bridge Deterioration Models, Predictive Tools and Costs
AP-R488-15	Safe System in the Planning Process

Technical Reports

AP-T268-14	Application of New Technologies to Improve Risk Management
AP-T269-14	Best Practice for Mobile LiDAR Survey Requirements (Discussion Paper)
AP-T270-14	Post-ageing Characterisation of Sprayed Sealing Binders: A Laboratory Study
AP-T271-14	Effects of Hot Storage on Polymer Modified Binder Properties and Field Performance
AP-T272-14	Long Term Performance Monitoring - Site Establishment in South Australia
AP-T273-14	Good Practice in Reseal Programming
AP-T274-14	Initial Field Trials With Surface Wear Rig
AP-T275-14	Design and Performance of Foamed Bitumen Stabilised Pavements: Progress Report 2
AP-T276-14	Double/Double Primerseal Inspections
AP-T277-14	Inspection of Sprayed Seal Trials
AP-T278-14	Economics of Material Availability and Recycling
AP-T279-14	Traffic Speed Deflectometer: Data Review and Lessons Learnt
AP-T280-14	Traffic Speed Deflectometer: Data Analysis Approaches in Europe and USA compared with ARRB Analysis Approach
AP-T281-14	Low Cost Interventions to Encourage Cycling: Selected Case Studies
AP-T282-14	Cycling Infrastructure: Selected Case Studies
AP-T283-14	High Modulus High Fatigue Resistance Asphalt (EME2) Technology Transfer
AP-T284-14	Practical Application of an Alternative Roughness Profile Validation Technique (Prem Method)
AP-T285-14	Updating Environmental Externalities Unit Values
AP-T286-15	Maximising the Re-use of Reclaimed Asphalt Pavement - Outcomes of Year 2: RAP Mix Design
AP-T287-15	Effect of Moisture Content and Laboratory Preparation Conditions on the Permanent Deformation of Unbound Granular Materials
AP-T288-15	Austroads LTPP / LTPPM Study – Summary Report 2013-14
AP-T289-15	Investigating Key Performance Measures and Predictions on Unsealed Roads: Road Deterioration and Work Effects Models
AP-T290-15	A Common Data Output Specification for Texture, Cracking, Strength and Skid Resistance
AP-T291-15	Interim Road Deterioration Models During Accelerated Deterioration
AP-T292-15	Towards Incorporating Heavy Vehicles into Sprayed Seal Design - Stage 2
AP-T293-15	Road Design for Heavy Vehicles
AP-T294-15	Further Development of Probabilistic Road Deterioration Modelling: Pilot Application
AP-T295-15	Road Geometry Study for Improved Rural Safety

Test Methods

AGPT-T121-14	Shear Properties of Polymer Modified Binders (ARRB ELASTOMETER)
AGPT-T190-14	Specification Framework for Polymer Modified Binders
AGPT-T191-15	Extractions of Bituminous Binder from Asphalt
AGPT-T192-15	Characterisation of the Viscosity of Reclaimed Asphalt Pavement (RAP) Binder Using the Dynamic Shear Rheometer (DSR)
AGPT-T193-15	Design of Bituminous Binder Blends to a Specified Viscosity Value
AGPT-T274-15	Characterisation of Flexural Stiffness and Fatigue Performance of Bituminous Mixes
AGPT-T530-15	Calibration of Bitumen Sprayers: General Introduction and List of Methods
AGPT-T534-15	Calibration of Bitumen Sprayers: Transverse Distribution by Portable Trough

Pavement Work Tips

AP-PWT06-14	Polymer Modified Binders and Multigrade Bitumens
AP-PWT25-14	Geotextile Reinforced Seals
AP-PWT33-14	Sprayed Sealing – Selection of Spraying Nozzles
AP-PWT52-14	Sprayed Sealing - Extreme Hot Weather
AP-PWT53-14	Joints in Geotextile Reinforced Seals
AP-PWT54-15	Sprayed Sealing - Initial Treatment of Stabilised Pavements
AP-PWT55-15	Transport and Handling of Polymer Modified Binders

Austroads Bridge Conference Papers 2014

The 108 Austroads Bridge Conference papers were published online in early 2015. The papers are grouped in the conference categories:

- Assessment and Investigation
- AS 5100
- Construction and Strengthening
- Design
- IAMBAS
- Innovation and Research
- Life-cycle Management
- Maintenance and Rehabilitation
- Standards and Specifications

Financials and Directors' Reports

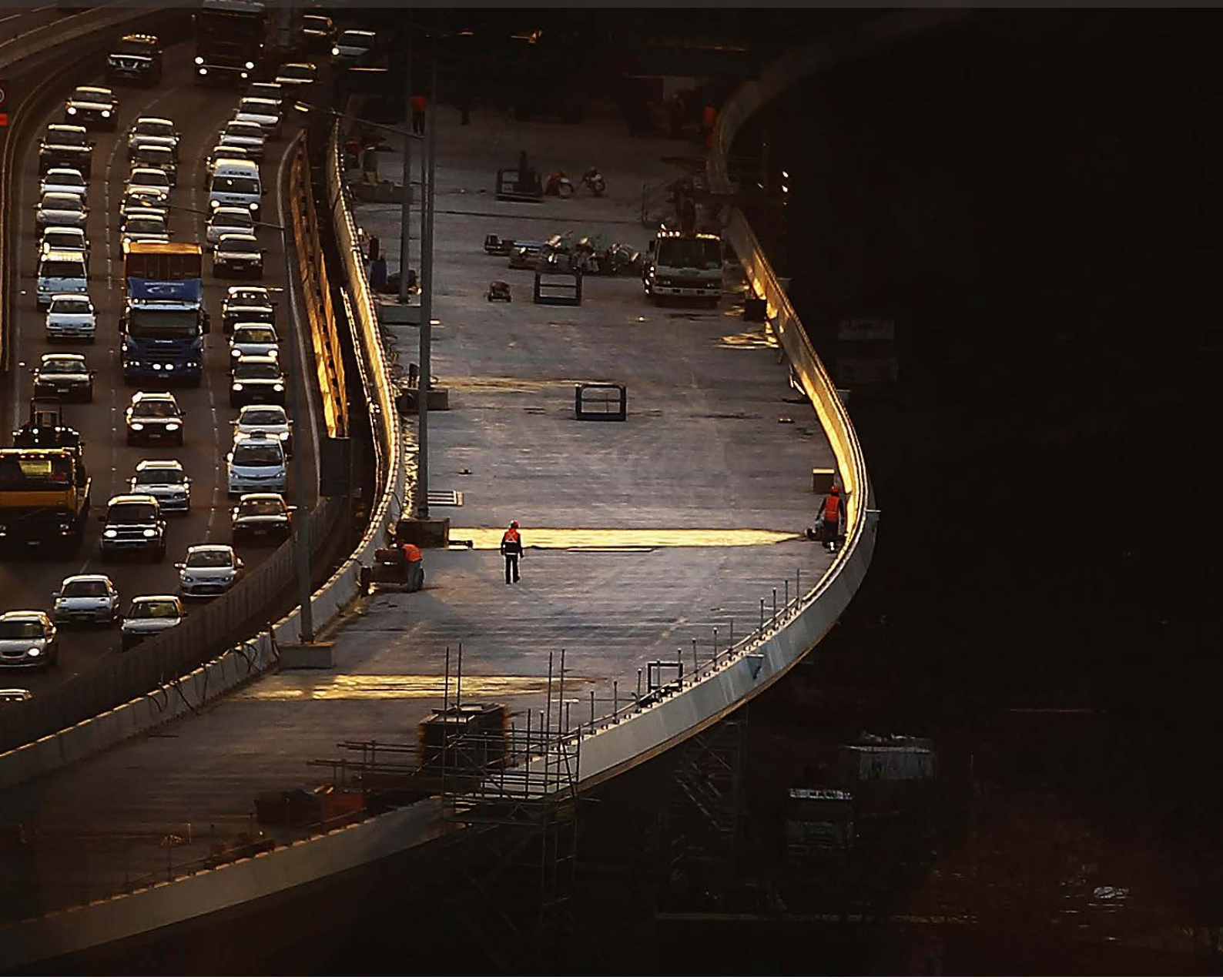


Table of Contents

Directors' Report	55 - 57
Auditor's Independence Declaration	58
Statement of Profit or Loss and Other Comprehensive Income	59
Statement of Financial Position	59
Statement of Changes in Equity	60
Statement of Cash Flows	60
Notes to the Financial Statements	61-64
Directors' Declaration	64
Independent Auditor's Report	65

The directors of Austroads Ltd ("the Company") present this report on the Company for the financial year ended 30 June 2015.

Directors

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

- Peter Duncan AM (Chairperson)
- Allan Frost
- Adrian Beresford-Wylie
- Clare Gardiner-Barnes (Deputy Chairperson)
- Tony Gill PSM
- Shane Gregory
- Andrew Jaggers
- Peter Todd
- Neil Scales OBE
- Stephen Troughton
- Paul Gelston (from October 2014)
- Andrew Milazzo (until September 2014)

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

Principal Activities

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

The Company's short-term objectives are to:

- conduct strategic research that assist road agencies to address current and emerging issues;
- develop guides to establish national consistency on technical and operational aspects of road networks;
- facilitate knowledge sharing by promoting the wide dissemination of outputs and technology, conducting seminars and promoting the use of the Company's work; and
- 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; and
- promote consistency in road and road agency operations

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 in Australia and New Zealand. Austroads utilises the expertise of its member organisations to manage these programs. This provides opportunities for the staff of member organisations to participate in the operation of the Company and the development and delivery of projects. It also encourages a collaborative approach and facilitates learning, development, sharing and a high level of consistency across jurisdictions.

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

Key Performance Measures

National Performance Indicators

The collection of performance information enables the Company members to benchmark themselves at both a national and international level as part of the overall Austroads' goal to identify and implement world best practice in the management of roads. Performance data is published for measures of road safety, asset management, program and project assessment, travel speed and productivity, and user satisfaction.

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
  The completion of projects within their scheduled timeframe continues to be a challenge. Of the 32 projects scheduled for completion by 30 June 2015, 11 were completed by that date.
- Take up of the Company outputs
  In 2014-15, 267,000 publications were downloaded or sold. On average, 333 Austroads Guides are downloaded by local councils and member organisations every working day.
- Adoption of Austroads Guides by road agencies
  All road agencies across Australasia have adopted the Austroads Guides.
- Satisfaction of road agencies with the Company's operation in addressing the strategic priorities
  Board Member and Task Force Member surveys indicate a reasonable level of satisfaction in relation to the delivery of strategic priorities. 87% of survey respondents reported that they were satisfied or very satisfied with the Company's' strategic performance overall. The Board Members were significantly less satisfied than the Task Force Members and as a result the Company undertook a significant review of its operations.
- Recognition by national policy bodies as a source of competent, professional advice on road transport
  The Company does not have a procedure in place to measure this outcome but the organisation has a close working relationship with a wide range of government transport policy agencies.
- Recognition by the road industry as providing authoritative advice
  The 2013 survey of people who had purchased or downloaded the Company publications reported consistently high levels of satisfaction over the four areas surveyed. Of those who responded, 90% indicated that they were satisfied or very satisfied that the publication they had purchased/ downloaded had met their needs, 88% were satisfied or very satisfied with the technical content.

- Recognition by road agency staff for providing valuable opportunities for professional development, information exchange and networking
  The Company is well regarded by road agency staff with 96% of survey respondents reporting they were satisfied or very satisfied with the Company as a mechanism for collaboration; 100% reporting satisfaction with the quality and practicality of the Company research; and 92% reporting satisfaction with information exchange and networking opportunities provided by the Company.

Information on Directors

Peter Duncan AM (Chairperson) | FIPAA G.Dip. Mgt, A.Dip. Land. Studies, Grad. Cert Traffic Eng, Cert. L&ESD
Mr Duncan was appointed Chairperson in November 2014, and is a member of the Austroads Executive Committee.
Mr Duncan is Chief Executive of Roads and Maritime Services NSW. Formerly, he was Deputy Director General of the Department of Premier and Cabinet. Previous roles include Director General of the Department of Services, Technology and Administration; Chief Executive Officer of Forests NSW; Director and Chief Executive of the Centennial Park and Moore Park Trust; and Director Estate Management at Olympic Coordination Authority.

Early in his career Mr Duncan worked for a number of years in Road Design and Traffic Engineering with the Department of Main Roads, local government and private consultancies. He has also served on a number of boards and government committees. Current appointments include Roads Australia board member; Director of ARRB Group Ltd and WestConnex Delivery Authority. He is a member of Australian Institute of Company Directors and Justice of the Peace in NSW.

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

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

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

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

Clare Gardiner-Barnes | DTeach, GDA, MSWAP
Ms Gardiner-Barnes was appointed Deputy Chairperson in November 2015, and is a member of the Austroads Executive Committee.

Ms Gardiner-Barnes is the Chief Executive of the Department of Transport, Northern Territory. Ms Gardiner-Barnes has more than 20 years experience in the public sector taking on key leadership roles across education, women's issues, children and families, disability, homelessness, child care, disaster recovery and domestic and family violence. For two years she held the position of Chief Executive Officer, Department of Children and Families leading Whole of Government reforms across the child protection system in the Northern Territory.

Tony Gill PSM | BESc
Mr Gill is a member of the Austroads Executive Committee.

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

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

Andrew Jaggers | BEc, Grad Dip EnvLaw
Mr Jaggers is a member of the Austroads Executive Committee.

Mr Jaggers is the Executive Director of the Infrastructure Investment Division at the Australian Government Department of Infrastructure and Regional Development. Mr Jaggers' Division is responsible for the delivery of major road, rail and port project funding. He has held a number of senior executive positions in the Australian Public Service, at the Department of the Prime Minister and Cabinet, and the Department of Families, Housing, Community Services and Indigenous Affairs.

Peter Todd | BEng (Civil)(Hons), MBA
Mr Todd has been the Chief Operating Officer for VicRoads since May 2013. He is responsible for managing the operation of Victoria's road network, leading the delivery of projects through statewide regional and project offices, internal technical services to the organisation and management of concessions for private road operators in Victoria. He first joined VicRoads in March 2012, as the Regional Director for Metropolitan South East. Prior to joining VicRoads, Peter was the General Manager Roads and Traffic for the Department of Infrastructure, Energy and Resources in Tasmania (DIER). He joined DIER from the then Transport South Australia where he had extensive experience in planning, design and operations of both metropolitan and rural roads. Peter has more than 30 years experience in road transport engineering, planning, project management and delivery.

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
Mr Scales is Director-General of the Department of Transport and Main Roads Queensland. He was previously CEO of TransLink, the public transport operator across Queensland. Prior to joining TransLink, Mr Scales 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.

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

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

Paul Gelston (from October 2014) | BEng (Civil), MIE(Aust)
Mr Paul Gelston is Chief Operating Officer of the Department of Planning, Transport and Infrastructure, South Australia. Before taking up his current position in March 2015, Mr Gelston was Director, Road and Traffic Management for 4 years. He commenced work in DPTI in 1977 and has held a variety of senior executive positions, including leading the delivery of major projects such as the Gallipoli Underpass on South Road. He has also worked for Local Government and developed a sound understanding of community service. Mr Gelston has significance knowledge and experience in road and transport engineering. He is a current Member of the Austroads board. Mr Gelston has a degree in Civil Engineering from the University of Adelaide in 1976. He is a member of Engineers Australia, the Australian Institute of Traffic Planning and Management and the Institute of Public Works Engineering Australia.

Andrew Milazzo (Chairperson until September 2014 | BE(Hons), ME(Civil), MIEAust, MIHT, MITE, CPEng
Mr Milazzo was appointed Chairperson from November 2012 having previously been Deputy Chairperson. He was a member of the Austroads Executive Committee.

Mr Milazzo was the Deputy Chief Executive, Transport Services and Executive Director, Transport Services Division in the South Australian Department for Planning, Transport and Infrastructure (DPTI). He has held various positions in DPTI including Director Sustainable Transport, General Manager Transport Policy and Planning, Regional Manager Metropolitan and Manager Strategic Investment Planning. In 1990-91 he was Australia's International Road Federation Fellow when he worked and studied at the Texas Transportation Institute and Texas A&M University.

Company Secretary

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

Murray Kidnie PSM (until Nov 2014) | BEc, MURP
Mr Kidnie worked for Austroads from October 2001 to November 2014 performing the role of Executive Director with Austroads Inc. and the Chief Executive with Austroads Ltd. Mr Kidnie was appointed company secretary on 22 October 2009. Mr Kidnie ceased being Chief Executive on 6 November 2014.

Nick Koukoulas (from Nov 2014) | 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
Peter Duncan	3	2
Allan Frost	3	3
Adrian Beresford-Wylie	3	2
Clare Gardiner-Barnes	3	3
Tony Gill	3	3
Shane Gregory	3	3
Andrew Jaggers	3	2
Peter Todd	3	3
Neil Scales	3	3
Stephen Troughton	3	2
Andy Milazzo (until September 2014)	0	0

Alternate directors attended meetings as follows:

Alternate director	Alternate for	Meetings attended
Kym Foster	Adrian Beresford-Wylie	1
Michael Sutton	Andrew Jaggers	1
Douglas Morgan	Stephen Troughton	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 2015, the total amount that members of the Company are liable to contribute if the Company is wound up is $110 (2014: $110).

Auditor's Independence Declaration

The lead auditor's independence declaration for the year ended 30 June 2015 has been received and can be found on page 7 of the financial report.

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

Peter Duncan AM
Chairperson
Dated this 2nd day of October 2015

Auditor's Independence Statement

MOORE STEPHENS

Level 15, 135 King Street
Sydney NSW 2000

T +61 (0)2 8236 7700
F +61 (0)2 9233 4636

www.moorestephens.com.au

AUDITOR'S INDEPENDENCE DECLARATION
UNDER SECTION 307C OF THE CORPORATIONS ACT 2001
TO THE DIRECTORS OF AUSTROADS LTD

As lead auditor for the audit of Austroads Ltd for the year ended 30 June 2015, I declare that, to the best of my knowledge and belief, there have been:

a) no contraventions of the auditor independence requirements of the *Corporations Act 2001* in relation to the audit; and

b) no contraventions of any applicable code of professional conduct in relation to the audit.

MOORE STEPHENS SYDNEY
Chartered Accountants

S TZANNES
Partner

Dated in Sydney this 2nd day of October 2015

Statement of Profit or Loss and Other Comprehensive Income for the Year Ended 30 June 2015

	Notes	2015 $	2014 $
Revenue	2	14,355,331	15,766,428
Expenses			
Corporate Expenses	3(a)	1,829,985	1,521,543
Work Program	3(b)	9,471,661	11,111,114
Specific Projects	3(c)	783,673	1,401,369
Publications	3(d)	89,031	121,240
Total expenses		12,174,350	14,155,266
Profit from continuing operations before income tax expense		2,180,981	1,611,162
Income tax expense	1(c)	-	-
Profit for the year		**2,180,981**	**1,611,162**
Other comprehensive income		**-**	**-**
Total comprehensive income for the year		**2,180,981**	**1,611,162**
Total comprehensive income attributable to members of the entity		**2,180,981**	**1,611,162**

Statement of Financial Position for the Year Ended 30 June 2015

	Notes	2015 $	2014 $
ASSETS			
Current assets			
Cash and Cash Equivalents	4	14,301,629	11,020,046
Trade and Other Receivables	5	1,368,219	842,780
Other Assets	6	43,165	44,733
Total current assets		15,713,013	11,907,559
Non-current assets			
Plant and Equipment	7	88,214	94,290
Other Assets	6	115,771	51,865
Total non-current assets		203,985	146,155
Total assets		**15,916,998**	**12,053,714**
LIABILITIES			
Current liabilities			
Trade and Other Payables	8	3,131,359	3,056,536
Income Received in Advance	9	60,000	49,900
Unacquitted Funds (NEVDIS)	10	4,182,703	2,556,676
Provision for Employee Benefits	11	119,092	162,312
Total current liabilities		7,493,154	5,825,424
Non-current liabilities			
Provision for Employee Benefits	11	31,407	16,834
		31,407	16,834
Total liabilities		**7,524,561**	**5,842,258**
Net assets		**8,392,437**	**6,211,456**
Equity			
Accumulated Surplus		8,392,437	6,211,456
Total Equity		**8,392,437**	**6,211,456**

The accompanying notes form part of these financial statements.

Statement of Changes in Equity for the Year Ended 30 June 2015

	Accumulated Surplus $	Total Equity $
Balance at 1 July 2013	4,600,294	4,600,294
Comprehensive income		
Profit for the year	1,611,162	1,611,162
Other comprehensive income	-	-
	1,611,162	1,611,162
Balance at 30 June 2014	6,211,456	6,211,456
Comprehensive income		
Profit for the year	2,180,981	2,180,981
Other comprehensive income	-	-
	2,180,981	2,180,981
Balance at 30 June 2015	8,392,437	8,392,437

Statement of Cash Flows for the Year Ended 30 June 2015

	Notes	2015 $	2014 $
Cash Flows from Operating Activities			
Member Contributions		15,489,544	14,658,412
Publication Sales		349,824	493,795
Interest Received		305,824	212,618
External Project Funding		265,183	2,011,308
Cash generated from operating activities		16,410,375	17,376,133
Salaries and Related Costs		(786,907)	(777,107)
National Office including Corporate Projects		(794,663)	(887,211)
Publications		(97,934)	(133,364)
Programs		(12,500,640)	(13,062,901)
Net movement on NEVDIS accounts		957,633	110,803
Net GST Refund/ (Payment)		112,537	(410,171)
Cash used in operating activities		(13,109,974)	(15,159,951)
Net Cash Inflow from Operating Activities	13	**3,300,401**	**2,216,182**
Cash Flow from Investing Activities			
Proceeds from sale of Plant and Equipment		16,864	1,053
Purchases of Plant and Equipment		(35,682)	(70,451)
Cash used in Investing Activities		**(18,818)**	**(69,398)**
Net increase in cash held		3,281,583	2,146,784
Cash at the beginning of the financial year		11,020,046	8,873,262
Cash at the end of the financial year	4	**14,301,629**	**11,020,046**

The accompanying notes form part of these financial statements.

Notes to the Financial Statements for the Year Ended 30 June 2015

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

Note 1 — Summary of Significant Accounting Policies

Basis of Preparation

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

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

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

The financial statements were authorised for issue on 23 September 2015 by the directors of the Company.

Accounting Policies

(a) Revenue

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

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

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

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

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

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

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

(b) Foreign currency translation

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

(c) Income tax

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

(d) Leases

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

(e) Plant and Equipment

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

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

Depreciation

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

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

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

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, cash equivalents and investments

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 general provision for doubtful debts, as there has been no need for it.

(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.

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.

Notes to the Financial Statements for the Year Ended 30 June 2015

(k) Income in advance
This represents the invoices raised or monies received but goods and services not yet provided to members and customers at the end of the financial year.

(l) NEVDIS
The Company on behalf of Australian jurisdictional driver licensing and vehicle registration authorities contracted with Fujitsu Australia Limited to operate and maintain the National Exchange Vehicle Driver Information System (NEVDIS) to 25 September 2015. The annual fee is $1,867,292 (ex GST) payable monthly in arrears.

(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 – Doubtful Debts Provision

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

(p) New accounting standards for application in future periods
Certain Australian Accounting Standards have recently been issued or amended but do not have mandatory application for the 30 June 2015 reporting period. The directors' assessment of the impact of new standards and interpretations will not affect any of the amounts recognised in the financial statements.

	2015 $	2014 $
Note 2 — Revenue		
(a) Member Contributions		
Membership Contributions	1,030,000	1,007,500
Work Program Contributions	12,526,000	12,280,500
	13,556,000	13,288,000
(b) Special Programs and Projects		
Review of the National Guidelines for Transport System Management (NGTSM)	-	845,002
Indigenous Driver Toolkit	-	413,400
User Satisfaction Index 2013	-	189,500
DIRD – Australian Bicycle Council Secretariat	161,530	158,360
National Road Safety Strategy Review	-	142,200
RMS NSW Funding for Project SS1710	-	50,000
TfNSW Funding for Project RS17310	-	30,000
Cassowary/Blayney Shire AT1933	25,000	-
	186,530	1,828,462
(c) Publications		
Gross Sales Revenue	337,350	430,146
Royalties	1,165	2,210
	338,515	432,356

	2015 $	2014 $
Note 2 — Revenue (cont)		
(d) Interest Received		
Short Term Investments	272,299	215,511
Rental Bond Deposit	1,737	1,995
	274,036	217,506
(e) Other Income		
Net profit on sale of non-current assets	250	104
Total revenue	**14,355,331**	**15,766,428**
Note 3 — Expenses		
(a) Corporate		
Salaries and Related Charges	733,818	779,584
Program Management	619,961	400,000
Corporate Services	86,419	87,181
Depreciation	25,144	18,557
Other National Office Expenses	364,643	236,221
	1,829,985	**1,521,543**
(b) Work Program		
Technology	3,775,425	5,182,483
Safety	1,763,927	1,946,440
Assets	2,055,220	2,020,999
Network	1,133,467	1,135,885
Freight	435,892	678,852
Registration and Licensing	307,730	146,455
	9,471,661	**11,111,114**
(c) Specific Projects		
Indigenous Learner Driver Tool Kit	-	386,672
Cooperative ITS Project Director	230,238	258,759
User Satisfaction Index 2013	-	189,500
DIRD - Australian Bicycle Council Secretariat	161,654	158,358
National Skills Marketing Plan	-	93,500
International Participation	28,952	59,662
Austroads ARRB Fellowship	55,000	59,545
Redevelop Austroads Databases and Publications Website	3,147	52,349
National Safety Barrier Assessment Panel - Independent Consultant	26,565	40,500
Review of the NGTSM	100,757	35,672
CPEE Distance Learning Units	15,000	15,000
Support to ALGA Reps	12,553	5,655
Cooperative ITS Non ARRB Contracts	45,000	15,000
Austroads Forum Server	14,277	11,047
Assessment of 2014/15 Project Proposals	-	10,000
In Depth Study - ARRB Projects	5,850	-
ABC National Cycling Participation Survey	-	5,200
Test Methods and Pavement Technology Work Tips	4,680	4,950
DPTI SA Road Safety Knowledge Transfer	50,000	-
Australian Standards Development related activity	30,000	-
	783,673	**1,401,369**

Notes to the Financial Statements for the Year Ended 30 June 2015

	2015 $	2014 $
Note 3 — Expenses (cont)		
(d) Publications		
Cost of Sales	47,031	79,240
Production and Distribution Management	42,000	42,000
	89,031	**121,240**
Total Expenditure	**12,174,350**	**14,155,266**
Note 4 — Cash and Cash Equivalents		
CURRENT		
Cash at bank and on hand	**2,324,317**	**3,109,510**
Cash at Bank (NEVDIS)	3,982,103	2,910,536
Short-term deposits and deposits at call	7,995,209	5,000,000
	14,301,629	**11,020,046**
Cash at the end of the financial year is reconciled to the statement of cash flow as follows:		
Cash and cash equivalents	**14,301,629**	**11,020,046**
Note 5 — Trade and Other Receivables		
CURRENT		
Trade debtors	12,641	208,752
NEVDIS Receivables	1,197,163	170,164
Net Receivable to ATO	105,654	402,698
Accrued Income	52,761	61,166
	1,368,219	**842,780**
Note 6 — Other Assets		
CURRENT		
Prepayments	**43,165**	**44,733**
NON-CURRENT		
Rental Deposit Bond	53,603	51,865
Rental Deposit Bond (NEVDIS)	62,168	-
	115,771	**51,865**
Note 7 — Plant and Equipment		
NON-CURRENT		
Office Furniture and Equipment		
At Cost	194,894	160,792
Accumulated depreciation	(106,680)	(84,401)
	88,214	76,391
Motor Vehicle		
At Cost	-	30,302
Accumulated depreciation	-	(12,403)
	-	17,899
Total Plant and Equipment	**88,214**	**94,290**
Note 8 — Trade and Other Payables		
CURRENT		
Trade Payables	2,102,064	1,549,821
NEVDIS Payables	882,628	474,123
Accrued Expenses	146,667	1,032,592
	3,131,359	**3,056,536**
Note 9 — Income Received in Advance		
CURRENT		
Contributions Received in Advance	60,000	-
Subscriptions Received in Advance (NEVDIS)	-	49,900
	60,000	**49,900**

	2015 $	2014 $
Note 10 — Unacquitted Funds (NEVDIS)		
Revenue		
Members' contributions	2,002,101	1,962,898
PPSR Enhancements Recovery	1,562,374	1,162,442
VIRS Commercial Phase	628,760	340,861
Safety Recalls	463,132	193,022
AEC Extract Charges	190,856	182,573
Interest Income	43,096	15,094
Data Extracts	14,112	10,584
DVS Private Sector	1,230,144	3,260
Miscellaneous Income	3,600	-
Total Revenue	**6,138,175**	**3,870,734**
Expenditure		
Fujitsu Subscription and Operating Costs	2,300,636	2,094,240
RMS NEVDIS Administration Unit and Salaries	1,881,003	1,775,731
NEVDIS Projects	169,257	233,232
Other	161,252	76,718
Total Expenditure	**4,512,148**	**4,179,921**
Net Surplus/(Deficit) for the Year	**1,626,027**	**(309,187)**
Amount Unexpended in Previous Years	2,556,676	2,865,863
Amount Unexpended transferred to Liabilities	**4,182,703**	**2,556,676**
Note 11 — Provision for Employee Benefits		
CURRENT		
Provisions for Annual Leave	74,989	75,151
Provisions for Long Service Leave	44,103	87,161
	119,092	**162,312**
NON-CURRENT		
Provisions for Long Service Leave	**31,407**	**16,834**

Note 12 — Members' Guarantee

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

Notes to the Financial Statements for the Year Ended 30 June 2015

Note 13 — Cash Flow Information

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

	2015 $	2014 $
Profit for the year	2,180,981	1,611,162
Adjustment for non-cash-flow items:		
- Depreciation and amortisation	25,144	18,557
- Gain on disposal of plant and equipment	(250)	(104)
Change in operating assets and liabilities:		
- (Increase)/decrease in trade and other receivables	(525,439)	422,643
- (Increase) in other assets	(62,338)	(8,820)
- Increase in trade and other payables	74,823	958,190
- Increase/(decrease) in income received in advance	10,100	(492,310)
- Increase/(decrease) in unacquitted funds (NEVDIS)	1,626,027	(309,187)
- (Decrease)/increase in provision for employee benefits	(28,647)	16,051
Net Cash Generated from Operating Activities	**3,300,401**	**2,216,182**

Note 14 — Remuneration of Directors

There is no Income received, or due and receivable by the directors.

Note 15 — Remuneration of Auditors

During the year Moore Stephens Sydney, the auditor of the company earned the following remuneration:

Audit of the financial statements	16,000	16,000
Other services	4,400	4,400
	20,400	20,400

Note 16 — Capital Commitments

As at 30 June 2015 Austroads entered into a contract with Sheldon Commercial Interiors for the modification and refurbishment of the NEVDIS Administration Unit located at 287 Elizabeth Street Sydney. The contract value totalled $112,092.90 ($0 paid to reporting date).

Note 17 — Lease Commitments

Operating Lease Commitments – being for the rent of office

Payable – minimum lease payments		
- Not later than 12 months	251,914	132,269
- Between 12 months and 5 years	798,130	437,825
	1,050,044	570,094

Austroads Ltd entered a lease agreement for NEVDIS to use the remaining office space on level 9, 287 Elizabeth street for a term of 5 years

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Note 18 — Contingent Liabilities or Assets

At 30 June 2015, the Company has no contingent liabilities or assets (2014: Nil).

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

NEVDIS is owned by Austroads on behalf of the eight states and territory jurisdictions who contribute information to the system. In August 2015 the NEVDIS Administration Unit will relocate to the Austroads national office. Austroads national office is working with RMS NSW human resource staff to transition the NEVDIS staff and potentially engage them as Austroads employees. In conjunction with relocation, the structure and skill sets of the unit will be reviewed.

The relocation and review will assist with the management of the unit as existing commercial arrangements are standardised and product development opportunities are pursued. From 2015-16 the financial statements of the NEVDIS Unit will be consolidated with the Austroads Ltd financial statements.

Note 20 — Company Details

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

Directors' Declaration for the Year Ended 30 June 2015

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 8 to 20, 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 2015 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.

Peter Duncan AM

Chairperson

Dated this 2nd day of October 2015

MOORE STEPHENS

Level 15, 135 King Street
Sydney NSW 2000

GPO Box 473
Sydney, NSW 2001

T +61 (0)2 8236 7700
F +61 (0)2 9233 4636

www.moorestephens.com.au

INDEPENDENT AUDITOR'S REPORT

TO THE MEMBERS OF AUSTROADS LTD

Report on the Financial Report

We have audited the accompanying financial report, being a special purpose financial report, of Austroads Ltd ("the company"), which comprises the statement of financial position as at 30 June 2015, and the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, a summary of significant accounting policies, other explanatory notes and the directors' declaration.

Directors' Responsibility for the Financial Report

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

Auditor's Responsibility

Our responsibility is to express an opinion on the financial report based on our audit. We have conducted our audit in accordance with Australian Auditing Standards. Those standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance about whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation of the financial report 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. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the directors of the Responsible Entity, as well as evaluating the overall presentation of the financial report.

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

Independence

In conducting our audit, we have complied with the independence requirements of Australian professional ethical pronouncements. We confirm that the independence declaration required by the *Corporations Act 2001*, provided to the directors of Austroads Limited on 2nd October 2015, would be in the same terms if provided to the directors as at the date of signing this audit report.

MOORE STEPHENS

Opinion

In our opinion the financial report of Austroads Ltd 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 2015 and of its performance for the year ended on that date in accordance with the accounting policies described in Note 1; and

b) complying with Australian Accounting Standards to the extent described in Note1 and complying with the *Corporations Regulations 2001*.

Basis of Accounting

Without modifying our opinion, 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.

Moore Stephens Sydney
Chartered Accountants

S. Tzannes
Partner

Dated in Sydney this 9th day of October 2015

Abbreviations

AAPA	Australian Asphalt Pavement Association
ACMA	Australian Communications Media Authority
AS	Australian Standard
ABC	Australian Bicycle Council
ACT	Australian Capital Territory
ALGA	Australian Local Government Association
ANZPAA	Australia New Zealand Policing Advisory Agency
ARRB	ARRB Group
ATOG	Australasian Tunnel Operators Group
ATS	Australasian Tunnelling Society
Auststab	Pavement Recycling and Stabilisation Association
BITRE	Bureau of Infrastructure, Transport and Regional Economics
C-ITS	Cooperative Intelligent Transport Systems
DSG Tas	Department of State Growth Tasmania
DI NT	Department of Infrastructure Northern Territory
DIRD	Department of Infrastructure and Regional Development
DJCS ACT	Directorate of Justice and Community Safety Australian Capital Territory
DLP NT	Department of Lands and Planning Northern Territory
DoI NT	Department of Infrastructure Northern Territory
DoT NT	Department of Transport Northern Territory
DoT WA	Department of Transport Western Australia
DTMR Qld	Department of Transport and Main Roads Queensland
DPTI SA	Department of Planning, Transport and Infrastructure South Australia
DVS	Document Verification Service
IPWEA	Institute of Public Works Engineering Australia
ITS	Intelligent Transport Systems
LMA	Linking Melbourne Authority
LTPP	Long Term Pavement Performance
MoT NZ	Ministry of Transport New Zealand
MR WA	Main Roads Western Australia
NAU	NEVDIS Administration Unit
NBN	National Broadband Network
NEVDIS	National Exchange of Vehicle and Driver Information System
NHVR	National Heavy Vehicle Regulator
NMVTRC	National Motor Vehicle Theft Reduction Council
NPI	National Performance Indicators
NRSEG	National Road Safety Executive Group
NRSS	National Road Safety Strategy 2011-2020
NSW	New South Wales
NTC	National Transport Commission
NZ	New Zealand
NZTA	New Zealand Transport Agency
PBS	Performance Based Standards
PMB	Polymer Modified Binders
PDF	Portable Document Format
WRA	World Road Association
PPSR	Personal Property Security Register
REAAA	Road Engineering Association of Asia and Australasia
RMS NSW	Roads and Maritime Services New South Wales
RUE	Road User Effects
SA	Standards Australia
SMA	Stone Mastic Asphalt
TAMS ACT	Department of Territory and Municipal Services Australian Capital Territory
TfNSW	Transport for NSW
TISOC	Transport and Infrastructure Senior Officials' Committee
VIC	Victoria
VicRoads	Roads Corporation Victoria
VIN	Vehicle Identification Number
VIRS	Vehicle Information Request System
WA	Western Australia

nevdis

National Exchange of Vehicle & Driver Information System

Level 9, 287 Elizabeth Street

Sydney NSW 2000, Australia

Phone: +61 2 8265 3300

austroads@austroads.com.au | www.austroads.com.au