Austroads Annual Report

2012-2013

Austroads is the association of Australian and New Zealand road transport and traffic authorities.

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 membership comprises the six state and two territory road transport and traffic authorities, the Commonwealth Department of Infrastructure and Transport, the Australian Local Government Association, and the New Zealand Transport Agency. Austroads is governed by a Board consisting of the chief executive officer (or an alternative senior executive officer) of each of its eleven member organisations:

- 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 Infrastructure, Energy and Resources Tasmania
- Department of Transport Northern Territory
- Territory and Municipal Services Directorate, Australian Capital Territory
- Commonwealth Department of Infrastructure and Transport
- 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.

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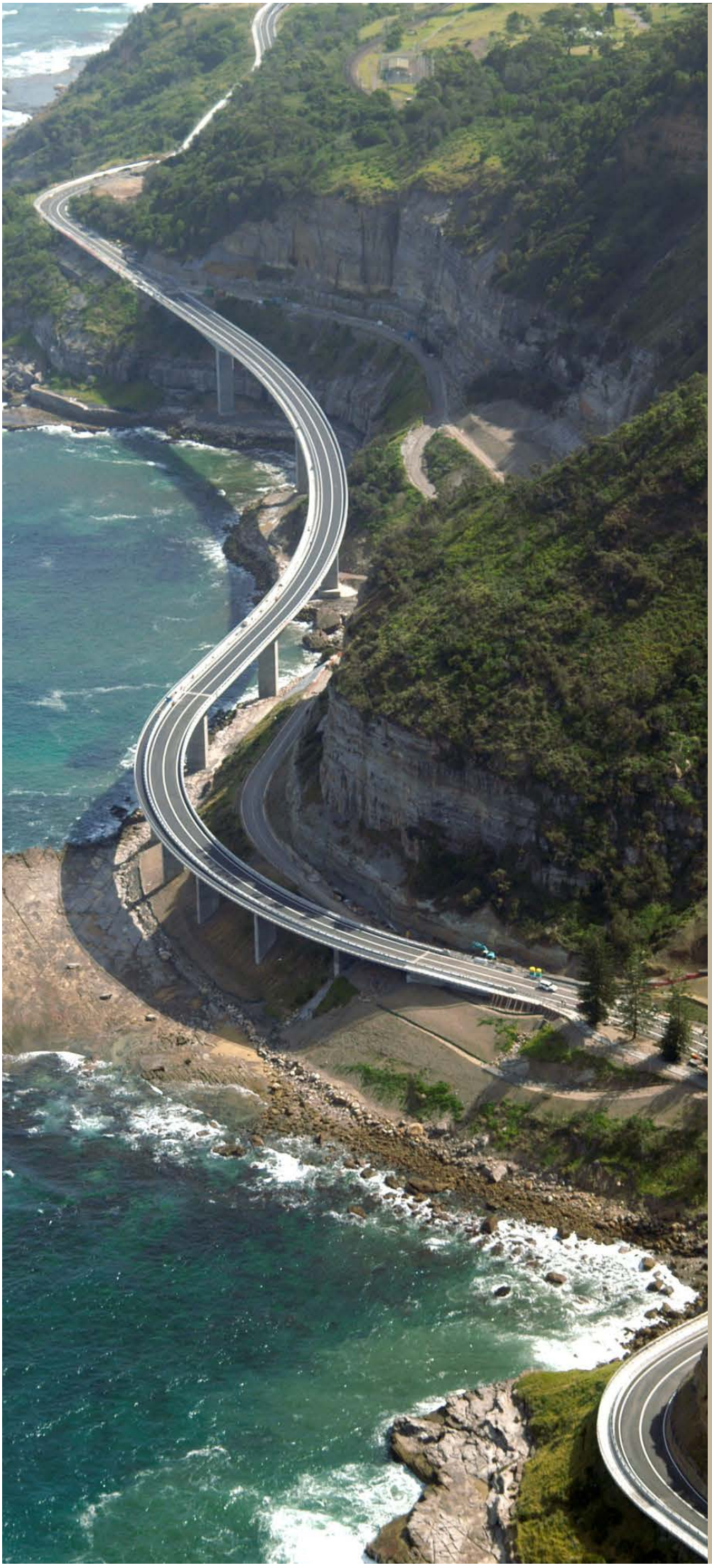


2012-13 Overview

$11.6m work program expenditure

26 task forces and working groups

6 national office staff

166 projects, 46 completed in 2012-13

80 reports produced

11 Austroads Guides published

74,000 Austroads Guides sold and downloaded

56,000 research and technical reports downloaded

Governance

Austroads Ltd is a company limited by guarantee under the *Corporations Act 2001*. Austroads is governed by a Board comprised 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 Secretary of Austroads Ltd. There is also an Executive Committee.

Strategic Plan 2012-16

Austroads' future direction is outlined in its Strategic Plan 2012-2016. The plan is based on an assessment of the evolving context in which Austroads operates. There have been significant changes in the institutional arrangements and roles and responsibilities of various entities over the past few years. The plan is framed in response to these changes and establishes the basis for Austroads participation in the current environment as well as ensuring that we are in a position to respond effectively to further changes as they emerge.

The plan has identified eight strategic priorities that are the current focus of Austroads efforts. Of the eight, three relate to Austroads directly; the remainder relate to those areas in which Austroads will assist its members.

- **Leadership |** Austroads will play a leadership role in the Australasian transport sector and be a major contributor to the national reform agenda.
- **Relationships |** Austroads will build strong relationships with other stakeholders in the transport sector and foster a collaborative approach across the sector.
- **Knowledge Sharing |** Austroads will create improved distribution, sharing, learning and innovation to support decision making.

Austroads will assist members in relation to:

- **Customer Service |** Identify and understand community needs and achieve social outcomes.
- **Asset Management |** Provide the road network services the community needs at least long term cost.
- **Productivity |** Maximise the contribution that roads and related infrastructure makes to the economy.
- **Road Safety |** Reduce the impact of road trauma.
- **Environmentally Sustainable Transport |** Manage the delivery of infrastructure services and use of the road network in a more sustainable way.

Operational Plan 2012-16

The Austroads Operational Plan 2012-2016 complements the Strategic Plan. It identifies projects to be undertaken over the life of the Strategic Plan by each program to achieve their specified outcomes. This level of detail provides greater clarity about what Austroads will be doing over the period of the Strategic Plan.

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.

Program Structure and Resourcing

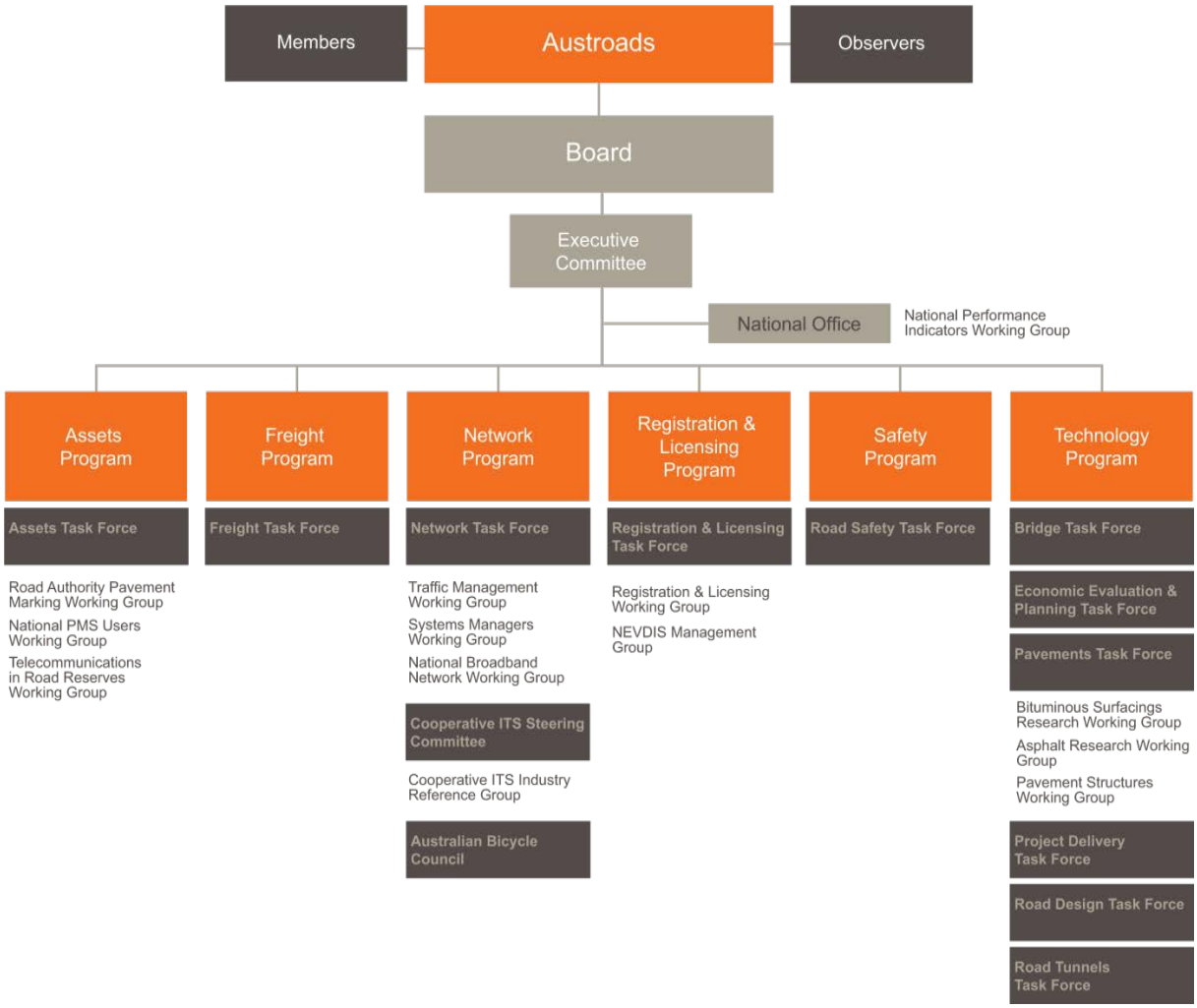
Austroads uses a program management approach to deliver the strategic plan. Each program focuses on an operational area of the road system but in doing so they address the eight strategic priorities of Austroads by undertaking a range of projects and contribute to improving transport in Australia and 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 report to the Board. Every four years the Austroads Program hosting arrangements are rotated through the jurisdictions. On 1 July 2013 a new Coordinator for the Freight Program and new Program Managers and Coordinators for the Network, Registration and Licensing, Safety and Technology Programs stepped into their roles. Program contacts are available on the Austroads website.

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.

- **Figure 1 —Austroads structure**



Work Program

Austroads tracks all projects and reports to the Board on the progress. There were 166 projects approved in the 2012-13 work program, with 88 projects continuing from previous financial years and 78 new projects starting in 2012-13. There were 37 projects scheduled for completion by 30 June 2013. Three were completed by that date.

During 2012-13 a total of 46 projects were completed, three were cancelled and four were deferred. At 30 June 2013 there were six projects which were overdue by more than 12 months and five by more than six months.

In 2013-14, 113 projects will carry over from 2012-13 and there will be 47 new projects making a total of 160. Table 1 provides a comparison of work program status figures as at 30 June for the last six financial years.

- **Table 1 — Status of Austroads work program**

	Completed	Cancelled or Deferred	More than 12 months late	Between 6 and 12 months late	On time and less than 6 months late	Total
2007-08	41	10	3	8	82	144
2008-09	68	7	1	4	77	157
2009-10	39	0	1	3	94	137
2010-11	47	1	0	9	80	137
2011-12	44	5	3	4	81	137
2012-13	46	7	6	0	107	166

Total expenditure for the 2012-13 work program was $11.6 million. Table 2 provides a breakdown of the expenditure by program.

- **Table 2 — Work program expenditure by program**

Program	2012-13 Expenditure
Assets	$2,073,000
Freight	$700,000
Network	$1,348,000
Registration & Licensing	$575,000
Safety	$2,024,000
Technology	$4,952,000
Total	$11,672,000

More details on program expenditure are contained in the financial statements.

Performance

National Performance Indicators

The collection of performance information enables Austroads 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.

Austroads Member Satisfaction

Surveys are undertaken of Austroads Board members, a cross section of staff from member organisations and key external stakeholders, to establish their level of satisfaction with Austroads' performance on several key aspects of its operations, including collaboration, research, publications, professional development, value for money, and overall performance.

Evaluation of project outputs

For a number of years Austroads has undertaken an annual evaluation of a sample of project outputs. In 2012 this evaluation had two elements:

- An analysis of sales and downloads of each selected output.
- A survey of people who purchased or downloaded the selected outputs to determine their thoughts on the output and access issues.

Surveys were emailed to people who had purchased or downloaded one of 20 selected Austroads publications. A total of 5,704 emails were sent and 6.4% of respondents replied. The surveys gauged levels of satisfaction across four areas: whether the publication content met their needs (89.7% satisfied or very satisfied); the quality of the technical information (88.8% satisfied or very satisfied); the presentation and format of the publication (91.2% satisfied or very satisfied); and their experience of using the publications website (89.2% satisfied or very satisfied).

Guides

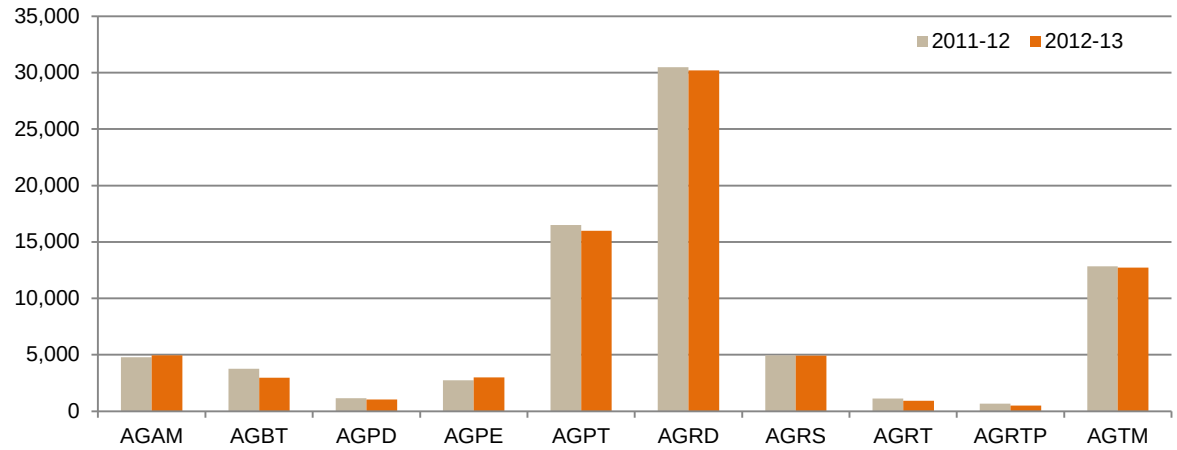
Austroads maintains a comprehensive suite of guides which cover the design, construction, maintenance and operation of the road network for use by road agencies in Australia and New Zealand.

There are 97 Guide parts across 10 Guide sets:

- Asset Management (AGAM)
- Bridge Technology (AGBT)
- Pavement Technology (AGPT)
- Project Delivery (AGPD)
- Project Evaluation (AGPE)
- Road Design (AGRD)
- Road Safety (AGRS)
- Road Transport Planning (AGRTP)
- Traffic Management (AGTM)
- Road Tunnels (AGRT).

In 2012-13 more than 19,000 Guide sets and 55,500 individual Guide parts were sold and downloaded. Staff from member organisations, including local councils, can download electronic version of the Guides for free.

- **Figure 2 – Austroads Guide Sales and Downloads**



The Guides have been adopted as primary references by all members. To ensure the Guides are up-to-date with the latest research developments and harmonised jurisdictional practices, it has been agreed that all guide parts will be reviewed at least every five years from their last date of release. In 2012-13, nine of the existing Guide parts were updated and republished and two new Guide parts were published.

Relationships and Partnerships

Austroads' most important relationships are with its member organisations. The resources and expertise contained in member organisations are drawn on extensively. However, Austroads also works closely with other organisations in the road industry and specifically with the ARRB Group, the National Transport Commission and the Bureau of Infrastructure, Transport and Regional and Economics, which are observers at Austroads' Board meetings.

ARRB Partnership Agreement.

The Austroads partnership agreement with ARRB guarantees work to ARRB across five core areas of research:

- Bituminous Surfacings
- Pavement Technology
- Asset Management
- Road Safety Engineering
- Network Operations

The key criterion is that these are areas where ARRB maintains the key source of significant research expertise in Australia and New Zealand.

International Partnerships

Austroads coordinates aspects of the international activities of its member organisations, particularly the engagement with the World Road Association. There are also 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.

World Road Association

The World Road Association is the premier international road organisation with 118 member governments and some 2,500 road experts. The Association deals primarily in issues of road infrastructure planning, design, construction, maintenance and operation. Both Australia and New Zealand are full members of the Association and each country is represented by a First Delegate on the Association's Council which meets annually.

With the agreement of the Australian Government, Austroads manages Australia's involvement in the World Road Association and coordinates it with that of New Zealand. By agreement with the World Road Association, Austroads operates as the national committee of the World Road Association for both countries.

The work of the Association is undertaken by 17 committees which bring together technical experts from around the world. Austroads currently has full or corresponding representatives on 15 of the 17 committees. The representatives provide regular progress reports on the work being conducted by their technical committee. Contact details of the representatives an committee reports are available on the Austroads website allowing easy access to the committees work not only to Austroads members but the wider road and road transport industry throughout Australia and New Zealand.

Austroads national office also provides input into the Association's strategic planning and editorial support to the magazine Routes/Roads.

Road Engineering Association of Asia and Australasia (REAAA) – Australian Chapter

The Road Engineering Association of Asia and Australasia (REAAA) promotes the science and practice of road engineering and related professions in the Asia Pacific region. Based in Malaysia, it has more than 1,000 members in 26 countries and holds regular events including a triennial international conference, technical visits and study tours, trade displays, seminars, forums and workshops.

There are chapters of the REAAA established in both Australia and New Zealand. The Austroads national office provides secretariat support to the Australian Chapter of the REAAA, which provides opportunities for Australian members to consult with colleagues in other REAAA member countries and from time to time organises technical visits, seminars and information exchange in Australia and Asia.

The American Association of State Highway and Transportation Officials (AASHTO)

Austroads has an agreement with the American Association of State Highway and Transportation Officials (AASHTO), an association representing highway and transportation departments in the United States of America. This involves the exchange of information and research results and publications.

The Austroads national office maintains regular contact with AASHTO. Free copies of AASHTO publications are received under the agreement between the two organisations, which are forwarded to the ARRB library where they are made available to the staff of Austroads member organisations.

American Association of Motor vehicle Administrators (AAMVA)

Austroads has an agreement with the American Association of Motor Vehicle Administrators (AAMVA). AAMVA is the equivalent organisation of AASHTO covering vehicle registration and driver licensing in the United States of America. The agreement provides for the sharing of information between the two organisations.

Transportation Association of Canada (TAC)

Austroads has an agreement with the Transportation Association of Canada (TAC). TAC promotes the provision of safe, efficient, effective and environmentally and financially sustainable transportation services in Canada. The agreement provides for the exchange of information and possible cooperative and collaborative research on topics of mutual interest.

OECD and European Council of Ministers of Transport

The Organisation for Economic Cooperation and Development (OECD) and the European Council of Ministers of Transport (ECMT) work together on transport research through the establishment of a Joint Transport Research Centre (JTRC). Austroads in conjunction with DoIT participate in the various research initiatives of the JTRC, generally as corresponding members of projects teams. Reports are provided to the relevant Austroads Task Forces.

Awards

Austroads awards are intended to recognise the contribution of individuals to the work of Austroads. The awards are important because Austroads operates on the basis that the people doing work for Austroads, usually staff of Austroads member organisations, are doing that work in addition to their regular work for their own organisation. The success of Austroads is heavily dependent on the efforts and commitment of these individuals and the awards are a way of publicly acknowledging their contributions.

The Austroads Medal was presented to Menno Henneveld, Main Roads WA, in recognition of his significant contribution to Austroads as a Chair, Deputy Chair and longstanding Board member and in representing Australia at the World Road Association.

Outstanding Service awards were made to:

- Chris Harrison – Roads and Maritime Services, NSW
  In recognition of his outstanding contribution to Austroads and its activities; and particularly for leadership of the Technology Program as Program Manager (2009-2013); Chair of six Technology Task Forces; and his role in the development of the Austroads Guide to Road Tunnels and the development and implementation of the Austroads National Prequalification System.
- Julie Holmes – Department of Planning, Transport and Infrastructure, SA
  In recognition of her outstanding contribution to Austroads and its activities; and particularly for leadership of the Registration and Licensing Program as Program Manager (2011-2013); Chair of the Registration and Licensing Task Force and the NEVDIS management group; and her role in the ongoing maintenance and development of NEVDIS and the protracted and complicated contractual negotiations associated with this.

Special Commendations were made to:

- Wije Ariyaratne – Roads and Maritime Services NSW
  For the successful management of the 2012 Austroads Bridge Conference, 'Sustainable Bridges: The Thread of Society'. This conference was held at Darling Harbour, Sydney and had presentations by highly recognised international and Australasian speakers and was attended by 600 delegates.
- Jane Fitzgerald – Department of Planning, Transport and Infrastructure, SA
  In recognition of her contribution to Austroads through exceptional work with the Registration and Licensing program, overseas driver licences and NEVDIS and its various contractual negotiations and arrangements from July 2009 until June 2013.

Austroads Achievement awards were made to:

- Tye Anthonisz – Roads and Maritime Services, NSW
- Heather Bishop – VicRoads
- Anthony Barton – VicRoads
- Graham Bradshaw – ABC member representing Retail Cycle Traders Association
- John Bright – Department of Transport and Main Roads, Qld
- Julie Cooper – VicRoads
- John Esnouf – VicRoads
- Deborah Evans – Department of Transport and Main Roads, Qld
- Richard Fanning – VicRoads
- Simon Grieve – Main Roads, WA
- Ian Hickson – Territory and Municipal Services Directorate, ACT
- Mick Lorenz – Department of Planning, Transport and Infrastructure, SA
- Lance Midgley, VicRoads
- David Nash – VicRoads
- Marianne Robertson – VicRoads
- Andrew Wall – VicRoads
- Peter Watts – Department of Planning, Transport and Infrastructure, SA
- Kamal Weeratunga – Main Roads, WA

Assets Program

Program objective:
to provide road services the community needs at the least long term cost

$2.07m expenditure

18 projects, 4 completed in 2012-13

Working towards…

- Customer defined levels of service integrated into asset management practice
- Relationships between road surface characteristics and road safety clearly established
- Road and bridge wear under increased loads quantified
- Guidance on non-pavement asset management
- Guidance on sustainable utilisation of scarce and recycled materials in road maintenance
- Guide to Asset Management updated.

Assets Program

Program Manager: David Darwin
New Zealand Transport Agency

Program Assistant: Sarah Mayne
New Zealand Transport Agency

Assets Task Force

- Andradi Adhiputro, NTC
- Michelle Baran, DTMR Qld
- Greg Campbell, MR WA
- Karl Cloos, ACT
- David Darwin, NZTA
- Alex Foulds, DIT
- Tim Martin, ARRB Group
- Tony Porcaro, DPTI SA
- Vince Punaro, VicRoads
- Gary Rykers, RMS NSW
- Mick Savage, ALGA
- Shane Tepper, DoT NT
- Craig Thew, ALGA

Other technical groups

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

Assets Program Highlights

Completed Projects

The Assets Program completed four projects in 2012-13.

- **Managing Asset Management Related Civil Liability Legal Risk**

Two-year $100,000 project: incorporating research of case and statute law changes, review of agency systems and workshop with agencies.
2012-13 outputs: Research Report AP-R412-12 Managing Asset Management Related Civil Liability Risk and online seminar

Claims for compensation brought by road users against road agencies are a significant issue. The claims environment varies between states and territories and this project was undertaken to provide a consistent direction for asset managers within road agencies.

The final output of this project was a report that promotes the principle of preventing incidents through sound asset management practices. The report introduces the history and context of highways-related civil liability claims and provides detailed practical guidance to asset management practitioners in relation to:

- Strategies, policies, standards and procedures
- Programs of work and service delivery
- Monitoring, review and continual improvement
- Support systems and relationships.

- **Asset Management within a Safe Road System Framework**

Two-year $128,000 project: incorporating literature review, survey of member organisations, development of six issues papers and workshop.
2012-13 outputs: Research Report AP-R442-13 Asset Management within a Safe System

Both the Australian and New Zealand National Road Safety Strategies have adopted the Safe System approach which represents a significant change to the way road safety is managed and delivered in Australasia. This project considered what implementing a Safe System means for asset managers. The final output of the project was a report that provided a background to the Safe System and examined a range of infrastructure and road use management solutions which could help reduce road trauma. The solutions proposed in the report extend beyond traditional solutions, building on the Safe System philosophy and integrating these with asset maintenance and road safety practice.

- **Improving Skid Resistance Measurement**

  Three-year $538,000 project: incorporating literature review, SCRIM data collection and analysis, investigation of aggregate polishing tests for skid resistance prediction and completion of a worked example for setting investigatory levels.
  2012-13 outputs:
  Technical Report AP-T177-11 Review of Skid Resistance and Measurement Methods
  Technical Report AP-T233-13 Development of Safety Related Investigatory Level Guidelines
  Research Report AP-R444-13 Review of Variability in Skid Resistance Measurement and Data Management

  Skid resistance is an important consideration for road agencies. Austroads has undertaken projects to identify surface characteristics which have a bearing on crash rates, measure skid resistance and texture, and provide procedures and guidance for the management of skid resistance and texture at the network level. The main goal of this project was to improve the understanding of variability associated with skid resistance testing and measurement, so a more effective management system can be devised balancing the practical limitations within the overall objective of providing safe road networks.

- **Future Availability and Increasing Cost of Bitumen and Alternative Surfacing Binders**

  Three-year $500,000 project: incorporating field trials and laboratory testing of two bitumen replacement binders and three extended binders.
  2012-13 outputs:
  Technical Report AP-T206-12 Investigation into the Properties of Alternative Surfacing Binders and Bitumen Extending Binders
  Technical Report AP-T243-13 Future Availability and Assessment of Alternative Surfacing Binders

  One of the biggest issues affecting the sustainability of the Australian road construction and maintenance industry in the next 10 years will be the relative availability and associated potential spiralling costs of bitumen. Bitumen still remains one of the fundamental road building and maintenance materials. Australian crude oils do not include a bitumen component and sources of bitumen have traditionally been obtained from the Middle East.

  This project studied a number of commercially available alternative binders and bitumen extended binders to determine whether these materials could be used as a suitable replacement/extender for bitumen. A lifecycle analysis was conducted on each of the binders studied to estimate the costs associated with their use. The results indicate that the majority of the binders studied could be used in specialised pavement applications.

New and Continuing Projects

The Assets Program progressed work on 14 new and continuing projects in 2012-13.

- **Using Financial Data in Asset Management Decision Making |** This two year project aims to improve maintenance and renewal funding submissions by using information derived from road agency asset valuation systems.
- **Long-Term Performance Monitoring to Develop Consistent Performance Models |** Austroads has funded the monitoring of the structural and functional performance of 21 Australian pavement test sections since late 1994. The sections include sites set up specifically to be in line with the US Strategic Highway Research Program and sites specifically established in tandem with past Accelerated Loading Facility trials. The project assists in the development of nationally consistent pavement performance models – for use at both the network and project level – through the monitoring of the performance of full-scale in-service pavements. These models are needed to reliably predict long term performance to enable objective estimations of maintenance and funding requirements.
- **Understanding the Impact on Pavement Surfaces from Next Generation Freight Vehicles and Developing Practical Network Prediction Models and Responses |** This seven year $1.8m project aims to understand the failure mechanisms that are particular to the pavement surfacing layer, as distinct from the structural layer, that may be caused by changing configurations and loadings of freight vehicles. Once failure mechanisms are understood, standards, prediction models and appropriate responses will be developed.
- **Review of Standard Methods for Measuring Road Condition |** Austroads standard test methods and specifications for monitoring road condition at the network level were released in 2007. This four year project will ensure the methods are both practicable and able to yield data of the required accuracy.
- **Management of Road Related Assets (Including Electrical and Electronic) |** As road agencies are now becoming ‘road managers’ rather than ‘road builders’ they are becoming more responsible for the management for a wide range of non-pavement assets. This four year project will develop best practice strategies for the management of assets such as ITS systems, electronic, electromechanical, electrical, signs, lines, guardrails and drainage.

- **Bridge Management through Performance Models |** The management of bridge structures within the transport system presents a number of challenges to asset managers due to the complexity of bridge behaviour and significant variability in loading patterns, material degradation and historical bridge information. This three year project aims to investigate deterioration mechanisms relevant to bridges with an emphasis on predicted future performance.
- **Good Practice Reseal Management |** This three year project will provide asset managers with a systematic method to develop road resurfacing priorities and programs and assist in providing data to justify reseal funding submissions.
- **Benefits and Risks of Investing in Network Level Deflection Data Collection |** This three year project will examine the value and need for network level pavement deflection data to support road asset management decisions. The outcomes of this project will provide critical input to decisions to undertake network level strength assessment across Australia and New Zealand.
- **Application of New Technologies to Improve Risk Management |** New technologies play a significant part in managing the productivity and safety of a road system and can also play an important role in asset management. This three year project will identify the capacity for new technologies to aid asset managers and provide guidelines for agencies to consider adopting new technologies for asset management.
- **Improving the Estimation of the Cost of Accelerated Road Wear Due to Possible Increases in Axle Mass Limits |** The rate of asset deterioration and agency maintenance costs increase with increased axle mass. This project will improve the predictions of life cycle performance models to reflect impacts of higher axle mass limits on agency costs.
- **Defining Asset Management Level of Service Requirements for Freight on Rural Arterial Roads |** This three year project will develop an understanding of the service requirements of freight and logistics industries and the contributions asset management can make to improved trade efficiency.
- **Analysing Dynamic Wheel Loading and its Effects on the Network |** Rough pavements deteriorate more rapidly than smooth pavements. This is believed in part to be due to rougher roads increasing the magnitude of dynamic wheel loads, which in turn accelerate the deterioration and roughening of the pavement. If this is the case there may be an economic argument to reduce road roughness earlier than is now the case. Through the development of a pavement dynamic loading model, this three year project will enable future investigation of economically justified roughness intervention levels on heavy vehicle routes.
- **Deploy and Refine the Road Wear Modelling Methodologies |** This three year project aims to harmonise the processes and methodologies for estimating road wear across Australia by refining and deploying road wear modelling tools for use in assessing network level pavement standards and costs.
- **Economics of Materials Availability and Recycling |** This two year project will consider the extent that materials availability will impact on future road and bridge maintenance and construction activities and promote recycling practices for asset managers.

Future Focus

In 2013-14 the Assets Program plans to commence seven new projects:

- A three year project to define the level of service requirements of non-freight customers
- A project that investigates the risks and consequences of alternative renewals intervention strategies
- A three year project to determine the data requirements for improved statistical analysis of the relationship between road surface characteristics and crashes
- A four year project to developing the data and cost information required to support heavy vehicle charging and investment reform
- A three year project to produce guidelines for the management of road reserves
- A four year project to strategically review and update the Austroads Guide to Asset Management
- A two year project to update the Road Condition Monitoring Specifications, Test Methods and Commentaries.

Freight Program

Program objective:
to improve productivity and sustainability in meeting the freight task

$0.70m expenditure

11 projects, 4 completed in 2012-13

Working towards…

- National standards to improve the productivity and sustainability of road freight movement
- Policy framework for light freight
- Guidelines and tools to improve road access decision making
- Guidelines and tools to improve bridge access decision making
- National performance indicators for heavy vehicles and freight
- National competencies and capability framework for road freight regulators
- Best practise guidelines for the management of road access and amenity at freight terminals and facilities.

Freight Program

Program Manager: Michael Sutton
DIT

Program Assistant: Julie Cooper
VicRoads

Freight Task Force

- Jose Arredondo, NTC
- Anita Curnow, VicRoads
- Angus Draheim, NHVR
- Pascal Felix, MR WA
- Kym Foster, ALGA
- Andrew Hyles, DIT
- Russell Ingham, DTMR Qld
- Danny Johnson, DIER Tas
- Charles Karl, ARRB Group
- Daniel Kicuroski, Transport NSW
- Marinus La Rooij, NZTA
- Barbara Littler, DoT NT
- Ross Mensforth, DTMR Qld
- Lindsay Oxlad, DPTI SA
- Rod Paule, ACT
- Michael Sutton, DIT

Freight Program Highlights

Completed Projects

The Freight Program completed four projects in 2012-13.

- **Performance Based Standards Length Limit Review**

12 month $150,000 project: incorporating discussion paper development, consultation workshops, assessment methodology development, risk assessment of 55 sites, benefit cost analysis of three sites.
2012-13 Outputs: Research Report AP-R411-12 Performance Based Standards Level 1 Length Limit Review

Overall vehicle length is a primary driver of freight vehicle productivity. Developing a performance based standard for vehicle length proved difficult because of the complexities concerning intersection clearance times, stacking distance, traffic flow and overtaking ability. In this project 55 sample sites were chosen from across Australia and a risk score indicating the impact of increasing the Level 1 length limit increase was determined. A benefit-cost analysis of three sites was also conducted. The project found that an increase in the maximum vehicle length for PBS Level 1 vehicles to 23 m should be considered. All sites would need to be assessed to determine the impact on network access, and ultimately road owners and managers will need to determine the acceptable level of risk in allowing longer vehicles on the network.

- **Heavy Vehicle Safety Data**

12 month $100,000 project: incorporating a review of existing jurisdictional and BITRE reporting and a national workshop to discuss findings.
2012-13 outputs: Research Report AP-R441-13 Heavy Vehicle Safety Data

Reducing heavy vehicle crashes has been identified in the National Road Transport Strategy as a key factor to reduce road trauma. The recording of accurate and reliable heavy vehicle crash data is an important step in developing effective policy and safety countermeasures.

Freight road safety data was reviewed in this project to understand the impacts of industry sector, vehicle class, incident location and other incident descriptors such as time of day, day of week, speed zone, collision type and weather conditions. The project report presents recommendations for the creation of a database to support heavy vehicle road safety performance indicators. The database will assist state road agencies, police and other stakeholders identify and collect the minimum datasets required to address safety performance.

- **Rest Areas Investment and Needs Prioritisation Model**

12 month $50,000 project: incorporating development of an assessment methodology.
2012-13 outputs: Research Report AP-R417-12 A Proposed Heavy Vehicle Rest Area Needs and Prioritisation Methodology

This project resulted in the development of an empirical model to guide the placement, capacity and design of heavy vehicle rest areas on or near major freight routes. The final report aims to assist road agencies identify needs for rest areas for heavy vehicles focussing on capacity and spacing requirements.

- **Nationally Consistent Rest Area Data Definition**

  12 month $80,000 project: incorporating a national workshop of including operators, suppliers of technology/scheduling applications to operators, regulators, and jurisdictional mapping experts
  2012-13 outputs: Research Report AP-R443-13 Nationally Consistent Heavy Vehicle Rest Area Data Definition Framework

  The provision of Heavy Vehicle Rest Areas on the Australian road network is integral to ensuring drivers of heavy vehicles have appropriate locations where they can stop during their journey for effective rest. The Australian Trucking Association identified a need for a national approach to mapping locations for rest areas. Drivers and operators require data that is consistent across state borders so that it can be integrated into third-party fleet management systems or cross-state fatigue management plans. This project developed a consistent, nationally-agreed format for the data to allow drivers and schedulers to easily locate and plan for rest breaks across the entire national network.

New and Continuing Projects

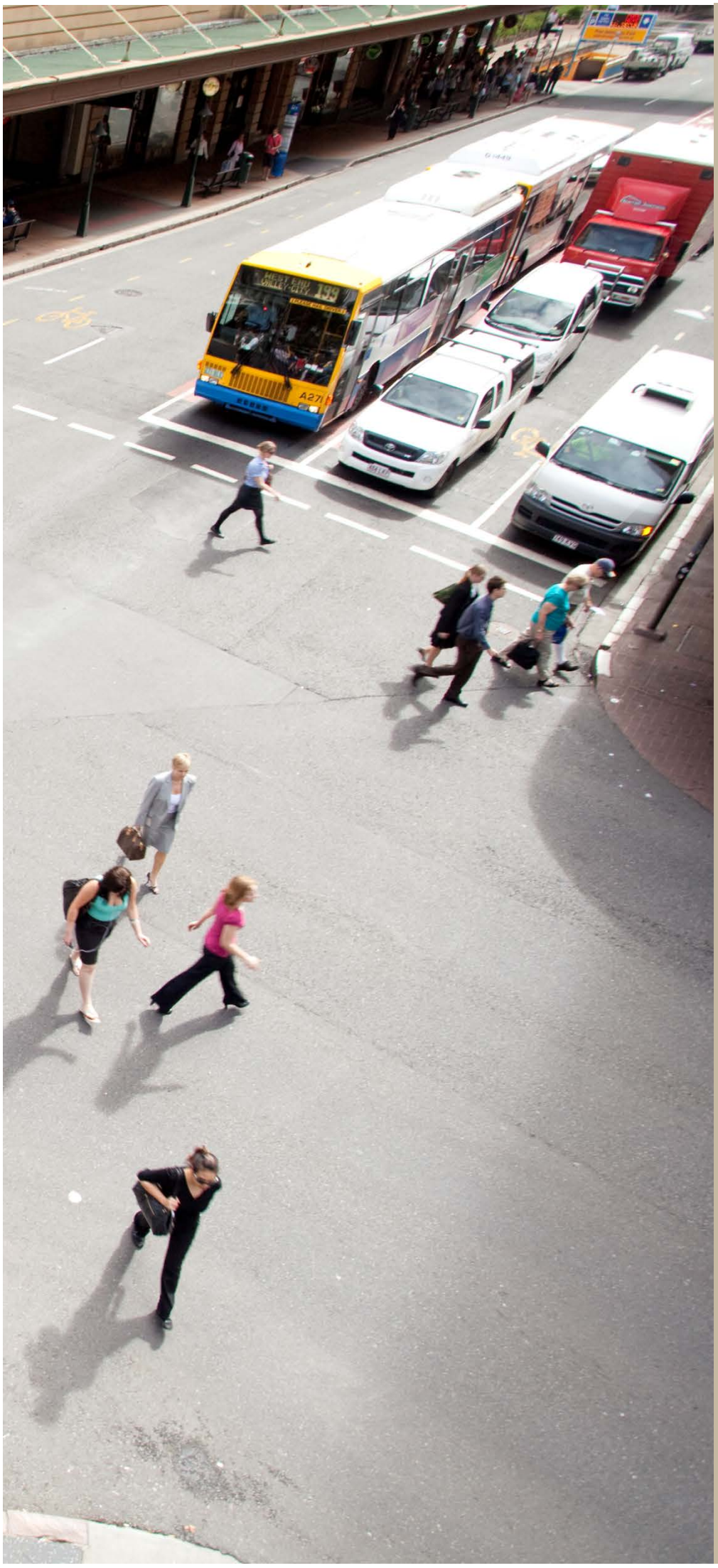
The Freight Program progressed work on seven new and continuing projects in 2012-13.

- **Harmonisation of Pilot and Escort Vehicle Driver Requirements |** This project will develop national requirements for pilot and escort vehicle drivers, including an accreditation scheme and an operational guideline that will replace inconsistent existing state-based requirements.
- **Use of Auxiliary Brakes in Heavy Vehicles |** This 12 month project will review the current use of auxiliary brakes operating on steep descents and recommend measures to improve their safe use.
- **Light Freight – Understanding its Role in Urban Logistics |** This two year project will examine the role of light freight vehicles as a component of the total traffic stream within the urban environment and their impacts on urban congestion.
- **Review of the Performance Based Standards for Level 3 and Level 4 Vehicles |** This two year project will review the Performance Based Standards for the use of Level 3 and 4 vehicles. These vehicles have the potential to significantly improve productivity and support remote communities, particularly in regions that experience high levels of long-haul movements to support heavy industries such as mining.
- **Quantification of Benefits Resulting from Use of High Productivity Vehicles |** This 12 month project will quantify the safety, productivity and environmental benefits achieved as a result of introducing High Productivity Vehicles to further promote their uptake and reassure the community and industry.
- **Moving Freight in Emergency Situations |** Over recent years catastrophic natural events have required rapid and innovative responses to keep freight moving on damaged transport networks. This two year project will identify the methods used to move essential freight, and keep general freight moving, in emergency situations such as floods, fires and earthquakes
- **Best Practice Guidelines for Planning and Development of Industrial Estates in Local Government Areas** This 12 month project will deliver a set of guidelines to support local government when assessing applications for the development of industrial estates. It is intended to provide a framework to ensure appropriate conditions are placed on developers and that roads in new industrial estates are fit-for-purpose.

Future Focus

In 2013-14 the Freight Program plans to commence seven new projects:

- A three year project to examine the opportunities and framework for direct private investment in public roads
- A 12 month project to provide best practice guidelines to support the efficient movement of over size and over mass freight to support the economic development of the resource sector across the country
- A three year project to determine the actual costs of upgrading High Productivity Vehicle routes, identifying the benefits achievable by doing so, and determining the ability of potential future charging regimes to provide the required funding outcomes to justify or expedite investment.
- A three year project to develop a policy framework to support safety, efficiency, and productivity of light freight in an urban environment
- A two year project to address the potential process gaps and lack of details in the Access Management Ministerial Guidelines
- A two year project to publish a manual for Austroads jurisdictions on bridge assessment processes procedures
- A two year project to expand the Performance Based Standards Route Assessment Tool to include bridge assessments.



Network Program

Program objective: to improve the productivity and reliability of roads

$1.35m expenditure

29 projects, 8 completed in 2012-13

Working towards…

- ITS architecture adopted nationally
- Standardised traffic system requirements
- Network operating techniques for all modes
- Next generation network operations performance measures
- National Cycling Strategy 2011-16 implementation
- Information services standardised for users
- Guide to Traffic Management updated.

Network Program

Program Manager: Steve Brown
VicRoads

Program Assistant: Heather Bishop
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Network Task Force

- Steve Brown, VicRoads
- Glenn Bunting, NZTA
- Richard Burk, DIER Tas
- Paul Gelston, DPTI SA
- Geoff Horni, DoT NT
- Tom McHugh, MR WA
- Craig Moran, RMS NSW
- Rifaat Shoukrallah, ACT
- Andrew Wall, VicRoads
- Dennis Walsh, DTMR Qld

Other technical groups

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

Program Highlights

Completed Projects

The Network Program completed eight projects in 2012-13.

- **Cooperative ITS (Dedicated Short Range Communications – 5.9ITS)**

Two-year $850,000 project: incorporating development of national strategy, community consultation, legislative development, Australian Standards development, development of standards for test sites, international review of emerging technology
2012-13 outputs:
Research Report AP-R413-12 Cooperative ITS Strategic Plan
Research Report AP-R414-12 C-ITS 5.9GHz Spectrum Management and Device Licensing Regime Report
Research Report AP-R430-13 5.9GHz Satellite Interference Study - Field Study
Research Report AP-R431-13 Vehicle Positioning for C-ITS in Australia (Background Document)
Research Report AP-R432-13 Emerging Digital Mapping Requirements for C-ITS

Cooperative Intelligent Transport Systems (C-ITS) is an emerging platform that can enable direct two-way communication between motor vehicles and roadside infrastructure. This project works towards preparing Australia for the advent of C-ITS equipped vehicles. The successful delivery of C-ITS will largely depend on the level to which Australia engages and contributes to the international agenda, the extent of specialist expertise and resources brought to bear through effective leadership and management, and the extent and pace that effective communication strategies inform and encourage consumers to adopt this new technology.

- **Best Practice Guidelines for Procurement of ITS Solutions**

12 month $50,000 project: incorporating a review of international best practice.
2012-13 outputs: Research Report AP-R440-13 Best Practice Guidelines for Procurement of ITS Solutions

This project documented how Australian and New Zealand jurisdictions are currently procuring a range of Intelligent Transport Systems (ITS) solutions and recommends ways jurisdictions could improve their ITS procurement practices. Road agencies are using ITS solutions more often to operate existing road networks efficiently and effectively. An ITS procurement method can have significant impact on the ultimate success of ITS projects. When implementing both hardware and software ITS solutions, it is important for road agencies to select an appropriate procurement method that will assist in obtaining the best value for money and the expected outcomes for the project, as well as mitigate the risks.

- **Development of SCATS / STREAMS Interface**

  12 month $50,000 project: incorporating stakeholder meetings, development of formal agreements.
  2012-13 outputs: Technical Report AP-T224-12 SCATS and STREAMS Interface through the SCATS ITS Port

  SCATS and STREAMS are both network operating tools owned by member authorities used for managing the road network. Several jurisdictions have been working with both product owners to deliver a combined operating system. The Network Taskforce identified that this may benefit all jurisdictions.

  The project provided a roadmap for the on-going development and application of the SCATS/STREAMS interface. When the proposed requirements are implemented in both systems, a powerful Intelligent Transport System platform will be available to road agencies to improve the productivity and reliability of the road network in moving people and goods.

- **Finalisation and Industry Engagement for the Advanced Australian Traffic Signal Controller**

  12 month $70,000 project: incorporating development of specifications and industry engagement.
  2012-13 outputs: Technical Report AP-T223-12 The Interface between Traffic Control Software and Control Module Software in AATSC

  Austroads has undertaken a series of research projects since February 2008 to develop a new generation of traffic signal controllers in Australia and New Zealand to be known as the Australian Advanced Traffic Signal Controller (AATSC). This project clarified the architecture required to facilitate the implementation of 'plug-in' traffic control software, as an alternative to the control algorithm in the current controller software. It also identified the key requirements of an interface between the Traffic Control Software and the Control Module Software.

- **Best Practice Study on the Use of ITS Standards in Traffic Management**

  14 month $100,000 project: incorporating development of an assessment methodology.
  2012-13 outputs: Research Report AP-R427-13 Best Practice Study on the Use of ITS Standards in Traffic Management

  Road agencies are now proposing, planning and developing more sophisticated traffic management of Intelligent Transport Systems (ITS) in the form of Managed Motorways. This project reviewed best practice and standards for the implementation of ITS Standards in traffic management and proposed a best practice framework for Australia and New Zealand.

  ITS deployment is based on diverse regional and jurisdictional standards and specifications. The research found that the US National Transportation Communications for Intelligent Transportation System Protocol (NTCIP) suite of ITS communications standards was found to largely exceed the ANZ requirements with only a few exceptions such as video signal transmission. The report recommends a migration of Centre to Field (C2F) communications to NTCIP as a nationally harmonised standard. It has been determined that the traffic signal network, which is already heavily networked on the SCATS and STREAMS platforms, should not be migrated to NTCIP due to the potentially high costs without commensurate additional benefit.

- **The Application of Network Operations Planning Framework to Assist with Congestion Management and integrated Land Use and Transport**

  12 month $60,000 project: incorporating case study development and stakeholder workshops.
  2012-13 outputs: Research Report AP-R426-13 The Application of Network Operations Planning Framework to Assist with Congestion Management and Integrated Land Use and Transport

  The Austroads Network Operation Planning Framework was developed in 2009. Network operating plans try to get the best out of the road system for all road users by taking into account new priorities for public transport and bicycles in peak hours, providing good service for pedestrians in certain parts of cities at particular times, and providing for freight during off peak times. The plans service the more dispersed travel patterns of today compared with the predominantly CBD oriented travel that existed when traffic signal operating regimes were established 20 or more years ago.

  This project considered how the framework could be improved to reflect current and emerging practice. The project examined eight examples of how network operation activities are undertaken. The research report outlined each phase of the current framework, examined how jurisdictions are applying the elements of the phase, and recommends changes to the order and elements of some of the phases. A new network operations planning framework was developed and described in the report.

- **Evaluation Guide for the Provision of Pedestrian Facilities**

  12 month $100,000 project: incorporating a literature review and workshop with road transport and planning authorities.
  2012-13 outputs: Research Report AP-R423-13 Guide Information for Pedestrian Facilities

  Most transport trips involve walking at the start and end of trips. Greater recognition of the importance of walking from health and transport perspectives, and a greater emphasis on providing pedestrian facilities in road network planning and management, are required.

  This review of research, newly published material and emerging practice identified areas where additional advice and guidance on pedestrian facilities can be incorporated into the Austroads Guides. The final report recommended the development of techniques for assessing the quality of the walking environment and for determining the level of service provided for pedestrians. It also suggested amendments to the Austroads Guides, in particular the Guide to Traffic Management, and for the development of a comprehensive pedestrian facilities assessment tool.

- **Guide to Traffic Management Review**

  12 month $60,000 project: incorporating literature review and comparisons of jurisdictional Guide supplements.
  2012-13 outputs: Austroads Guide AGTM03-13 Guide to Traffic Management Part 3: Traffic Studies and Analysis

  This project updated the guidance on traffic studies and capacity analysis in the Austroads *Guide to Traffic Management Part 3: Traffic Studies and Analysis*. The new edition includes information on emerging traffic survey technologies and updated advice regarding sample size determination, capacity definition and level of service criteria. It also includes new sections about pedestrian level of service and level of service criteria using delay for unsignalised intersections, roundabouts and signalised intersections.

New and Continuing Projects

The Network Program progressed work on 21 new and continuing projects in 2012-13.

- **Development of ITS Architecture – Reference and Logical Architecture |** The Network Task Force is managing two projects which will develop a national ITS Information Systems architecture to deploy ITS, including Co-operative ITS (C-ITS), in a consistent and interoperable manner to achieve road safety, mobility and environmental outcomes for road transport systems.
- **Procurement of ITS (International Practice) |** This 12 month project will review international practice in ITS procurement in road and transport agencies in selected countries in North America, Europe and Asia. Literature reviews, case studies and interviews will be used to identify world best practice and lessons learned. It will recommend a decision model or selection criteria for Australian ITS procurement practice in the planning, design, construction, operation and maintenance of ITS solutions. This project complements a project completed this year which documented current Australian practice.
- **Cooperative ITS |** This two year project will put in place the required regulatory and operational framework to enable the successful deployment and operation of C-ITS solutions in Australia, and thus realise the potential transport and societal benefits of C-ITS.
- **NBN Coordination |** This three year project will investigate and recommend strategies to migrate road agencies' wide area ITS networks and devices, which currently predominately work on Telstra copper infrastructure, to new fibre optic based networks (primarily the National Broadband Network).
- **Harmonisation of Practices |** This two year project will help member jurisdictions progress harmonisation of traffic management practices by preparing research papers that document the operational and safety benefits of achieving consistent practices for road users.
- **Product Acceptance of Network Devices |** This two year project will progress a harmonised national product evaluation and acceptance process for network devices. The project will enable jurisdictions to share information on their respective product testing and acceptance regimes. It will ultimately establish a nationally approved product register for inclusion on the Austroads website.
- **Managed Motorways Guide and Arterial Freeway Interface |** These projects will formulate content on managed motorways for the Austroads Guides. It will develop a framework for implementing the managed motorway principles/procedure on existing networks to provide operating principles that optimise overall network performance and efficiency.
- **Level of Service Metric |** This two year project will develop a metric to measure level of service for different road users to enable integrated planning and decision-making within network operations that recognises their needs.

- **Assessment of On-Road Bicycle Lanes at Roundabouts |** This project aims to provide guidance to designers and managers on best practice when designing for cyclists at roundabouts to optimise their safety. The project reviews existing practice to inform the development of appropriate treatments.
- **Urban Cycling Infrastructure Design |** This two year project will develop a series of online case studies to showcase innovative urban bicycle network design in Australia including leading edge infrastructure, intersection treatments and bicycle lanes, and planning and infrastructure that will result in significant modal shifts.
- **Cycling Aspects of Austroads Guides |** This 12 month project will update, and incorporate new materials from the latest Austroads Guides into the popular *Cycling Aspects of Austroads Guides*.
- **Ability to absorb information through electronic and static signs |** This two year project will examine the impact of increased numbers of electronic and static signs on drivers' ability to absorb messages and take appropriate action.
- **Updating the Guide to Traffic Management |** Seven projects will undertake reviews of 10 parts of the Austroads Guide to Traffic Management.

Future Focus

In 2013-14 the Network Program plans to commence seven new projects including:

- A two year project to benchmark ITS performance
- A two year project to document signal management techniques to optimise network operations
- A two year project to develop national training and assessment resources relate to traffic control at worksites
- A two year project to incorporate accessibility into the network operations planning framework and include freight movements and other community services such as health services in the current Austroads accessibility measure
- A 12 month project to develop an online tool for deciding on the most appropriate pedestrian crossing facility. The tool will assess safety, delay to all users, value for money, and pedestrian perceptions of the alternatives enabling practitioners to make evidence base decisions
- A 12 month project to publish a series of case studies demonstrating effective low cost interventions to encourage increased cycling and mode change

Registration and Licensing Program

Program objective: to enhance system consistency, security and integrity

$0.58m expenditure

15 projects, 6 completed in 2012-13

Working towards…

- Improved management of overseas driver licences
- Vehicle registration systems which encourage use of safe and fuel efficient vehicles
- Improved integration and efficient utilisation of data
- Enhanced security of Australian driver licences and vehicle registrations
- Improved management of high risk drivers
- Increased consistency and efficiency in registration and licensing practice across jurisdictions
- National policies and registration schemes to deal with changing vehicle types in the Australian fleet
- Improved access to driver licences for indigenous Australians.

Registration and Licensing Program

Program Manager: Julie Holmes
DPTI SA

Program Assistant: Jane Fitzgerald
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Registration and Licensing Task Force

- Richard Fowler, DIER Tas
- Terry Hickey, Transport for NSW
- Julie Holmes, DPTI SA
- Geoff Hughes, NMVTRC
- Marcus James, DIT
- Andrew Lee, DoT WA
- Judith Lloyd, DTMR Qld
- Chris McNally, VicRoads
- Brett Phillips, ACT
- Ben Piper, NTC
- Cate Quinn, NZTA
- Paul Rajan, DoT NT
- Phil Tout, NAU

Other technical groups

- Registration and Licensing Working Group
- NEVDIS Management Group

Program Highlights

Completed Projects

The Registration and Licensing Program completed six projects in 2012-13.

- **Standard Data Elements for Photo Cards Issued by Australian Road Agencies**

12 month $75,000 project: incorporating a literature review and functional review of Australian driver licences and licencing processes, a benefit and risk analysis of options, a gap analysis of international driver licence standards, a gap analysis of Australian enrolment guidelines and a comparison of International case studies.
2012-13 outputs: national standard to prescribe the common data elements on driver licences and proof-of-age photo cards

There are a number of inconsistencies between different photo cards in Australia and between photo cards and driver licences in individual jurisdictions. This project developed a national standard to prescribe the common data elements and the position in which they appear on the face of a driver licences and a proof-of-age photo cards issued by Australian agencies. The standard will improve the security of the cards and give proof-of-age photo cards the same status and acceptability within the community as a driver's licence.

- **Developing Measures to Reduce the Incidence of Unlicensed Driving**

12 month $75,000 project: incorporating a literature review, identification of potential measures to prevent unauthorised use of a motor vehicle, and a detailed examination of the benefits, costs, constraints and impacts of the identified measures as well as a path to implementation.
2012-13 outputs: Research Report AP-R424-13 Developing Measures to Reduce the Incidence of Unlicensed Driving

Unlicensed drivers operate outside of the licensing system and pose a high safety risk to other road users. Among those without licences between 30% -70% drive at least sometimes. Fatal crash data indicate that between 10% and 20% of such crashes involve unlicensed motorists. This project identified the groups of drivers who are most likely to drive while unlicensed, and the circumstances where this unlicensed driving is likely to occur. This information was then used to determine processes or technology that could be used to reduce unlicensed driving and ensure drivers operate a vehicle within licensing systems. The project also identified countermeasures including: improvements in the detection of unlicensed motorists; more effective sanctions for those who are detected; encouraging the uptake of licences for people who are outside of the licensing system; and making it more difficult to drive without a licence.

- **Development of a National Indigenous Licensing Resource**

  12 month $80,000 project: incorporating a review of existing resources and best practice, establishment of consultation groups and working parties, development and testing of a draft resource, development of communication, engagement and distribution strategies.
  2012-13 outputs: Resource templates, distribution strategies, an evaluation methodology and costings for kit production.

  Australia's Indigenous population are over represented in road crash data and incarceration statistics for licensing related matters. There is also anecdotal evidence that they have a high rate of unlicensed drivers in comparison with the rest of the Australian population. This project developed a resource which can teach the road rules and other licensing matters in manner that is specifically targeted to Indigenous people's learning needs. The resource will be applied across the country but is flexible enough to target individual jurisdictional requirements and manage specific issues for urban, rural and remote communities.

- **VIRS Access to Registration Data on NEVDIS**

  Five-year $100,000 project: incorporating development and three year trial implementation of a commercial pilot project
  2012-13 outputs: successful pilot scheme.

  The Vehicle Information Request System (VIRS) provides specific vehicle data from the National Exchange of Vehicle and Driver Information System (NEVDIS) to the insurance industry via an information broker. Providing access to the NEVDIS database in this way will help to reduce motor vehicle theft and insurance fraud. In addition, providing selected NEVDIS information relevant to the motor vehicle insurance industry will off-set the operating costs of NEVDIS and enable improved data integrity.

- **Access to Driver Licence Information**

  Two-year $70,000 project: incorporating a commercial assessment of licence data, review of privacy legislation and policy development.
  2012-13 outputs: policy framework for the release of licence information.

  This project was conducted in response to a proposal from the Commonwealth Attorney General's Department. The project examined extending access to the Document Verification Service for government agencies to assist with identity management processes, and for private sector organisations that have a need to confirm the identity of customers or verify the licence status of employees.

National Exchange of Vehicle and Driver Information System (NEVDIS)

NEVDIS provides access to and exchange of driver and vehicle information between states and territories in Australia. It also maintains the national Vehicle Identification Number (VIN) database and the national Written Off Vehicle Register (WOVR) database.

NEVDIS began operating in 1998 and is now a critical part of the registration and licensing processes in every state and territory.

NEVDIS is managed by the NEVDIS Administration Unit (NAU) and has a $5.1m operating budget and a staff of 12 full time employees. The NAU responds to the day-to-day operational demands of registration and licensing jurisdictions, vehicle manufacturers/importers and police jurisdictions in relation to driver and vehicle management issues.

The NAU is located within NSW Roads and Maritime Services (RMS). There is a hosting agreement between Austroads and RMS for the operation of the NAU. Under this agreement, RMS provides operational and administrative support to the NAU and the NAU is subject to general RMS administrative procedures and policies. Within Austroads, NAU reports through the Registration and Licensing Program Manager. Austroads sets the direction for NEVDIS and approves work plans and budgets.

- **Managing Long Stay Temporary Overseas Licence Holders in Australia**

  10 month $80,000 project: incorporating a literature review, comparison of practice, risk assessment, policy and legislative recommendations.
  2012-13 outputs: recommendations to ensure long stay temporary overseas licence holders are effectively managed.

  Long stay temporary visa holders make a significant contribution to Australian society and this migrant category has seen substantial growth in numbers over the last 15 years. This project examined the road safety and enforcement issues arising from long stay temporary visa holders driving indefinitely in Australia on an overseas licence. It also evaluated the current policy and regulatory frameworks of each jurisdiction and New Zealand and proposed recommendations to ensure that this cohort of drivers is being effectively managed.

New and Continuing Projects

The Registration and Licensing Program progressed work on nine new and continuing projects in 2012-13.

- **Investigation of Levers Which Influence People's Choice of Vehicle |** This 12 month project will investigate which factors influence people's choice of vehicle to better understand whether these are levers which the registration and licensing task can influence.
- **Strategic Direction for NEVDIS |** This two year project, partially funded by NEVDIS, will develop an agreed strategy to plan for the next iteration of the NEVDIS database (NEVDIS 3). The strategy will provide the basis for revised data structures, access methods, operations and governance over a three to seven year period.
- **Review of NEVDIS Participation Agreement |** This two year project, funded by NEVDIS, will review the NEVDIS Participation Agreement, redefining NEVDIS's direction, role and responsibilities.
- **National arrangements for managing a pending licence sanction |** This 12 month project will develop a national policy framework and supporting business requirements to manage arrangements for jurisdictions to notify NEVDIS that an action has been initiated that will result in the suspension of a driver's licence.
- **Review of Minimum Evidence of Identity Requirements Guideline |** This two year project, funded by the National Transport Commission, will review the *Interim Administrative Guideline: Minimum Evidence of Identity Requirements* published in August 2005. The Guideline will be reviewed in the light of the requirements of the Gold Standard Enrolment Framework that is part of the National Identity Security Strategy.
- **Development of Electronic Logbook Standards for Learner Drivers |** This 12 month project will review the available electronic devices capable of recording driving experience and recommend minimum requirements for a national standard.
- **Indigenous Licensing – Being Assessed to Obtain a Learner Licence |** Obtaining a driver's licence for Indigenous people in remote communities is essential for gaining employment, accessing services, reducing the incidence of incarceration and road trauma. This 12 month project will deliver a culturally appropriate assessment tool to assist Indigenous people to obtain a learner licence. The assessment tool will assist in significantly closing the gap acknowledged between Indigenous and non-Indigenous Australians in obtaining a learner licence.
- **Indigenous Licensing - Tracking Forward to a Provisional Licence |** This two year project aims to increase the number of Indigenous people living in remote locations obtaining a provisional licence by designing and developing a culturally appropriate process to progress from holding a learner licence to a provisional licence.

Future Focus

In 2013-14 the Registration and Licensing Program plans to commence the following new projects:

- A 12 month project to prepare a business case for the introduction of continuous vehicle registration schemes, including end-of-life reporting, to replace the current registration models in existence throughout Australia.
- A 12 month project to research and develop a national standard for the physical security features of driver licences in Australia
- A 2 year project to develop a national motorcycle specific hazard perception test
- A 12 month project to develop a national policy framework for Segways to ensure that they can safely operate on the road and road related areas and that they are treated consistently in terms of registration and licensing practices across Australia.

Safety Program

Program objective: to prevent death and serious injuries using a safe system approach

$2.02m expenditure

38 projects, 10 completed in 2012-13

Working towards…

- 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.

Safety Program

Program Manager: Pam Palmer
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Program Assistant: Deborah Evans
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Safety Task Force

- Colin Brodie, NZTA
- Iain Cameron, MR WA
- Geoff Davidson, ACT
- Deborah Davis, DIER Tas
- James Holgate, VicRoads
- Julie Holmes, DPTI SA
- Marcus James, DIT
- Nick Papandonakis, DoT NT
- Pam Palmer, TMR Qld
- Jeff Potter, NTC
- Margaret Prendergast, Transport for NSW

Program Highlights

Completed Projects

The Safety Program completed 10 projects in 2012-13.

- **Best Practice in Point-to-point Enforcement**

12 month $100,000 project: incorporating a literature review and consultations with Australian, New Zealand and European jurisdictions as well as stakeholders such as Australia and New Zealand police and road agencies.
2012-13 outputs: Research Report AP-R415-12 Point-to-point Speed Enforcement

Point-to-point speed enforcement is used widely in overseas jurisdictions and evaluations of its use have found that it is effective in both reducing speeding and crashes. In some locations point-to-point speed enforcement has reduced speeding and crashes by around 50% however it is not widely used in Australia. As point-to-point is a relatively new method of enforcement it is important that best practice is established to guide its roll out in Australia. The final project report made a number of recommendations for better practice including operational, technological, legislative, public education, evaluation and privacy recommendations.

- **Impact of Roadside Advertising on Road Safety**

Two-year $85,500 project: incorporating a literature review, documentation of current practice and the human factors related to the operational characteristics of digital display technology, development of best practice principles and guidelines.
2012-13 outputs: Research Report AP-R420-13 Impact of Road Advertising on Road Safety

This project was undertaken to harmonise the criteria used to manage roadside advertising devices and promote improved and consistent practice by road agencies. Most importantly, the outcomes will assist road agencies to understand and address a significant emerging safety issue – the use of digital display technology for outdoor advertising signs.

- **Improving Safety of Heavy Vehicles in Urban Areas – Stage 1**

Five-year $440,000 project: incorporating a literature review, analysis of heavy vehicle crashes in urban areas across Australia and New Zealand, consultations with key stakeholders, a review of the implementation of road based safety measures proposed within the National Heavy Vehicle Safety Strategy and Action Plans.
2012-13 outputs: Research Report AP-R425-13 Improving the Safety of Heavy Vehicles in Urban Areas – A Crash Analysis and Review of Potential Infrastructure and ITS Countermeasures

More than 80% of crashes involving trucks in Australia occur in urban areas and safety concerns have been heightened with predictions that heavy vehicle activity will increase markedly over the coming years. This research examined the primary contributing factors in heavy vehicle crashes on urban roads and options for countermeasures. The project involved consultation with industry, community and road agencies. The final report discussed the treatments that could be considered by Australian and New Zealand agencies to address the identified safety deficiencies. It explored the suitability and effectiveness of intelligent transport system (ITS) based treatments and nominated three countermeasures for consideration by Austroads as future trials.

- **Traffic Management and Infrastructure: Lessons from In-depth Crash Investigation**

  Three-year $130,000 project: incorporating a review of approximately 700 crash records from the CASR in-depth study of rural crashes.
  2012-13 outputs: Research Report AP-R418-12 Traffic Management and Infrastructure: Lessons from In-depth Crash Investigation

  Current traffic management and engineering practices are doing much to reduce the frequency and severity of road crashes, but most judgments on effectiveness are based on traffic accident data routinely collected by the police. This data may be adequate for aggregate analyses of the road network in general, but they lack detail about factors that contribute to the causation and consequences of crashes, especially those related to road infrastructure and traffic management.

  In-depth crash investigations can provide detailed information on the performance of road infrastructure and traffic management practices, including the circumstances surrounding the crash, the perception of the road environment by the crash participants and whether the road infrastructure actually performed as intended. In some cases this approach can identify possibilities for the further improvement of current standards and guidelines. This study reinforced the view that current road design and traffic management practices do not optimise for human factors and vehicle occupant protection design and the final report made 52 recommendations for change and additional research.

- **The Impact of Changes in the Australian Vehicle Fleet on Crashworthiness and Crash Outcomes**

  Three-year $200,000 project: incorporating an in-depth examination of Australian crash and vehicle registration data.
  2012-13 outputs: Research Report AP-R428-13 The Impact of Changes in the Australian Light Vehicle Fleet on Crashworthiness and Crash Outcomes

  This project examined literature, Australian crash data and Australian vehicle registration data to re-examine the role of vehicle mass and vehicle type in determining crash outcomes. The analysis was conducted with the intention of disseminating the findings through journal articles and conference paper presentations. The report contains the following studies:

  - a critical review and discussion of the literature that deals with the role of car mass in secondary safety
  - two matched pairs analyses of drivers in the same collision to estimate effects of vehicle year of manufacture and vehicle mass on differential fatality risks
  - two analyses of driver fatality risk in single vehicle crashes to estimate effects of vehicle mass and vehicle year on fatality risk
  - an analysis of vehicle registration data from New South Wales to examine trends in the changing light vehicle fleet in respect of vehicle type and vehicle mass, and a brief analysis of crash data to examine the prevalence of certain vehicle combinations in crashes
  - a study on the effect of the differences in vehicle type on asymmetrical risks in two car crashes
  - a short paper on the role of vehicle mass on secondary safety with an analysis of US NCAP crash data to examine the effect of vehicle mass on dummy loads measured in crash tests.

  It is hoped that the findings will contribute to discussions about occupant safety, incompatibility and fleet mix on Australian roads.

- **Road Safety Risk Assessment – Dissemination of Research Findings, and Updating of Crash Data Bases and Crash Reduction Factors**

  Four-year $128,000 project: incorporating the development and distribution of 11 technical reports.
  2012-13 outputs: development and maintenance of a comprehensive Australian crash database.

  This project disseminated the findings of an earlier Austroads road safety engineering risk assessment project to encourage the application of new and current knowledge in road safety practices. The project also included the development and maintenance of a database of crashes from around Australia. This source of information is the most comprehensive record of crashes available in Australia.

- **Safe System Demonstration Project Involving an Indigenous Community – Stage 2**

  Two-year $100,000 project: incorporating implementation of an Indigenous safe system demonstration project
  2012-13 outputs: Research Report AP-R429-13 Safe System Demonstration Project involving an Indigenous Community
  Installation of a pedestrian crossing, reparation of fencing, increased community capacity in Bidyadanga WA.

  Indigenous Australians are significantly over represented in road crash statistics, comprising 10% of the deaths and 5% of the serious injuries annually, while only representing 2.5% of the population. This project, jointly funded by Austroads and the Road Trauma Trust Fund WA, examined the capacity and systems across government and stakeholder groups to implement the safe system approach in remote areas.

  The project report documents the implementation of the Indigenous Safe System Demonstration Project in Bidyadanga, Western Australia including development of a funding strategy. Progress was made on two priority issues: installing a pedestrian crossing at the main intersection; and reparation of fencing of an adjacent property to stop cattle wandering on the main highway and into the community. The project had to overcome significant challenges. While this project has focused on a remote Aboriginal community, the methods applied are intended to be replicable across Australia. The project demonstrated that working in partnership with communities, road agencies and other supporting organisations, road safety priorities can be identified and implementation and funding strategies achieved. However, without improved cooperation between agencies on governance and sustained funding, ensuring the safe system approach to road safety extends to indigenous communities is unlikely to be realised.

- **Speed Enforcement – National Survey of Driver Attitudes**

  Three-year $350,000 project: incorporating an audit of existing speed enforcement strategies in all Australian and New Zealand jurisdictions; a review of research into attitudes towards speeding and speed enforcement in Australian and New Zealand; focus group discussions with drivers in Australia and New Zealand to explore their attitudes towards speeding and speed enforcement, knowledge about speed enforcement, and self-reported behaviours; and a survey of 3,152 drivers in Australia and New Zealand to quantify their attitudes towards speeding and speed enforcement, knowledge about speed enforcement, and self-reported behaviours.
  2012-13 outputs: Research Report AP-R433-13 Driver Attitudes to Speed Enforcement

  Speed is a key factor in the risk of being involved in a crash and the severity of injury if a crash occurs. This project was undertaken to gain a greater understanding of community attitudes to and acceptance of various methods of speed enforcement. The study found that it is common for drivers to think that other drivers who drive faster than they do are a safety threat, but they mostly see their own driving as being under control and therefore 'safe enough'. In discussion groups, drivers indicated that the fear of being caught was usually the most salient negative consequence of speeding, and was therefore the most prominent consideration in choosing driving speed. Drivers who said that they at least sometimes drove above the speed limit tended to report that, in the absence of a clear and immediate threat of being caught, they drove at a speed that 'felt safe'.

  More survey respondents reported that they were deterred by the threat of immediate licence suspension than by a fine or demerit points. Almost all discussion group participants were interested in knowing what revenue raised through speeding fines was spent on, and thought that transparency around this issue may make them more accepting of fines. The research outcomes will be used by road agencies to develop and review speed enforcement strategies, speed penalty structures and use of 'tolerances' in each state. It is expected that the results will provide evidence for best practice models of speed enforcement.

- **Update Guide to Road Safety**

  12 month $20,000 project: incorporating an update of crash data references, a literature review.
  2012-13 outputs: Austroads Guide AGRS01-13 Guide to Road Safety Part 1: Road Safety Overview
  Austroads Guide AGRS02-13 Guide to Road Safety Part 2: Road Safety Strategy and Evaluation

  This project updated Parts 1 and 2 of the Guide to Road Safety:

  - In *Guide to Road Safety Part 1: Road Safety Overview* the costs of road crashes was updated, approaches to calculating crash costs were added including differences between human capital approach and willingness to pay, and graphs comparing fatalities and serious injuries with other OECD countries were updated.
  - In *Guide to Road Safety Part 2: Road Safety Strategy and Evaluation* the Safe System content was updated throughout, and information on developing a road safety strategy, selection of countermeasures and references to road safety strategies and action plans were updated. Intermediate KPIs and a section on other Austroads guidance on evaluation were added.

- **Road Safety Audit and Road Safety Engineering Toolkit – Site Maintenance**

  Four-year $65,000 project: incorporating web hosting, account maintenance, user assistance and updates to user manuals..
  2012-13 outputs:
  Road Safety Audit Toolkit website www.rsatoolkit.com.au
  Road Safety Engineering Toolkit website www.engtoolkit.com.au

  The Road Safety Audit Toolkit is an online tool that helps practitioners conduct audits in accord with the Austroads Road Safety Audit Guide. The Road Safety Engineering Toolkit is a reference tool for road engineering practitioners. This project provided ongoing hosting the toolkits online, as well as administration of the tools (including account setup and maintenance), and provision of a help desk function for users.

New and Continuing Projects

The Safety Program progressed work on 28 new and continuing projects in 2012-13.

- **National Risk Assessment Model, Program Development and Trials |** The project will develop a robust, pro-active risk assessment model.
- **Review of BAC Limits in Australia and New Zealand |** This two year review of blood/breath alcohol concentration (BAC) limits will help to inform the development of policies, including regulatory impact statements. This project has been designed to address Action 35 of the National Road Safety Strategy.
- **Options to Extend Coverage of Alcohol Interlocks |** This 12 months project will examine options to extend the coverage of alcohol interlock programs to a wider segment of drink driving offenders, other high risk groups, corporate fleets and, if appropriate, the broader driving population on a voluntary basis. The project has been designed to inform or address Actions 36(a), (b) and (c) of the National Road Safety Strategy.
- **Options for Rehabilitation in Interlock Programs |** This two year project will investigate options to promote rehabilitation from alcohol dependence as part of an alcohol interlock program. The project has been designed to inform or address Action 36(d) of the National Road Safety Strategy.
- **Towards the Harmonisation of Best Practice Speed Limits |** A key Austroads objective is to promote harmonisation, consistence and uniformity in road and related operations. This two year project will establish a technical basis to work towards harmonised speed limit practice.
- **Safety, Operational and Environmental Impacts of Reduced Speed Limits |** This two year project will estimate the impacts of reducing speed limits on the operation of urban and rural arterial networks. It will include an examination of travel time, overall journey time, average and point speeds, level of service, casualty crash and injury numbers, air pollutant emissions, fuel use and economic impacts. The information will assist in the formulation of future speed management policies.
- **National Guidelines for Setting Speed Limits at Higher-Risk Locations |** This two year project will develop national guidelines to assess and implement reduced speed limits on higher-risk roads and intersections and road lengths not amenable to cost-effective engineering fixes.
- **Achieving Safe System Speeds on Urban Arterial Roads |** A significant proportion of road crashes occur on urban arterial roads. Vulnerable road users are at particularly risk on these roads and this three year project will identify solutions for managing speeds on them.
- **Methods to Achieve Overall Reductions in Operating Speeds in Rural Areas |** This four year project examines ways to reduce the overall operating speed of vehicles in rural environments and to reduce the incidence of speed related crashes in rural areas.
- **Improving Safety for Disadvantaged Groups|** The National Road Safety Strategy identifies reducing the incidence of serious casualties within indigenous communities and among other disadvantaged people as a key challenge. This three year project will identify the extent, nature and location of crashes likely to involve disadvantaged people, and recommend strategies to address these issues.
- **Development of Good Practice Enforcement Guidelines |** Enforcement is a key intervention for addressing irresponsible road use and is a focus of the National Road Safety Strategy. The objective of this project is to encourage enforcement strategies based on demonstrated good practice with the aim of encouraging alert and compliant road users, consistent with the safe system approach.
- **Development of a Model Safety Management System for a Road Authority |** The Standard ISO39001 Road Traffic Safety Management, published in 2012, is a voluntary tool to help organisations embed the Safe System approach in their everyday operations. This project aims to support early adoption of the Standard.

- **Safe System in the Planning Process |** The National Road Safety Strategy identifies the need to improve land use planning to reflect safe system principles. This 12 month project will strengthen techniques for integrating safe system principles at an early stage of land use planning.
- **Safe System Roads for Local Government |** Austroads Report AP-R359-10 *Road Safety on Local Government Roads* made a number of recommendations that would improve safety on local government roads. This three year technical research project will progress the most important of these recommendations.
- **Improving the Performance of Safe System Infrastructure |** This three year project will review the performance of road infrastructure elements identified as safe system solutions to establish how close they fit the vision's objectives. It will identify areas of their design, application and maintenance which could be improved to bring their safety performance closer to meeting safe system objectives.
- **Improving Roadside Safety |** This four year project aims to improve the safety of the road side by investigating the effectiveness of safety barrier placement, providing more forgiving infrastructure poles or protecting against them, and by investigating the retrofitting safety barriers for improved motorcycle safety.
- **Providing for Road User Error in the Safe System |** This project will assist in the development of policy that relates to the extent to which the road system can be built to accommodate unsafe road user behaviour. It will examine the costs associated with the necessary changes in design and practice and the role of other approaches such as safer vehicles, enforcement and legislation.
- **Road Crash Injuries – Cost and Prevention |** This four year project aims to improve understanding of the true burden and cost of major road crashes resulting in injuries. The study will enable the types and causes of road related injuries to be identified which will inform preventative strategies. It will also highlight the real cost to the community which will be invaluable in justifying future road safety improvements.
- **Investigation of Key Crash Types – Head-on and Run-off Road Crashes in Urban Areas |** This 12 month project will investigate in detail head-on and runoff-road crashes and identify infrastructure options that will reduce the incidence and severity of this type of crash.
- **Motorcycle In-depth Crash Study |** This three year in-depth analysis of motorcycle crashes will inform the development of targeted road safety policies and programs to reduce motorcycle crashes and road trauma.
- **Crash Analysis – Australian and New Zealand Data |** This four year project will develop a database that will provide information on key crash types by severity. It will enable comparisons of crash performance between jurisdictions to identify areas where gains towards Safe System outcomes can be made.
- **Development of a Detection and Advanced Warning System for At-risk Heavy Commercial Vehicles on Steep Descents |** This two year technical research project will determine whether a technological solution is available that can identify laden heavy vehicles, their speed and configuration and provide appropriate 'early warning' of unsafe operation on descents.
- **Development of a Model Graduated Licensing Scheme for Car Drivers and Motorcycle Riders |** The Safety Taskforce is managing two projects relating to graduated licence schemes. One project aims to harmonise the existing practice of driver licensing agencies in relation to graduated licensing schemes for car drivers. The other will develop a graduated licensing scheme for motorcycle riders.
- **Recommended Safe System Practice Improvements to the Guide to Road Design |** This two year project will make recommendations to amend the Guide to Road Design to incorporate road infrastructure characteristics and design elements which incorporate Safe System principles.
- **Revision of Guide to Road Safety |** There are projects underway to update Austroads Guide to Road Safety Part 6: Road Safety Audit and Part 8: Treatment of Crash Locations.
- **Road Safety Audit and Road Safety Engineering Toolkit |** This project will provide ongoing hosting and maintenance for the Road Safety Audit Toolkit and the Road Safety Engineering Toolkit over the next four years.

Future Focus

In 2013-14 the Safety Program plans to commence six new projects including:

- A three year investigation of treated black spots that did not achieve expected safety benefits
- A 12 month project to support the early adoption of ISO39001 'Road Traffic Safety Management' in Australia leading to the development of a model safety management for roads and traffic
- A two year project to determine the influence of road infrastructure elements in the incidence and severity of motorcycle-related crashes, and to identify infrastructure solutions that may help reduce these crashes
- A 12 month review of the Guide to Road Safety to determine its value to road safety practitioners and to consider recommendations on its current and future composition.

Technology Program

Program objective:
to promote best practice and innovation

$4.93m expenditure

47 projects, 13 completed in 2012-13

Working towards…

- 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)
- Improved evaluation methods for bridge load capacity including deterioration models
- Enhanced bridge design guidelines
- Enhanced economic evaluation, methodology and data
- Austroads Guides updated and improved with integration of jurisdictional supplements
- Nationally harmonised project delivery initiatives
- Revision of Bridge Design Standard AS5100
- National product assessment framework.

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Other technical groups

- Bituminous Surfacings Working Group
- Asphalt Working Group
- Pavement Structures Working Group

Program Highlights

Completed Projects

The Technology Program completed 13 projects in 2012-13.

- **Social Cost of Road Crashes in Australia: The Case for Willingness to Pay Values for Road Safety**

12 month $80,000 project: incorporating review of local experience and literature, development of interim values, and scoping of a national willingness to pay survey.
Outputs: AP-R438-13 Social Cost of Road Crashes in Australia: The Case for Willingness-to-pay (WTP) Values for Road Safety to be published in late 2013.

Australian approaches to estimating the economic benefits of safety measures have been based on the human capital method of valuing human life. This technique treats an individual as a productive entity and involves estimating the victim's earning stream from the time of their premature death to the end of their actuarially expected lifetime. An alternative approach is Willingness to Pay (WTP) which attempts to measure society's willingness to pay for avoiding death, injury, and damage outcomes from road crashes.

The National Road Safety Strategy 2011-2020 identifies the development of a nationally agreed approach to applying WTP methodology as one of the actions to be undertaken in the first three years of the Strategy. The fundamental objective of this project was to scope the application of WTP approaches to estimating the social cost of crashes. The report provides a broad indication of methodology, project components, expertise available and indicative costs required for producing a robust national WTP estimate.

- **Aggregate Polishing Test – Replacing Reference Aggregate**

Three-year $340,000 project: incorporating purchasing new aggregate for use in experiments, investigating the sensitivity of test results to different experimental conditions and studies with seven laboratories.
2012-13 outputs: Technical Report AP-T211-12 A New Reference Aggregate for PAFV Testing
Technical Report AP-T212-12 Establishing a Reference Aggregate for Aggregate Polishing Tests

Polished Aggregate Friction Value (PAFV) tests are used by most jurisdictions to determine the resistance of aggregates to the polishing action of vehicle tyres on the road and are important in their management of skid resistance risks. The tests require the use of a reference aggregate from the Panmure quarry in Victoria so that results can be normalised to a common reference. New supplies of Panmure aggregate can no longer be obtained from the source quarry, as it closed many years ago, and existing laboratory stocks (which were obtained in the 1970s) are almost depleted.

It was decided that the reference aggregate used in international tests (UK aggregate) would be adopted for PAFV tests in the future. The use of UK aggregate as the reference material required a PAFV friction value to be assigned to this material. A proficiency study, involving seven laboratories, was conducted in order to assign PAFV friction values to the UK aggregate. The final reports provided the friction values unpolished and polished UK aggregate and suggested changes to the Austroads test method.

- **Improved Design of Foamed Bituminous Stabilised Pavements – Early Life Characteristics**

Two-year $360,000 project: incorporating construction and laboratory assessment of bituminous stabilised test pavements.
2012-13 outputs: Technical Report AP-T226-13 Improved Design of Foamed Bituminous Stabilised Pavements

More than 90% of the Australian sealed road network consists of sprayed seal granular pavements. Increasing traffic loadings are placing increasing pressure on these pavements and many are reaching the end of their design life.

The 2011 *Austroads Guide to Pavement Technology Part 5: Pavement Evaluation and Treatment Design* includes an interim procedure for the thickness design of foamed bitumen stabilised pavements. This project was undertaken to validate the interim procedure to provide a more accurate predicted design life of these pavements. Road agencies contributed nine road trials of in-service of foamed bitumen stabilised pavements to the project along with information on pavement design, construction and field performance. The project report assesses the pavements against the data requirements for the validation of the interim procedure. It recommends collecting additional performance data from the field trials to improve understanding of the major factors contributing to the field performance and to validate the procedure.

- **Management of Scarce and Quality Resources**

  Five-year $525,000 project: incorporating development of test procedures to assess the future performance of binders, monitoring Australian bitumen supplies and testing candidate overseas bitumens
  2012-13 outputs:
  Technical Report AP-T209-12 Fourth National Survey of Australian Bitumens
  Technical Report AP-T213-12 National Survey of Australian Bitumens 2006 to 2012

  Bitumen and high quality aggregate are becoming increasingly scarce and more expensive and Australian surfacing systems rely on these materials to support a cost efficient road network. This project will help ensure that Australia has future access to binder and aggregate supplies of suitable quality and in sufficient quantity to meet road making requirements.

- **Optimising Binder Performance**

  Five-year $1,314,000 project, incorporating identification of key binder properties, development of test equipment and methods, preparation of a binder specification, and production of an improved binder selection guide.
  2012-13 outputs:
  Technical Report AP-T204-12 Segregation and Degradation in Commercial Styrene Butadiene Binders
  Technical Report AP-T225-13 Development of Long-term Ageing Test Method for Sprayed Sealing Binders
  Technical Report AP-T227-13 Investigation into the Effects of Polymer Segregation and Degradation in Polymer Modified Binders

  Binder is the key component which dictates the performance and service life of sprayed seals and asphalt surfacings. Increased traffic stressing and mounting pressure from road users for improved surface characteristics mean that improvements must be made in binder properties and in selecting the appropriate binder for the task. The three reports produced in the final year of the project:

  - examined a range of Australian commercial polymer modified binders (PMB) to determine the extent of segregation problems and propose measures to help prevent changes in PMB properties during transport and storage
  - presented the results of a laboratory study to investigate development of a new durability test method for sprayed sealing binders that is acceptable for use in Australia
  - compared the results from Australian and European tests associated with PMB specification to determine the sensitivity of each test to polymer separation and investigate which of the tests best predicted whether conventional field mixing protocols could be used to redisperse the polymer in PMBs after the polymer had segregated.

- **Performance of Warm Mix Asphalt**

  Four-year $829,000 project: incorporating a literature review, an examination of the requirements and parameters for specifications, an evaluation report on the new processes, a workshop to evaluate the proposed procedures, and an evaluation of existing and new test methods applicable to warm mix asphalt.
  2012-13 outputs:
  Technical Report AP-T214-12 Field Validation of Warm Mix Asphalt Pavements in Melbourne, Australia
  Technical Report AP-T215-12 Review of Overseas Trials of Warm Mix Asphalt Pavements and Current Usage by Austroads Members
  Technical Report AP-T230-13 Laboratory Evaluation of Warm Mix Asphalt Mixes
  Technical Report AP-T231-13 Evaluation Protocol for Warm Mix Asphalt

  The asphalt industry worldwide is committed to reducing the impacts of its operations on global warming and there are many global agreements and national and state legislative requirements which industry is obliged to meet. The main source of emissions in the asphalt sector arises from the heating and drying of aggregates. This project evaluated the performance of warm mix asphalt (WMA) technologies against conventional hot mix asphalt (HMA) and included:

  - development of a WMA Evaluation Protocol to guide the evaluation of WMA technologies and processes such as additives, surfactants and foamed bitumen
  - a literature review of existing CO2 emission calculators with a view to recommending a system for inclusion into the WMA Evaluation Protocol
  - a review of field trials of WMA technologies conducted in various countries in the world, with the emphasis on field performance data that could be used to complement the Austroads WMA evaluation field trial
  - comprehensive field validation assessment of some WMA technologies and HMA surfacings to compare their short-term performance and an extensive laboratory testing program to characterise the properties of the mixes used in the field validation project.

- **Improved Rut Resistance Characterisation of Granular Bases**

Three-year $719,000 project: incorporating commissioning a new wheel-tracking device and developing test methods to enable laboratory performance assessment of unbound granular pavement materials.
2012-13 outputs:
Technical Report AP-T239-13 Manufacture and Commissioning of a Wheel Tracking Device
Technical Report AP-T240-13 Development of a Wheel Tracking Test for Rut Resistance Characterisation on Unbound Granular Materials

For many years Australasia has led the world in the design and management of low cost sealed unbound granular pavements. This has allowed for the provision of sealed road access to secluded areas which would otherwise only be serviced by gravel roads. However, much of the design and specification technology for unbound granular pavements remains empirically-based. This poses a significant challenge to road agencies and road design practitioners as they are under increasing pressure to deliver higher levels of serviceability to road users.

Given the limitations of contemporary empirical-based design, a performance-based testing method was needed to accurately assess and predict the likely future performance of granular pavements. Austroads commissioned ARRB to obtain an appropriate wheel-tracking device to assist with this task and to develop test methods to allow the laboratory performance assessment of unbound granular pavement materials. A worldwide review of existing devices was conducted and it was concluded that a new machine design would be best suited to compact large unbound granular samples. The Australian company IPC Global was chosen to design and manufacture the new machine and the machine was commissioned in the ARRB laboratories. The project reports outline the key stages of development of the wheel-tracking apparatus.

- **Maintaining the Rural Road Network**

Five-year $1,339,000 project: incorporating improvements to critical parts of the spray sealing process, quantifying a factor associated with the potential heavy vehicle damage for incorporation into the Austroads seal design procedure, development of a selection process to match surfacing and binder type to traffic demand, identification of binder delivery systems which address environmental, and occupational health and safety issues.
2012-13 outputs:
Technical Report AP-T207-12 The Effects of Heavy Vehicle Single, Tandem and Triaxle Groupings on Sprayed Seal Wear – Stage 1
Technical Report AP-T208-12 Aggregate Wetting Experiments and Effects on Recommended Polymer Modified Binder Cutter Levels
Technical Report AP-T210-12 Aggregate Wetting Experiments and Initial Adhesion of Sprayed Sealing Binders
Technical Report AP-T235-13 Guide to the Selection and use of Polymer Modified Binders and Multigrade Bitumens
Technical Report AP-T236-13 Update of Double / Double Design for Austroads Sprayed Seal Design Methods

Increasing numbers and loadings of heavy vehicles, together with a scarcity of suitable materials, are putting pressure on rural road networks. The spray sealing process, the basis of Australia's low cost road network, requires considerable expertise and skill which are rapidly being lost as older workers retire. This project undertook extensive research work to ensure that sprayed seals remain a viable option for rural networks in Australia and New Zealand. In 2012-13 the project produced five technical reports including an update of the design procedure for double/double sprayed seal surfacing and a guide to the selection of modified binders including multigrade bitumens for different treatments and service conditions.

- **Strategic Review of Pavement Design Practice**

Five-year $860,000 project: incorporating a strategic review of Guide to Pavement Technology Part 2 and multiple research projects to support the recommended improvements.
2012-13 outputs:
Research Report AP-R434-13 Review of Definition of Modified Granular Materials and Bound Materials
Research Report AP-R435-13 Proposed Procedures for the Design of Pavements on Selected Subgrade and Lime Stabilised Subgrade Materials

Austroads *Guide to Pavement Technology Part 2: Pavement Structural Design* contains procedures for the design of flexible pavements consisting of unbound granular materials, flexible pavements that contain one or more bound layers, and rigid pavements, such as concrete. A strategic review of the Guide identified areas for improvement and outlined the research required to develop and implement the design improvements.

Over the life of the project seven reports were published, the final two were published in 2012-13. These reports recommended changes to the unconfined compressive strength design criteria and design procedures for pavements on selected subgrade and lime stabilised subgrade materials. It is anticipated that these procedures will included in the next edition of the Guide.

- **Expanded Operating Speed Model**

  Three-year $250,000 project: incorporating a literature review, a driver behaviour review, data collection and analysis and development of speed models – including effect of grades.
  2012-13 outputs: Technical Report AP-T229-13 Expanded Operating Speed Model

  This project was established to update and expand the road design operating speed models used in Australia. In particular, the project reviewed the validity of the existing operating speed model for rural roads and identified adjustments to the model that reflect changes in driver speed behaviour. This included the deceleration of cars and heavy vehicles on horizontal curves and the influence of horizontal curves in sequence.

  This report documents the process used to collect and analyse speed data on horizontal curves, and assesses the implications in terms of the deceleration on curves for cars and trucks and the influence of curves in sequence. The report includes potential revisions for the existing operating speed model for horizontal curves.

- **Review of the Austroads Design Vehicles and Turning Path Templates**

  12 month $40,000 project: incorporating the third revision of the design vehicles and turning templates.
  2012-13 outputs: Austroads Guide AP-G34-13 Austroads Design Vehicles and Turning Path Templates and 43 turning templates

  The Austroads *Design Vehicles and Turning Path Templates* was developed to assist intersection designers and contains: user information and a guide covering the basis of turning templates and road hierarchy; design vehicle dimensions and 43 turning templates. The publication was updated and an online seminar providing an overview of the updates attracted more than 100 practitioners.

- **Update to the Guide to Road Design Part 5: Drainage Design**

  Two-year $130,000 project: incorporating Austroads Guide review, expansion and update.
  2012-13 outputs:
  Austroads Guide AGRD05-13 Guide to Road Design Part 5: General and Hydrology Considerations
  Austroads Guide AGRD05A-13 Guide to Road Design Part 5A: Road Surface, Networks, Basins and Subsurface
  Austroads Guide AGRD05B-13 Guide to Road Design Part 5B: Open Channels, Culverts and Floodways

  Austroads Guide to Road Design Part 5 provides guidance to designers providing their communities with efficient and effective road drainage systems. The Guide was extensively reviewed and expanded to three parts. The new Guides contains information and worked examples covering the analysis and design of key drainage components such as open drains and channels, pit and pipe systems, culverts, floodways and small basins. Guidance is also provided to enable designers to gain an appreciation of other aspects, such as environmental issues and construction, maintenance and operation of the drainage network.

- **Enhancing Components of Economic Appraisal: Incorporation of panel comments to proposed changes to Guide to Project Evaluation**

  12 month $7,500 project: incorporating Austroads Guide update.
  2012-13 outputs:
  Austroads Guide AGPE02-12 - Guide to Project Evaluation Part 2: Project Evaluation Methodology
  Austroads Guide AGPE04-12 - Guide to Project Evaluation Part 4: Project Evaluation Data

  This project incorporated changes to the Guide to Project Evaluation arising from a previous Austroads Project that recommended changes relating to processes associated with benefit-cost analyses, the valuation of travel time, the treatment of small travel time savings, and the implications of speed-flow relationships on project appraisal.

New and Continuing Projects

The Technology Program progressed work on 34 new and continuing projects in 2012-13

- **Tendering and Contracting Principles and Procurement Options Guide |** The Council of Australian Governments' Infrastructure Working Group has requested Austroads jointly develop with the Australasian Procurement and Construction Council a Best Practice Guide to infrastructure Procurement. This project will develop the Guide accommodate the content within the Austroads Guide to Project Delivery.
- **Updating Externalities Unit Values |** The Austroads updates of unit values and cost estimation algorithms used as inputs for urban and non-urban road investment evaluation models have become the industry standard in Australia. This project will update the environmental externalities unit values to reflect updated 'base source' estimates originally used in the estimation of these unit values.

- **Review of the National Guidelines for Transport System Management |** In consultation with the Commonwealth, states, territories and local government, as well as other relevant stakeholders, this project will update the National Guidelines for Transport System Management and incorporate a range of other guidelines (including the Austroads Guide to Project Evaluation and Guide to Road Transport Planning) to develop a single set of national transport guidelines.
- **National Prequalification System – Additional Specialist Categories |** The current National Prequalification Scheme assesses road and bridge construction contractors against identical criteria in all Australian states and territories. Once prequalified in one jurisdiction, contractors can apply for mutual recognition in others. This promotes consistency and information sharing amongst jurisdictions and reduces effort for jurisdictions and construction contractors. This project will expand the National Prequalification System to include categories for: precast concrete products, fabricated steel products, traffic management and control, protective coating of steel products, laboratories, and laying asphalt and bitumen surfacing.
- **Validation of Enhanced Pavement Design Model |** The aim of this three year project is to reduce road agency costs by developing improved structural methods for the thickness design of new flexible pavements.
- **Pavement Wear Effects of Heavy Vehicle Axle Groups |** The purpose of this four year $1.83m project is to provide the fundamental relationships between heavy vehicle axle types and loads and pavement wear for Australian roads. The linkage of different load and axle combinations to future pavement wear is vital to important initiatives like the Performance Based Specifications for vehicle design and the possible introduction of new heavy vehicle charges.
- **Characterisation and Performance Evaluation of Granular Bases |** This four year $2.95m project is designed to maximise the use of available materials in road base construction, and reduce road agency costs, by developing effective methods for evaluating the performance of unbound granular materials. The project will undertake testing of up to four unbound granular materials, with a wide range of expected rut resistance, under the Accelerated Loading Facility. These materials will also be subjected to wheel-tracking testing, using the extra-large wheel-tracker, and repeated load triaxial testing.
- **Investigating Key Performance Measures and Predictions on Unsealed Roads |** Australia does not have models for predicting the impact of blading by grader and rehabilitation involving grading and compaction on roughness on unsealed roads. This two year project will measure gravel road roughness pre and post blading by grader, measure pre and post roughness of gravel resheeting for rehabilitation works, and develop and validate road deterioration models for roughness.
- **Development and Validation of a New Long-term Aging Test for Bitumens and PMBs |** This three year project will develop a robust long-term aging test method for bitumens and polymer modified binders resolving the limitations of the current method. This work will maximise the cost effectiveness and life of sprayed seals in a changing supply and manufacturing environment.
- **Polymer Modified Binder Sprayed Seal Trials |** This project will provide a measure of the relative performance of current polymer modified binders used in strain alleviating membranes in sprayed bituminous sealing and will update the Austroads specification framework.
- **Maximising the Performance of Sprayed Seals |** This four year project aims to maintain sprayed sealing as a viable low cost surfacing treatment over Australia's existing flexible pavement network. The project will examine seal design and construction, potential improvements to emulsions, laboratory performance predictor tests, and ways of maintaining the skills of practitioners in an operating environment that is undergoing significant change.
- **Binder Characterisation Properties for Enhanced Performance |** This four year, $1m project aims to assist Austroads members and industry identify best practices in the use of binders to achieve optimum pavement performance. The project will focus on: promoting best practice in the selection and design of surfacings and binders; developing and refining performance based binder specifications and test equipment and methods; and monitoring and investigating existing binder performance field trials.
- **Mix Design and Field Evaluation of Foamed Bitumen Stabilised Pavements |** This four year $1.4m project follows on from a project finalised this year which recommended additional research to improve procedures for the design of foamed bituminous stabilised materials for new pavements and structural rehabilitation treatments. The project will identify distress modes of bituminous stabilised pavement and improve national mix design procedures.
- **Asphalt Properties and Mix Design Procedures |** This six year $2.26m project will validate and expand the Austroads asphalt mix design procedure. The project will introduce procedures for improved mix types such as stone mastic asphalt and ensure that asphalt mixes will meet future environmental and safety requirements.

- **Improved Design Procedures for Asphalt Pavements |** This three year project will provide improved procedures for the design of asphalt pavements with structural asphalt layers by developing improved procedures for determining asphalt moduli and evaluating asphalt endurance limits methods.
- **Maximising the Use of Reclaimed Asphalt Pavement in Asphalt Mix Design |** With the rising demand for environmentally friendly asphalt there is an increased use of Reclaimed Asphalt Product (RAP) in asphalt mixes. It is important to understand the properties of the binder in the RAP are and how they contribute to the long term performance of the asphalt. This three year project will provide road agencies with an understanding of the bitumen within RAP. This will ensure long term performance of asphalt and bring Australia into line with world best practice.
- **Cemented Materials Characterisation |** A previous Austroads Project investigated the fatigue performance of a range of cemented materials and found the fatigue relationship in the Austroads Guide to Pavement Technology requires revision. This project will develop a new fatigue cemented materials relationship and review the presumptive flexural modulus values in the Guide.
- **Specification and Use of Geopolymer Concrete in the Manufacture of Structural and Non-structural Components |** Geopolymer concretes are an emerging technology. Their physical and chemical properties are substantially different to conventional concretes. This four year project will investigate and develop their use in the manufacture of bridge and road related components.
- **Standardise Bridge Barrier Designs |** This project will develop of a set of guidelines for bridge barriers that build on the requirements of Australian Standard AS5100 Bridge Design. The guidelines will assist bridge designers, contractors and asset owners and provide consistency and cost savings in the selection, installation and maintenance of bridge barriers.
- **Review of the ASMS 1994 and the BAG Guidelines for Bridge Load Capacity Assessment 1997 |** This project works towards standardised bridge assessments and heavy vehicle access rules throughout Australia. The project will develop a nationally consistent approach to the assessment of bridges and suitable axle spacing mass schedules considering current and future developments in vehicle design and road network capacity.
- **Improved Deterioration Models, Predictive Tools and Costs |** This two year project will develop uniform, robust and fit-for-purpose bridge deterioration models to determine forward work maintenance and replacement programs for bridges.
- **Realising 100 Year Design Life in an Aggressive Environment |** Bridge elements are very expensive and sometimes impractical to replace once they suffer major deterioration. Ensuring their long term durability is crucial. This four year project will develop specifications for materials and practices to achieve a greater than100 years of service life for major bridge structures.
- **Safety Provisions for Floodways Over Roads |** When vehicles attempt to cross floodways that are under water, they can become buoyant, and are at risk of being swept from the roadway even at low flow velocities. This two year project will promote effective ways of alerting drivers to the dangers of crossing a floodway when it is under water.
- **Road design for heavy vehicles |** This five year project will identify improvements in the current road design standards that will safely accommodate heavy vehicle movements into the future. The project will result in amendments to the Guide to Road Design.
- **Road Geometry Study for Improved Rural Safety |** This four year project will identify road design elements that contribute to crash occurrence and severity. This information will lead to the revision of current road design standards.
- **Standardise Drawing Presentation |** Road agencies and developers of commercially available road design packages use different methods and symbols for displaying road design information on drawings. This can lead to errors and inefficiencies. This project will standardise how road infrastructure information is presented on road design drawings. Over time, this approach will enable stakeholders to gradually migrate their systems towards using the same methods and symbols for displaying road design information.
- **Grade Corrected Acceleration Lengths for Motorway Entrance Ramps |** This two year project will determine acceleration lengths for entrance ramps onto motorways that take into account the grade and that represent a defendable balance between affordability, operational performance and safety. The result will be included in the update of Austroads *Guide to Road Design Part 4C: Interchanges*.
- **Strategic Review of Pavement Design |** This three year project will strategically review the Austroads Guide to Pavement Technology to identify areas where the Guide should be improved and undertake research required to develop and implement these design improvements.

- **Review of Guide to Pavement Technology |** This two year project will substantially update the Austroads *Guide to Pavement Technology Part 4B: Asphalt.*
- **Reviews of Guide to Road Design |** Two projects will update the Guide to Road Design Part 6: Roadside Design, Safety and Barriers and the Guide to Road Design Part 4: Intersections and Crossings - General, Part 4A: Unsignalised and Signalised Intersections, Part 4B: Roundabouts and Part 4C: Interchanges.
- **Review of Existing CPEE Distance Learning Units |** The Centre for Pavement Engineering Education specialises in courses servicing the road and pavement sector. Austroads provides ongoing input to the course materials to ensure they reflect current practice and encourage the use of Austroads Guides and specifications.

Future Focus

In 2013-14 the Technology Program plans to commence 12 new projects:

- A three year project to delivery of a robust pavement design software tool
- A two year project to develop tools for rapid identification of the level of supplementary cementitious materials, such as fly ash, slag or silica fume, that would suppress damaging expansion caused by alkali-reactive aggregates (AAR), and avoid prohibitive repair costs
- A 12 months project to monitor, interpret and report on the performance of the Austroads Polymer Modified Binder sprayed seal trials and the Gisborne non-modified binder trial
- A three year project to develop guidelines for the design of high modulus asphalt mixes and pavement structures containing high modulus asphalt layers
- A two year project to update the Austroads Road User Effects Unit Values to update the *Guide to Project Evaluation Part 4: Project Evaluation Data*
- A two year project to produce an Excel worksheet 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
- Projects to update Parts 1, 2, 3 and 6B of the *Guide to Road Design*
- A project to revise the Austroads *Guide to Road Tunnels Part 2: Planning, Design and Commissioning*
- A two year project to better understand the performance of measures used to gradually reduce vehicle speeds in high speed environments
- A project to update the Bitumen Sealing Safety Guide

Austroads Publications 2012-13

Publication #	Title	Date published
Austroads Guides		
AGPE04-12	Guide to Project Evaluation Part 4: Project Evaluation Data	August 2012
AGPE02-12	Guide to Project Evaluation Part 2: Project Evaluation Methodology	December 2012
APGRS01-13	Guide to Road Safety Part 1: Road Safety Overview	February 2013
APGRS02-13	Guide to Road Safety Part 2: Road Safety Strategy and Evaluation	February 2013
AP-G56-13	Assessing Fitness to Drive: Commercial and Private Vehicle Drivers Medical Standards for Licensing and Clinical Management Guidelines	March 2013
AGTM03-13	Guide to Traffic Management Part 3: Traffic Studies and Analysis	April 2013
AGTM06-13	Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings	April 2013
AP-G34-13	Austroads Design Vehicles and Turning Path Templates	April 2013
AGRD05-13	Guide to Road Design Part 5: Drainage - General and Hydrology Considerations	May 2013
AGRD05A-13	Guide to Road Design Part 5A: Drainage - Road Surface, Networks, Basins and Subsurface	May 2013
AGRD05B-13	Guide to Road Design Part 5B: Drainage - Open Channels, Culverts and Floodways	May 2013
Research Reports		
AP-R409-12	Heavy Vehicle Roughness Band Index: An Alternative Trigger for Pavement Rehabilitation	July 2012
AP-R410-12	Cycling on Higher Speed Roads	July 2012
AP-R411-12	Performance Based Standards Level 1 Length Limit Review	September 2012
AP-R412-12	Managing Asset Management Related Civil Liability Risk	August 2012
AP-R413-12	Cooperative ITS Strategic Plan	August 2012
AP-R414-12	C-ITS 5.9GHz Spectrum Management and Device Licensing Regime Report	August 2012
AP-R415-12	Point-to-point Speed Enforcement	September 2012
AP-R416-12	Carbon and Asphalt: A Review of Environmental Factors Including Emissions Calculators	October 2012
AP-R417-12	A Proposed Heavy Vehicle Rest Area Needs and Prioritisation Methodology	October 2012
AP-R418-12	Traffic Management and Infrastructure - lessons from in-depth crash investigation	October 2012
AP-R419-12	Improving Roadside Safety – Stage 3: Interim Report	November 2012
AP-R420-13	Impact of Road Advertising on Road Safety	January 2013
AP-R421-12	An Introductory Guide for Evaluation Effectiveness of Road Safety Treatments	November 2012
AP-R422-12	Effectiveness of Road Safety Engineering Treatments	November 2012
AP-R423-13	Guide Information for Pedestrian Facilities	February 2013
AP-R424-13	Developing Measures to Reduce the Incidence of Unlicensed Driving – Summary Report	June 2013
AP-R425-13	Improving the Safety of Heavy Vehicles in Urban Areas – A Crash Analysis and Review of Potential Infrastructure and ITS Countermeasures	March 2013
AP-R426-13	The application of Network Operations Planning Framework to assist with Congestion Management and integrated land use and transport	March 2013
AP-R427-13	Best Practice Study on the Use of ITS Standards in Traffic Management	March 2013
AP-R428-13	The Impact of Changes in the Australian Light Vehicle Fleet on Crashworthiness and Crash Outcomes	March 2013
AP-R429-13	Safe System Demonstration Project involving an Indigenous Community: Implementation	April 2013
AP-R430-13	5.9GHz Satellite Interference Study - Field Study	April 2013
AP-R431-13	Vehicle Positioning for C-ITS in Australia (Background Document)	April 2013
AP-R432-13	Emerging Digital Mapping Requirements for C-ITS	April 2013
AP-R433-13	Driver Attitudes to Speed Enforcement	April 2013
AP-R434-13	Review of Definition of Modified Granular Materials and Bound Materials	May 2013
AP-R435-13	Proposed Procedures for the Design of Pavements on Selected Subgrade and Lime Stabilised Subgrade Materials	May 2013
AP-R439-13	Harmonisation of Pilot and Escort Vehicle Driver Requirements	June 2013
AP-R440-13	Best Practice Guidelines for Procurement of ITS Solutions	June 2013
AP-R441-13	Heavy Vehicle Safety Data	June 2013
AP-R442-13	Asset Management Within a Safe System	June 2013
AP-R443-13	Nationally Consistent Heavy Vehicle Rest Area Data Definition Framework	June 2013
AP-R444-13	Review of Variability in Skid Resistance Measurement and Data Management	June 2013

Publication #	Title	Date published
Technical Reports		
AP-T204-12	Segregation and Degradation in Commercial SBS Binders	June 2012
AP-T205-12	Application of New Technologies to Improve Risk Management (Stage 1): Scoping of Potential Technologies	August 2012
AP-T206-12	Investigation into the Properties of Alternative Surfacing Binders and Bitumen Extending Binders	June 2012
AP-T207-12	The Effects of Heavy Vehicle Single, Tandem and Triaxle Groupings on Sprayed Seal Wear – Stage 1	September 2012
AP-T208-12	Aggregate Wetting Experiments and Effects on Recommended Polymer Modified Binder Cutter Levels	September 2012
AP-T209-12	Fourth National Survey of Australian Bitumens	September 2012
AP-T210-12	Aggregate Wetting Experiments and Initial Adhesion of Sprayed Sealing Binders	October 2012
AP-T211-12	A New Reference Aggregate for PAFV Testing	October 2012
AP-T212-12	Establishing a Reference Aggregate for Aggregate Polishing Tests	October 2012
AP-T213-12	National Survey of Australian Bitumens: 2006 to 2012	October 2012
AP-T214-12	Field Validation of Warm Mix Asphalt Pavements	November 2012
AP-T215-12	Review of Overseas Trials of Warm Mix Asphalt Pavements and Current Usage by Austroads Members	November 2012
AP-T216-13	Estimating the Cost of Accelerated Road Wear due to Increased Axle Mass Limits Stage one: Site Identification	March 2013
AP-T217-12	Benefits and risks of investing in network level deflection data collection	November 2012
AP-T218-13	A Study of Stone Mastic Asphalt Bulk Density Measurement	January 2013
AP-T219-13	Mastic Performance Assessment in Stone Mastic Asphalt	January 2013
AP-T220-13	Compaction and Permeability of Stone Mastic Asphalt in the Laboratory	January 2013
AP-T221-13	Development of Aspects of a Design Procedure for Stone Mastic Asphalt	January 2013
AP-T222-13	Implementation of the Austroads Asphalt Mix Design Method: 2010-11	January 2013
AP-T223-12	The Interface between Traffic Control Software and Control Module Software in AATSC	November 2012
AP-T224-12	SCATS and STREAMS Interface through the SCATS ITS Port	November 2012
AP-T225-13	Development of Long-term Ageing Test Method for Sprayed Sealing Binders	January 2013
AP-T226-13	Improved Design of Foamed Bituminous Stabilised Pavements	March 2013
AP-T227-13	Investigation into the Effects of Polymer Segregation and Degradation in Polymer Modified Binders	March 2013
AP-T228-13	Feasibility Study of Using Wheel-tracking Tests and Finite Element Modelling for Pavement Deformation Prediction	March 2013
AP-T229-13	Expanded Operating Speed Model	April 2013
AP-T230-13	Laboratory Evaluation of Warm Mix Asphalt Mixes	March 2013
AP-T231-13	Evaluation Protocol for Warm Mix Asphalt	March 2013
AP-T232-13	The Influence of Multiple Axle Loads on the Performance of an Unbound Granular Pavement under Accelerated Loading: Interim Data Report	April 2013
AP-T233-13	Development of Safety Related Investigatory Level Guidelines: A Worked Example of Methodology	May 2013
AP-T235-13	Guide to the Selection and use of Polymer Modified Binders and Multigrade Bitumens	May 2013
AP-T236-13	Update of Double / Double Design for Austroads Sprayed Seal Design Methods	May 2013
AP-T238-13	Austroads LTPP and LTPPM Study – Summary Report 2011-12	April 2013
AP-T239-13	Improved Rut Resistance Characterisation of Granular Bases - Manufacture and Commissioning of a Wheel-tracking Device	May 2013
AP-T240-13	Development of a Wheel Tracking Test for Rut Resistance Characterisation on Unbound Granular Materials	May 2013

Directors' Report

The Austroads Ltd directors present this report on the entity for the financial year ended 30 June 2013.

Directors

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. The names of each person who has been a director during the year are:

Andrew Milazzo (Chairperson)
BE(Hons), ME(Civil), MIEAust, MIHT, MITE, CPEng

Mr Milazzo was appointed Chairperson from November 2012 having previously been Deputy Chairperson. He is a member of the Austroads Executive Committee.

Mr Milazzo is 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.

Colin Crampton (Deputy Chairperson)
BEng (Hons), GradDipAdmin, CPEng, MIPENZ

Mr Crampton was appointed Deputy Chairperson in November 2012. He is a member of the Austroads Executive Committee.

Mr Crampton is a Group Manager with the New Zealand Transport Agency responsible for the operation and improvement of the state highway network. Mr Crampton is a civil engineer with more than 20 years experience in the transport sector. He is interested in the practice of general management and the leadership of people and likes to maintain currency around procurement practice.

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.

Peter Duncan AM
G.Dip. Mgt, A.Dip. Land. Studies, Grad. Cert Traffic Eng, Cert. L&ESD

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 Governor of Centennial Parklands Foundation. 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.

Clare Gardiner-Barnes (from April 2013)
DTeach, GDA, MSWAP

Ms Gardiner-Barnes is the Chief Executive of the Department of Transport, Northern Territory. Ms Gardiner-Barnes has over 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 (from September 2012)
Assoc Dip Eng (Civil), MAICD

Mr Gregory is the General Manager Transport Infrastructure Services for the Department of Infrastructure, Energy and Resources, 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 DIER 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 Nation Building Infrastructure, Investment Division at the Australian Government Department of Infrastructure and Transport. Mr Jaggers' Division is responsible for the delivery of the Nation Building Program including 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.

Gary Liddle
BEng(Civil), GradDipMgt

Mr Liddle was Chairperson of the Austroads Ltd until November 2012. He was appointed as Chairperson at the inaugural meeting of the Board of Austroads Ltd in October 2009.

Mr Liddle is the Chief Executive of VicRoads and a Director of ARRB Group Ltd and a board member of the Linking Melbourne Authority. He is also the Chairman of the Australian Chapter of the Road Engineering Association of Asia and Australasia (REAAA) and a member of the REAAA Governing Council.

Neil Scales OBE (from May 2013)
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, 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 (from February 2013)
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.

Menno Henneveld (until November 2012)
BEng(Civil), GradDipAdmin, FIEAust, FATSE, FAICD, FCILT, AAIM

Until his retirement in 2012, Mr Henneveld was Managing Director of Main Roads Western Australia. Mr Henneveld is a Fellow of Engineers Australia and in 2012 was awarded both WA and national Professional Engineer of the Year, an Individual Award which honours those who have demonstrated great achievements within the engineering field. He also received the Inaugural Dr Ken Michael Gold Medal from IPWEA-WA for outstanding contributions to the public works sector, industry and his professionalism as a whole. In 2012 he was awarded the Austroads Medal for his significant contribution to Austroads as a Chair, Deputy Chair and longstanding Board member and in representing Australia at the World Road Association.

Sharron Noske (until January 2013)
MIM, GDHlthProm, BEd.

Ms Noske was Executive Director of the Transport Group in the Northern Territory Department of Lands and Planning, with responsibility for the road network, transport assets, transport services and policy reform. This position included responsibility for developing the annual roads capital works program and assisting with the facilitation of major industry projects.

Marcia Hoffmann (from February 2013 to April 2013)
BA

Ms Hoffmann was Chief Executive of the Northern Territory Department of Transport. She has a background in the Northern Territory administration having worked predominantly in the roads, transport, lands and planning portfolios.

Michael Caltabiano (until May 2013)
BE(Hon), MPhil, GDBA, FIEAust, FAICD, RPEQ, IAMA

Mr Caltabiano was the Director-General to the Queensland Department of Transport and Main Roads. He has a background in engineering and has worked across Australia and internationally providing technical design and support to some of Australia's largest road projects.

Company Secretary

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

Murray Kidnie PSM
BEc, MURP

Mr Kidnie has worked for Austroads since 2001 performing the role of Executive Director with Austroads Inc. and now Chief Executive with Austroads Ltd. Mr Kidnie was appointed company secretary on 22 October 2009. He is also a member of the Executive Committee.

Meetings of Directors

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

Attendances by each director were as follows:		
Director	Eligible meetings	Meetings attended
Andy Milazzo	2	2
Colin Crampton	2	2
Adrian Beresford-Wylie	2	1
Peter Duncan	2	2
Clare Gardiner-Barnes	0	0
Tony Gill	2	2
Shane Gregory	2	1
Andrew Jaggers	2	1
Gary Liddle	2	1
Neil Scales	0	0
Stephen Troughton	1	1
Menno Henneveld	1	1
Sharron Noske	1	0
Marcia Hoffmann	1	1
Michael Caltabiano	1	0

Alternate directors attended meetings as follows:		
Alternate director	Alternate for	Meetings attended
Dennis Walsh	Michael Caltabiano	1
Michael Sutton	Andrew Jaggers	1

Principal Activities

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

Austroads' 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 Austroads work
- foster international involvement by engaging with and supporting international road organisations.

Austroads' long-term objectives are to:

- promote improved Australian and New Zealand transport outcomes
- provide expert technical input to national policy development on road and road transport issues
- promote improved practice and capability by road agencies
- promote consistency in road and road agency operations.

Further details of Austroads principal activities can be found from pages 3 to 41.

Austroads is a company 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 entity. At 30 June 2013, the total amount that members of the company are liable to contribute if the company is wound up is $110 (2012: $110).

Auditor's Independence Declaration

The lead auditor's independence declaration for the year ended 30 June 2013 has been received and can be found on page 48 of the financial report.

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

Andrew Milazzo
Chairperson, Austroads Ltd
Dated this 2nd day of October 2013

Auditor's Independence Declaration

MOORE STEPHENS
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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 2013, 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 2013

Financial Report

Statement of Comprehensive Income

For the year ended 30 June 2013

	Notes	2013	2012
		$	$
Revenue	2	14,254,752	14,047,191
Expenses			
Corporate Expenses	3	1,578,643	1,487,925
Work Program	3	11,047,234	11,764,211
Specific Projects	3	833,478	764,022
Publications	3	108,206	122,095
Total expenses		13,567,561	14,138,253
Profit from continuing operations before income tax expense		687,191	-91,062
Income tax expense	1(c)	-	-
Profit (loss) for the year		687,191	-91,062
Other comprehensive income for the year		-	-
Total comprehensive income for the year		687,191	-91,062
Total comprehensive income attributable to members of the entity		687,191	-91,062

The accompanying notes form part of these financial statements.

Statement of Financial Position

As at 30 June 2013

	Notes	2013	2012
		$	$
ASSETS			
Current assets			
Cash and cash equivalents	4	8,873,262	7,975,730
Receivables	5	1,078,887	238,354
Prepayments		37,905	30,381
Other Debtors	6	186,536	83,385
Total current assets		**10,176,590**	**8,327,850**
Non-current assets			
Property, Plant and Equipment	7	43,345	53,508
Other Debtor	6	49,873	47,657
Total non-current assets		**93,218**	**101,165**
Total assets		**10,269,808**	**8,429,015**
LIABILITIES			
Current liabilities			
Payables	8	2,098,346	2,119,031
Contributions received in advance		493,913	266,000
Subscriptions received in advance (NEVDIS)		48,297	80,000
Unacquitted Funds (NEVDIS)	15	2,865,863	1,899,854
Provision for Employee Benefits		154,604	141,052
Total current liabilities		**5,661,023**	**4,505,937**
Non-current liabilities			
Provision for Employee Benefits		8,491	9,975
		8,491	9,975
Total liabilities		**5,669,514**	**4,515,912**
Net assets		**4,600,294**	**3,913,103**
Equity			
Net Current Year Surplus/(Deficit)		687,191	-91,062
Cumulative Surplus Brought Forward		3,913,103	4,004,165
Total Equity		**4,600,294**	**3,913,103**

The accompanying notes form part of these financial statements.

Statement of Changes in Equity

For the year ended 30 June 2013

	Retained earnings	Total Equity
	$	$
Balance at 1 July 2011	4,004,165	2,832,730
Profit for the year	-91,062	1,171,435
Balance at 30 June 2012	3,913,103	4,004,165
Profit for the year	687,191	-91,062
Balance at 30 June 2013	**4,600,294**	**3,913,103**

The accompanying notes form part of these financial statements.

Statement of Cash Flows

For the year ended 30 June 2013

	Notes	2013	2012
		$	$
Cash flows from operating activities			
Cash Inflows from operating activities			
Member Contributions		15,157,076	14,434,864
Publication Sales		544,599	533,254
Interest Received		183,389	179,614
External Project Funding		563,271	664,601
Cash generated from operating activities		16,448,335	15,812,333
Cash Outflows from operating activities			
Salaries and Related Costs		-551,890	-516,489
National Office including Corporate Projects		-364,910	-314,023
Publications		-176,672	-170,572
Programs		-14,549,587	-14,223,401
Net GST Payment		99,105	-126,894
Cash used in Operating activities		-15,543,954	-15,351,379
Net Cash Inflow from Operating Activities	14	**904,381**	**460,954**
Cash flow from investing activities			
Proceeds from sale of Property, Plant and equipment		-	15,555
Payment for purchase of Property, Plant and equipment		-6,849	-37,448
Cash used in Investing activities		**-6,849**	**-21,893**
Net increase in cash held		**897,532**	**439,061**
Cash at the beginning of the financial year		7,975,730	7,536,669
Cash at the end of the financial year	4	**8,873,262**	**7,975,730**

The accompanying notes form part of these financial statements.

Notes to the Financial Statements

For the year ended 30 June 2013

NOTE 1 — SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

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 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 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 16 September 2013 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 entity obtains control of the grant and it is probable that the economic benefits gained from the grant will flow to the entity 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 Austroads Ltd are presented in Australian dollars, the entity's functional and presentation currency.

c. Income tax

Austroads 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 leasor are charged to the income statement on a straight-line basis over the lease term.

e. Property, Plant and Equipment

Each class of property, plant and equipment is carried at cost or fair values as indicated, less, where applicable, accumulated depreciation and impairment losses.

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 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.

Notes to the Financial Statements

For the year ended 30 June 2013

NOTE 1 — SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES CONTINUED

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 OnCosts 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.

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
Austroads 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 $1,753,687 per annum (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 report 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.

	2013 $	2012 $
2 REVENUE		
Member Contributions		
Membership Contributions	988,161	969,000
Work Program Contributions	12,043,780	11,808,000
	13,031,941	12,777,000
Special Programs and Projects		
DIT – Australian Bicycle Council Secretariat	154,875	150,000
Contributions to National Cycling Participation Survey 2013	234,670	-
CPEE Refund of Unused Funds	13,726	-
National Skills Marketing Plan	60,000	80,000
RMS NSW Funding for Project SS1710	100,000	60,000
AFTD- Jurisdictional Contributions towards Printing and Distribution	-	266,001
DIT Contribution to Project RS1731	-	18,182
APCC Funding for Project TO1641	-	30,000
	563,271	604,183
Publications		
Gross Sales Revenue	427,260	444,019
Royalties	48,873	40,758
	476,133	484,777
Interest Received		
Short Term Investments	181,173	176,823
Rental Bond Deposit	2,216	2,791
	183,389	179,614
Other Income		
Net profit on sale of non-current assets	18	1,617
Total revenue	**14,254,752**	**14,047,191**

Notes to the Financial Statements

For the year ended 30 June 2013

	2013 $	2012 $
3 EXPENSES		
Corporate		
Salaries and Related Charges	563,958	538,179
Other National Office Expenses	307,841	276,948
Corporate Services	47,329	54,676
Depreciation	17,012	18,122
Program Management	642,503	600,000
	1,578,643	1,487,925
Work Program		
Assets	1,973,250	2,334,900
Freight	599,540	248,540
Network	1,205,353	1,202,192
Registration and Licensing	474,813	328,939
Safety	1,924,092	2,165,225
Technology	4,852,004	5,444,148
Capability	18,182	40,267
	11,047,234	11,764,211
Specific Projects		
International Participation	36,490	66,662
Austroads ARRB Fellowship	54,545	60,000
CPEE Distance Learning Units	15,000	15,000
Support to ALGA Reps	9,136	5,687
Redevelop Austroads Databases and Publications Website	-	19,400
Australian Standards Development related activity	5,600	-
DPTI SA Road Safety Knowledge Transfer	8,000	9,599
National Skills Marketing Plan	-	78,644
Cooperative ITS Project Director	246,010	33,478
Cooperative ITS Non ARRB Contracts	35,000	-
Independent Review of ARRB	-	62,693
National Performance Indicators for Public Transport	8,540	-
Austroads Forum Server	10,688	-
AFTD - Printing and Distribution	8,565	260,703
DIT - Australian Bicycle Council Secretariat (Note 4)	154,872	150,906
DIT - ABC Web Based Resource Centre (Note 4)	5,330	1,250
Bicycle Parking Guide	10,000	-
ABC National Cycling Participation Survey	225,702	-
	833,478	764,022
Publications		
Cost of Sales	63,572	78,022
Production and Distribution Management	42,460	42,000
Other Costs	2,174	2,073
	108,206	122,095
Total Expenditure	**13,567,561**	**14,138,253**

Notes to the Financial Statements

For the year ended 30 June 2013

	2013 $	2012 $
4 CURRENT ASSETS – CASH AND CASH EQUIVALENTS		
Cash at bank and on hand	1,524,845	2,717,894
Cash at Bank (NEVDIS)	2,799,731	2,257,836
Short-term deposits and deposits at call	4,548,686	3,000,000
	8,873,262	7,975,730
Cash at the end of the financial year is reconciled to the statement of cash flow as follows:		
Cash and cash equivalents	8,873,262	7,975,730
5 CURRENT ASSETS — RECEIVABLES		
Trade debtors	660,248	41,175
NEVDIS Receivables	418,639	192,297
Other receivables	–	4,882
	1,078,887	238,354
6 OTHER DEBTORS		
Current		
GST Receivable	186,536	83,385
Non Current		
Rental Deposit Bond	49,873	47,657
	236,409	131,042
7 NON-CURRENT ASSETS — PROPERTY, PLANT & EQUIPMENT		
Office Furniture and Equipment at Cost	120,160	121,056
Accumulated depreciation	-100,774	-97,568
Net book amount	19,386	23,488
Motor Vehicle at Cost	30,302	30,302
Accumulated depreciation	-6,343	-282
Net book amount	23,959	30,020
Total	43,345	53,508
8 CURRENT LIABILITIES — PAYABLES		
Trade Payables	1,672,056	645,298
NEVDIS Payables	304,211	360,867
Accrued Expenses	122,079	1,112,865
	2,098,346	2,119,030

9 MEMBERS' GUARANTEE

The company is a company limited by guaranty, incorporated and domiciled in Australia.

The liability of each of its members is limited to $20.

10 REMUNERATION OF DIRECTORS

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

11 REMUNERATION OF AUDITORS

During the year Moore Stephens Sydney ,the auditor of the company earned the following remuneration:		
Remuneration of Auditor for Audit of the Current Year	16,500	15,675
Remuneration of Auditor for Audit of the Previous Year	-	-555
Total remuneration	**16,500**	**15,120**

Notes to the Financial Statements

For the year ended 30 June 2013

	2013 $	2012 $
12 CONTINGENT LIABILITIES OR ASSETS		
The company is not aware of any contingent liabilities or assets at year end (2012 – nil).		
13 LEASE COMMITMENTS		
Operating Lease Commitments – being for the rent of office		
Payable – minimum lease payments		
- Not later than 12 months	78,418	137,122
- Between 12 months and 5 years	125,970	0
	204,388	137,122
The property lease was renewed for another 5 years, with rent payable monthly.		
14 RECONCILIATION OF PROFIT FROM ORDINARY ACTIVITIES AFTER INCOME TAX TO NET CASH GENERATED FROM OPERATING ACTIVITIES		
Operating (loss) / profit after income tax	687,191	-91,062
Adjustment for non-cash-flow items		
Depreciation and amortisation	17,012	18,122
Net Profit / (loss) on sale of non-current assets	-18	-1,617
Change in operating assets and liabilities		
(Increase) Decrease in accounts receivable	-840,533	546,724
(Increase) Decrease in other operating assets	-112,891	110,264
Increase (Decrease) in trade creditors and accruals	-20,685	-766,075
Increase (Decrease) in other provisions	12,068	21,690
Increase (Decrease) in other operating liabilities	1,162,219	622,908
NET CASH GENERATED FROM OPERATING ACTIVITIES	**904,363**	**460,954**
15 NEVDIS		
Income		
Members' contributions	3,276,335	3,364,414
Safety Recalls	225,050	104,041
AEC Extract Charges	178,843	173,034
Data Extracts	11,030	
PPSR Enhancements Recovery	1,150,753	314,737
VIRS Commercial Phase	184,154	48,858
Data Wash Project Income	-	5,609
NMVTRC Contribution to VIRS	-	437,500
RMS NSW - Update DXP Tables	-	29,160
Interest Received	28,408	39,639
Total Income	**5,054,573**	**4,516,992**
Expenditure		
Fujitsu Subscription and Operating Costs	2,059,759	1,885,693
RMS NEVDIS Administration Unit and Salaries	1,504,725	1,773,084
NEVDIS Projects	342,315	151,953
Other	181,765	129,520
Total Expenditure	**4,088,564**	**3,940,250**
Net Surplus for the Year	**966,009**	**576,742**
Amount Unexpended in Previous Years	1,899,854	1,323,112
Amount Unexpended transferred to Liabilities	**2,865,863**	**1,899,854**

16 MATTERS SUBSEQUENT TO THE END OF THE FINANCIAL YEAR
There were no subsequent events that occurred prior to the end of the financial year

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

Directors Declaration

The directors 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 **49 to 57** are in accordance with the Corporations Act 2001, and:

1. The financial reports and notes set out on pages **49 to 57** 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 2013 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.

Andrew Milazzo
Chairperson, Austroads Ltd
Dated this 2nd day of October 2013

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ACCOUNTANTS & ADVISORS

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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 2013, 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 judgement, 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 entity'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.

MOORE STEPHENS
ACCOUNTANTS & ADVISORS

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 association's financial position as at 30 June 2013 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.

We also report that the financial statements and associated records of the Association have been properly kept during the year in accordance with the *Charitable Fundraising Act 1991*.

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 2nd day of October 2013

Austroads is the association of Australian and New Zealand road transport and traffic authorities.

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