

‘Reliability’

- The key to efficiency, accessibility and mobility on our networks

Roads Australia’s future direction to managing congestion through improved travel time reliability

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This document has been developed by the Roads Australia Congestion Chapter and outlines the strategic direction that needs to be pursued to assist in managing congestion. The views contained herein represent the collective views of Roads Australia and do not represent the views of particular members.

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Preamble

Roads Australia's role in Improving Policy Decisions

Roads Australia is a unique, not for profit, non-political industry association where government and industry partner to promote better outcome areas in the Australian road transport sector.

Roads Australia champions the interest of a vital national asset, Australia's road transport system, and provides a forum for policy development and debate on key road use representing the common purpose of all of its stakeholders.

It does this by pursuing policy research; providing a forum for debate and discussion by business and government; and offering a membership network to people and organisations that value knowledge, insights and ideas that are in the best interest of Australia's largest built asset. It's proactive representation of the interests of the network in areas such as safety, integration with other systems, research, use of improved technology, resource allocation and improved asset utilisation, have historically led to better outcomes for all involved.

Roads Australia membership, which includes government agencies, public and private companies and peak bodies associated with the road sector, seeks to work in a positive and cooperative fashion with decision makers, in the development of public policy.

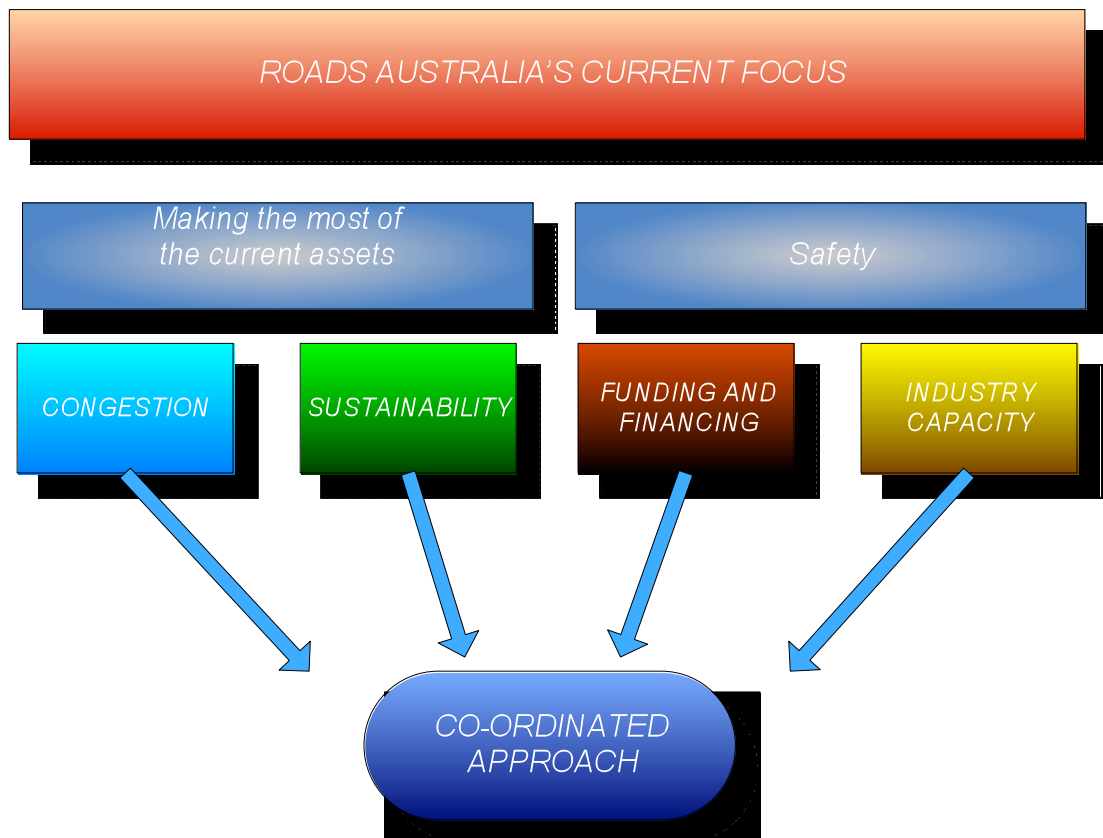
Roads Australia draws attention to the importance of our road system to the economic and social fabric of our nation and seeks to ensure that information and decision-making in relation to our road transport is well informed and reflects an appropriate level of priorities. Roads Australia does not, however, engage in lobbying activities within the province of its individual stakeholders.

Through the work of this chapter, Roads Australia is championing the interest of Australians as stakeholders in this vital national asset.

Formulation of this draft policy statement

Consolidating private sector and government views

Roads Australia has developed this statement principally around ideas, discussion, research and evaluation from hard evidence such as forecasts and projections and from member feedback and other engagement with peak and relevant government, industry and associated bodies. This evidence based consultative approach enables Roads Australia to take a holistic view to generate broader ideas and identify linkages to other transport agendas to achieve the best outcomes and solutions on congestion related matters.



Why is it needed?

Avoidable Congestion – a major cost to the economy

A Congestion Review conducted by BITRE and presented to the Council of Australian Governments (COAG) in 2008 concluded that unless governments ramped up their responses to urban congestion, the costs of congestion in each of the capital cities in Australia would double over 15 years, 2005-2020, to just over \$20 billion annually. These costs represent constraints on business productivity, international competitiveness and growth; imposition of higher travel costs and lower accessibility on households; wasted fuel and higher emissions. Many congestion-related decisions are currently based on inadequate information. The consequences of this deficiency are substantial and will become more so as congestion levels increase over the foreseeable future.

The Review also found that there is no single 'silver bullet' solution to rising congestion pressures and that complementary measures (including both infrastructure and management based elements) have the greatest likelihood of delivering the best long-term outcomes. Successful development of these interventions is complex and reliant on objective and rigorous analysis and information. The following major information limitations to sound decision-making on congestion interventions have been identified by transport/planning agencies:

- **Lack of consistent performance measurement within and across modes.** This is a product of the historic 'silo' mentality in transport and impedes accurate comparisons of alternative modal solutions, analysis of modal interactions and interdependencies, and analysis of approaches to improve modal integration.
- **Lack of understanding of transport movements generated by business.** Business sector movements including freight, services and people travelling on business, underpin city economies. These movements are exposed to substantial congestion pressures but are not well understood.
- **Lack of consistent multi-modal indicators.** These indicators are becoming increasingly important in urban areas to support policies introduced to shift some segments of private road-based passenger and road freight movements onto other modes.
- **Limited before and after assessments of congestion management measures.** Without such assessments it is impossible to ensure that interventions deliver their expected outcomes or to 'reality check' congestion information systems and planning assumptions.

Roads Australia objectives for this work:

Roads Australia is seeking to partner with industry, all levels of government and the community to better manage congestion, with a focus on improving journey travel time reliability to reduce the avoidable costs of congestion. Increased reliability will stretch across the network and modes from the movement of road freight to the movement of people utilising the road network.



Roads Australia will be using an analysis process as shown above in determining the right mix of initiatives that will help to support a more reliable transport network.

Further work of Roads Australia could investigate the preferred mix of initiatives from the areas of influence and agreed member priorities. This analysis process will need to be developed further and refined as the Policy Chapter's work advances.

Vision for the operation of the Congestion Chapter

To partner with industry and all levels of government to influence key decisions that will make the road transport network function as reliably as possible and reduce the costs of congestion.

This vision, demonstrates the strong links between industry and government that is fostered by Roads Australia, as well as the organisation's unique ability to influence decision making processes in government to achieve better outcomes in congestion management. A strong focus on improving the reliability of travel time will be apparent through the work of Roads Australia in this chapter.

The vision also highlights that through this interaction, decisions can influence an improved quality of life for users of the network, not only individuals – but those associated with commercial enterprises as well. It can also contribute to improved environmental and sustainability outcomes. This can be done through improved efficiency, accessibility and mobility.

Roads Australia direction on congestion

There is no simple single solution to managing congestion. It is likely and acceptable that at times on the network, demand will exceed capacity. Consequently, the Roads Australia Congestion Policy Chapter recommends an integrated approach that considers supply and demand – and to date, significant work has been undertaken. However, there are still areas in which industry and government can improve the efficiency and reliability of the network. Some of these areas will, in time be addressed by the current suite of initiatives that each state or local government is rolling out, however if we are to really improve our system, it must be looked at from a multitude of dimensions and not only be focussed on network improvements.

These dimensions, such as the introduction of user pricing and measures to increase productivity can not be instituted overnight, nor will they have immediate impacts, however with the avoidable social costs of congestion set to top \$20 billion by 2020¹, the time to begin reform is upon us. To put \$20 billion each year into context the Australian Government is investing \$35.8 billion on road and rail infrastructure through the Nation Building Program over the six year period from 2008-09 to 2013-14- averaging to around \$6 billion each year.

Principles

The development of agreed key principles is an important first step for a national agenda. We can see key principles emerging by building on the work of Cottman and Charles that Roads Australia has previously commissioned (see Appendix B). These key principles work in conjunction with the eight areas of work as defined by Cottman and Charles work as well as the principle of managing supply and demand.

These key principles are as follows:

- **Maximise the efficient use of the existing road asset to promote reliability – through active traffic management, public transport priority**

¹ Bureau of Transport and Regional Economics (BTRE), *Estimating Urban Traffic and Congestion Cost Trends for Australian Cities*, Working Paper 71, Canberra, 2006

measures, advanced incident management, the development of intelligent transport systems and quick road clearance.

- **Efficiency in the “fit for purpose” mix of transport modes – lead the creation of dedicated public and active transport networks that promote greater accessibility, frequency of use and reliability. Fit for purpose relates to both the users and managers of the transport network.**
- **Coordinated long-term planning – through integrated corridor planning of major transport corridors including arterials, providing support for transit oriented developments and by completing the right links in the network, create the right development patterns to reduce the need for travel.**
- **Travel demand management and pricing signals – use of pricing and travel demand management measures to identify clearly the true cost of travel and use of the road asset, particularly during peak congestion periods and promote broader benefits of alternative modes.**
- **Efficient prioritisation of investment in road infrastructure – construct additional infrastructure capacity through motorway and arterial road construction projects and more public transport infrastructure to assist in capacity constrained locations, taking into account the whole of life costs for infrastructure.**

These five themes also work in conjunction with the principle of managing supply and demand and the eight areas of work as defined in the Charles and Cottman work that Roads Australia has previously commissioned. These are listed in Appendix B.

Nature and difficulties in managing congestion

The COAG Congestion Review identified the following significant impacts of rising urban congestion pressures on Australia:

- business productivity, international competitiveness and growth are negatively affected by urban bottlenecks through increased delays, unreliability and vehicle operating costs. This is exacerbated by the capital city location of our most important non-bulk ports, which are accessed by strategic urban road and rail links that serve both passenger and freight demands;
- efficiency of supply chains which transit urban areas, including for many rural and regional exports, is reduced;
- service and knowledge-based industries which often underpin urban economies, are affected by the impact of congestion on labour productivity and on city ‘liveability’ influencing the attraction of a skilled workforce;
- productivity of urban transport infrastructure in moving people, freight and delivering services is constrained;
- performance of non-urban networks and modal competition is affected. For example, where passengers and freight share the urban rail network, priority is generally accorded to passenger services. While this may reduce congestion pressures on urban roads, it can also affect the performance of inter-regional rail freight transiting urban areas; and

- fuel is wasted and emissions exacerbated by time spent in congested and stop-start travel conditions with negative long-term consequences for climate change.

Most of the world's city regions are implementing measures to address the issue of congestion with varying degrees of success. However, while the problem has become more pronounced in most of Australia's major cities, the general perception is that they still compare favourably with a number of other world cities. The Quality of Living report which includes traffic congestion as its criteria to assess cities liveability has ranked Australian cities among the most liveable cities in the world.²

In the past few decades, there are several factors that may have contributed to the increase in private vehicle travel in Australia.³ The first of these factors is the increase in car ownership. The increase in car affordability helps to fuel growth in car ownership since the 1980s.⁴ This is demonstrated by the increase in the number of registered cars from 769 000 in 1950 to 10.4 million in 2003.⁵

The price level of retail petrol could also have contributed to the increase in private vehicle travel. Without taking into consideration the steep oil spike in 2007/08, retail petrol prices have risen at a lower rate compared to the level of income since the 1970's, with 50 litres of petrol costing 7.4% of average weekly wages in Australia in 1980 compared to 6.3% in 2006.⁶ Although there was a fluctuation in the unemployment rate which affects the income of individuals between 1978 and 1993 due to economic conditions, it has generally decreased from 1993 to 2005.⁷ This further indicates that the people have the ability to afford a higher standard of living due to higher employment opportunities.

These factors, together with improved road and rail networks, have increased people's ability to choose where they live, eat and entertain and contributed to the growth of dispersed, low-density urban communities, greater segregation of land uses, the development of new urban centres and the emergence of prominent suburban shopping centres. This is reflected in the low urban densities in Australia's capitals compared to other world cities.⁸ As each capital city expands, the prevalence of low density residential communities is increasing the distances between homes and other places, such as employment, education and health service locations.

² Mercer, *Australia Still Home to World's Most Liveable Cities – Mercer World Quality of Living Survey*, http://www.mercer.com.au/summary.htm?sessionid=4eZHD@.@cRxSNj2qCGoMCxw**.merc04?siteLanguage=1012&idContent=1381185 Accessed 31 May 2010.

³ J. Stanley & S. Barrett, *Moving People: Solutions for a growing Australia*, http://www.ara.net.au/UserFiles/file/Publications/Moving_People_report.pdf Accessed 31 May 2010.

⁴ Australian Automobile Association, *Motorists as Consumers*, <http://www.aaa.asn.au/issues/consumers.htm> Accessed 27 May 2010.

⁵ Australian Bureau of Statistics, <http://www.abs.gov.au/Ausstats/abs@.nsf/Previousproducts/1301.0Feature%20Article292005?opendocument&tabname=Summary&prodno=1301.0&issue=2005&num=&view=> Accessed 26 May 2010.

⁶ G. Konstantinidis, "The price of petrol and the china effect – causes and consequences", Melbourne City Research, 2006, http://www.melbourne.vic.gov.au/AboutMelbourne/Statistics/Documents/ThePriceofPetrol_EconomicAnalysis.pdf Accessed 26 May 2010.

⁷ Australian Bureau of Statistics, *Historical Labour Underutilisation*, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/featurearticlesbyCatalogue/10062E508A538F76CA25764200178DF5?OpenDocument> Accessed 6 July 2010

⁸ Department of Sustainability and Environment (Vic), *Population Density*, [http://www.dse.vic.gov.au/CA256F310024B628/0/C743B338B0F43A8BCA2571B8008081C2/\\$File/Population+density.pdf](http://www.dse.vic.gov.au/CA256F310024B628/0/C743B338B0F43A8BCA2571B8008081C2/$File/Population+density.pdf) Accessed 12 November 2009.

Australia's economic prosperity has encouraged higher population growth which increases the demand for our transport services and infrastructure. This in turn results in increased congestion where the infrastructure or services are not adequate to cater for the unprecedented increase in demand. While the increase in population commonly coincides with higher economic growth, without careful planning it has the potential to encourage more urban sprawl as low income earners are priced out of locations that are closer to the CBD and are more frequently serviced by public transport. This would result in people living in urban fringes to be more reliant on the use of private vehicles and travel longer distances.

An economic approach to defining congestion highlights the trade-offs between desired network efficiency and other public planning policies. However, it may not adequately address the social equity dimensions to the effects of congestion as discussed above. A pure economic approach also gives little consideration to community's expectations of the state of the transport network that plays a major part in their daily lives. Different transport users from different locations have different perceptions and expectations of the standard and quality of the transport system they are using.⁹

The heterogeneous expectations of transport users are highlighted in a recent market segmentation study conducted in Melbourne in 2009.¹⁰ The findings from the study suggest six key market segments relating to peoples attitudes to different modes of transport. Included in the six was a segment that is attracted to public transport because it is a cleaner and greener way to travel. Where as, another segment typified respondents that would not consider public transport even if it were free. From this analysis it can be seen that users have very differing opinions of the transport system and what they need to derive out of it. As such, public policies should give due consideration to travel behaviour of users in order to be effective in increasing network efficiency.

Personal lifestyles and social expectations are also continually changing. The economic and social trends of disposable income, size of households and globalisation are underpinning many personal lifestyle choices and consequently individual transport choices. Research undertaken by the Department of Transport and Metlink in Victoria has investigated the underlying reasons for mode shift among transport users.¹¹ Some of the key findings of the report indicate that while there is a general trend of mode shift away from private car usage in Melbourne, the underlying reasons for that mode shift change over time. Prior to the Global Financial Crisis, the shift from private vehicles towards other modes was predominantly due to petrol prices which coincided with the high fuel prices in 2008. While petrol prices are still an important factor for people reducing their car usage, it is matched by other reasons such as changing jobs, health and fitness and environmental concerns during the Global Financial Crisis and recovery period in 2009. The findings from the research highlight the need for transport sector to meet increasing expectations and need of transport users of higher quality passenger transport, more personalised

⁹ Department of Transport, *Results of Social Media Customer Survey*, <http://www.vicroads.vic.gov.au/Home/NewsRoom/News+Releases/ResultsOfSocialMediaCustomerSurvey.htm> Accessed 28 May 2010.

¹⁰ Department of Transport, *Attitudes to Public Transport: Market Segmentation in Melbourne*, [http://www.transport.vic.gov.au/DOI/DOIElect.nsf/\\$UNIDS+for+Web+Display/590930F03CBC0B3DCA2576E200806250/\\$FILE/Transport%20Research%20Bulletin_Autumn2010.pdf](http://www.transport.vic.gov.au/DOI/DOIElect.nsf/$UNIDS+for+Web+Display/590930F03CBC0B3DCA2576E200806250/$FILE/Transport%20Research%20Bulletin_Autumn2010.pdf) Accessed 2 June 2010

¹¹ VicRoads, *Understand Travel Behaviour Changes*, [http://www.transport.vic.gov.au/DOI/DOIElect.nsf/\\$UNIDS+for+Web+Display/590930F03CBC0B3DCA2576E200806250/\\$FILE/Transport%20Research%20Bulletin_Autumn2010.pdf](http://www.transport.vic.gov.au/DOI/DOIElect.nsf/$UNIDS+for+Web+Display/590930F03CBC0B3DCA2576E200806250/$FILE/Transport%20Research%20Bulletin_Autumn2010.pdf) Accessed 3 June 2010.

travel options and transport which is capable of accommodating complex travel and personal needs.

Acceptable levels of congestion

As the level of demand is not constant throughout the transport network and varies across time and location, it is not always possible to provide the infrastructure needed to match the level of demand. Congestion is a by-product of excessive demand on the transport services and infrastructure. Excessive demand is usually associated with urban cities where investment in infrastructure or demand and supply considerations such as demand management as well as inefficiencies that arise from a poorly integrated system have not been adequately addressed over time as economic and population growth have continued. Some degree of congestion can be viewed as a sign of healthy and dynamic economy. It is, therefore, impractical to reduce congestion to a zero wait state as it would be unjustifiably expensive, unnecessarily divert resources from other sectors of the economy, and would ultimately impact on economic growth and the standard of living in our capital cities.¹²

Congestion can be managed through managing the demand and supply of transport services and infrastructure. Promoting the benefits of alternative modes such as active and public transport, providing physical information through ITS, together with barriers to capacity and changes to government regulations, pricing mechanisms and taxes are all examples of demand management methods. Some of these approaches have a wide range of economic and social impacts which are being investigated within the Roads Australia paper – *A New Deal - Solutions to the Administration and Funding of Transport and Road Infrastructure*.

Congestion on the network could also be managed through an increase in capacity. However, the cost of urban infrastructure is extremely high as it requires significant and continuing investments to keep up with the demand for more capacity as the demand for travel, and hence road space or public transport continue to grow with underlying economic and population growth. However, the under-utilisation of additional infrastructure that is built to alleviate peak period congestion can often make the high investment and maintenance costs unjustified.

Some locations experience higher levels of congestion than others, the effect and consequently, response, cannot be broad brush approaches. This inequity is due to the concentration of homes, businesses' community activities, and the level of availability of alternative travel options which are the result of land use decisions. Similarly, the point when congestion becomes excessive is often difficult to determine, and consequently the community perspective of when congestion becomes excessive is often different from a policy perspective.

*“Many people see congestion as an undesirable consequence of shortcomings in public infrastructure, both roads and public transport. Implicit in these views is a belief that congestion on transport networks is excessive, unduly increasing business costs and reducing community wellbeing from having less leisure time and increased air and noise pollution”.*¹³

¹² Competition and Regulation Working Group, *Review of urban congestion trends, impacts and solutions*, Report prepared for the Council of Australian Government, COAG, Canberra, 2006.

¹³ Victorian Competition and Efficiency Commission, *Making the right choices: Options for managing transport congestion*, VCEC, Melbourne, 2006.

Integrated responses are required to manage congestion

While the underlying causes of recurring congestion such as population and economic growth can be addressed through long term strategies that incorporate land use planning and increasing infrastructure utilisation, as well as capacity; there are other causes of congestion that require more immediate action. Strategic investment in infrastructure will help to address the issue of capacity, however the current situation highlights that further multi-faceted and integrated management responses need to be developed and implemented. This requires greater co-operation between all levels of government and industry.

Further, there are a number of other issues that must be considered in any approach to congestion management, such as any proposed emission trading scheme and the impact that peak oil may have on the travel behaviour of transport users and the transport network. These issues have been identified and are being further investigated in the *Roads Australia Sustainability Policy Chapter* work.

While the full impacts of peak oil and climate change have not yet been able to be fully quantified, there exists an opportunity to steer the direction of this change through appropriate policy, strategy and investment. This will be an ongoing challenge for transport planners as government has tended to move towards providing investment on the greatest areas of opportunity to move the most people, or where services are most cost effective.

The transport sector's demand for oil is less price sensitive than other parts of the economy. This is due to a lack of competition as substitutes for oil in road transport are currently far from cost-effective.¹⁴ Fuel price increases, due to rising world oil prices, have been shown to bring about only small decreases in consumption. In addition to influencing mode choice and residence location choice, increases in fuel prices affect the trend in car fuel use through vehicle size choice, vehicle fuel efficiency choice, vehicle fuel type choice, technology choice.¹⁵ For example: measures aimed at reducing vulnerability to rising oil prices and its oil dependence could be mutually beneficial to reducing greenhouse gas emissions, managing congestion problems and improving air quality.

However, it should be noted that the relationship between congestion and increase in greenhouse gas emissions and pollutions are not direct. This is because a very low carbon and fuel efficient fleet of vehicles would still contribute to congestion in the same way non-fuel efficient vehicles do. Thus, while some greenhouse gas emissions reduction measures are complementary to managing congestion, these measures would be less relevant as green vehicles comprise a larger proportion of the fleet of vehicles.

Additionally, it is important to provide new transport infrastructure to service new land development and re-development (greenfield and brownfield).

It can be seen that there are many and varied factors that influence congestion, not only when, where and how congestion evolves on a local level, but strategic policy levers that can inadvertently alter travel behaviour for better or worse.

¹⁴ BITRE (Bureau of Infrastructure, Transport and Regional Economics), *How do fuel use and emissions respond to price changes?*, Canberra, 2008.

¹⁵ International Transport Forum, *LEIPZIG 28-30 May 2008. Transport and Energy: The Challenge of Climate Change - Research Findings*, OECD/ITF, 2008.

Unless an integrated approach that targets both the level of supply and demand for urban transport is adopted, any congestion relieving measure would most likely be short-lived or create spill over effects and induce demand-related congestion in other modes or routes.

It is for this reason that a holistic approach must be taken to managing congestion, and as such, a close working relationship between industry and government must be adopted.

Significant effort has been undertaken by a number of states such as New South Wales, Victoria and Queensland on a range of complementary measures that include not only the building of more capacity but also measures designed to better manage the use of existing assets and improve traffic flow on existing infrastructure. Details of these initiatives are provided in Appendix A.

Why Reliability?

Reliability can provide efficiencies in the network and give a degree of certainty to the traveller that travel will span a particular window of time – but will not exceed it. As such, Road Australia's vision is to partner with industry and all levels of government to influence key decisions that will make the road transport network function as reliably as possible and reduce the avoidable costs of congestion.

The rationale for adopting reliability as the main focus of the Roads Australia Congestion Chapter's policy approach is compelling for users, asset-owners and managers, government, policy makers and industry. Based on a survey undertaken by AustRoads¹⁶, it is found that efficiency (measured in travel time) and reliability (derived from travel time variance) are easily comprehensible and meet the information needs of both transport users and transport managers. The same survey found that reliability is generally considered to be equally important as travel time among transport users.

Although increasing capacity will help to relieve localised congestion, it is also one of the most expensive ways to manage congestion due to the significant initial investment and ongoing maintenance. Additionally, focussing on increasing capacity generally caters for the requirements of peak-period while idle capacity is wasted during off-peak periods. While enhanced capacity in roads and public transport helps to relieve peak-period congestion, it may not represent optimal use of limited funds as the extra capacity is generally not utilised beyond peak period. A good indicator of this is the usage pattern of the current infrastructure and assets. During peak period, excess demand of the transport network creates congestion on roads and public transport, during off-peak period however, road space and public transport is often under-utilised due to low levels of demand. As the capacity is not able to be stored and used at a later time, this effectively means that the additional capacity is utilised only for a specific period of the day. Policy options to encourage more efficient use of capacity such as encouraging off peak travel may have the same effect of 'storing' the road space to be used at a later time.

A well performing road network makes an essential contribution to the quality of life, and choices, we have in cities. As cities grow, long term planning and preservation of corridors, as well as sufficient targetted investment in road infrastructure, is an

¹⁶ Austroads, *Understanding Network Performance Information Provided to Road Users*, AP-R285/06, Austroads, Sydney, 2006.

essential part of government's overall response. Most of our public transport, and all freight distribution within cities, depends on roads.

The challenge remains to reduce the demand for additional capacity by putting in place policies that get the best use out of existing assets, and then plan and provide the infrastructure required.

Roads Australia acknowledges that there are competing demands for the limited pool of financial resources available to fulfil government objectives in providing and maintaining public goods and services. However, together with the implementation of a suite of capacity management measures (eg. managed motorways initiatives), investment in infrastructure in parts of the network where increase in capacity is needed to boost productivity will help to support a stronger economy.

Priorities and the resultant areas of influence

Roads Australia gets involved in many of the road based transport agendas and has clearly defined a list of priorities for future work at the Roads Australia's Summit held in April 2010. At this summit, Roads Australia members were asked to prioritise a list of key activities that Roads Australia should pursue; these **priorities** have been listed below.

1. Maximising the efficiency of existing assets - "more from less", "sweat the asset".
1. Promoting better information to inform choice; drive travel behaviour and monitor journey times.
3. Use road pricing options to manage the available capacity (including full and partial systems).
4. Optimising the way we manage events and incidents (including emergency services).
5. Increasing the accessibility and mobility for users of the network.
6. Positioning our cities to better integrate land use and transport planning.
6. Reviewing the management and coordination of road and utility works (including emergency powers.)

It is worth noting that through this analysis, two core themes emerged. This was the high prioritisation of the more strategic options (such as maximising the efficiency of assets and using road pricing options); and the prioritisation of the more operational activities that can be influenced quickly by members (management and coordination of road and utility works). A full review of the analysis has been included as Appendix C.

How these priorities influence current and future priorities will need to be worked out in the forthcoming workshops.

To tie these priority areas back to the principles, priorities have been assigned to each principle. In practice, this means that although the efficiency measures will be the highest priority, Roads Australia will still pursue the other priorities (under each principle), but only after the higher priorities have been addressed. The following section details the priorities, policy areas and positions as discussed by Roads Australia members from the Summit. It also includes examples of initiatives and actions that are currently undertaken by jurisdictions.

Principle: Maximise the efficient use of existing assets

Priorities

Maximising the efficiency of existing assets -“more from less”, “sweat the asset”.

Optimising the way we manage events and incidents (including emergency services).

Reviewing the management and coordination of road and utility works (including emergency powers).

Roads Australia promotes responsible planning and use of existing infrastructure - not simply maximising vehicle throughput, but balancing competing demands to maximise people and goods throughput. It is important to get the best out of the infrastructure we have. We need to get more from less and “sweat the asset”.

Consequently, maximising the efficiency of existing infrastructure investments through such measures as active traffic management, bus priority measures, advanced incident management, the development of intelligent transport systems and quick road clearance is crucial. This will assist in providing improvements in journey times and reliability for both road based and non-road based public transport and increasing the mode share of public transport, motor-cycling, bicycling and walking.

This was seen as the top priority for Roads Australia members at the Summit and is the best opportunity to increase reliability on the road network without spending billions of dollars annually.

Policy areas/ positions – as discussed by the Roads Australia members at the April 2010 Summit

- Moving people not cars
- Allocating priorities on a network basis such as improving access for freight on parts of the network
- Using ITS/ICT to facilitate efficient people and vehicle movement through the following initiatives /technologies
 - Managed lanes
 - Active traffic management
 - The provision of proactive information
 - Coordination of Traffic Management Centres
 - Getting more out of current and future works

Examples of state initiatives and actions – refer to Appendix A for details of a sample of initiatives and actions

South Australia

- Organising road space and implementing traffic management measures consistent with a functional road hierarchy

- Adjustments in SCATS and other systems to assist traffic movements in the vicinity of incidents
- Roadworks impacts are minimised through roadworks permit system.
- Queensland
 - Investigate the potential to use more efficient container transport vehicles to access origins and destinations in the vicinity of the Port of Brisbane precinct and Acacia Ridge Brisbane Multi-User Terminal
 - Legislation introduced on open road/quick clearance incident management
 - The use of Heavy Vehicle Response Units and Traffic Response Units to quickly clear road incidents to ensure interruptions to traffic flow is minimised
- New South Wales
 - Sydney – Newcastle Incident and Information Management
 - Automated Incident Detection Systems
 - Queue Management (SCATS)
 - Weather detection and road management
- Victoria
 - Tram and Bus Priority Program incorporating a range of measures to provide greater priority for trams and buses
 - Network Operating Plans define Road Use Hierarchy
 - Implementation of ‘Managed Motorways’ starting with the M1 and M80 upgrades

Areas of influence for Roads Australia

Roads Australia will seek to influence the stakeholders to adopt the following initiatives:

- To be determined at the forthcoming workshops.

Principle: Fit for purpose efficiency

Priorities

Promoting better information to inform choice; drive travel behaviour and monitor journey times.

Increasing the accessibility and mobility for users of the network.

Providing information was one of the highest priorities for Roads Australia members at the April 2010 Summit.

The provision of up to date information enabling transport system users to make choices on time of travel, mode and route helps users to choose the most appropriate mode for their travel. Information also helps to promote 'self regulation' on the transport network. For example, with more information users may choose public transport to lower their total travel time if the road network is congested. This is critical to the success of any congestion management approach.

From a network manager's perspective, fit for purpose efficiency also involves the creation of a dedicated public and active transport network that has greater accessibility, frequency and reliability. This is because, in some cases, the provision of new capacity and connectivity in the form of public and active transport helps to increase the overall efficiency of the network.

As explained previously, a survey conducted by AustRoads indicates that users consider reliability to be a very important aspect of their journey. Such information helps network manager to balance the need of users and what they value the most as well as the efficiency of the network in providing infrastructure and services. Further research should be undertaken to provide more insights into the travel behaviour of users and what they deemed would help to improve their journey experience.

Policy areas/ positions – as agreed by the Roads Australia members at the April 2010 Summit

- Promote the institution of special conditions for weather (wet days)
- Work with GPS and information providers to ensure the most accurate data is available and use it strategically
- Support programs such as TravelSmart to provide travel options
- Promote the reduction in total travel through methods such as trip chaining etc

Examples of state initiatives and actions – refer to Appendix A for full details of initiatives and actions (to be updated by each state)

- South Australia
 - Real Time Passenger Information system displaying information on signs at selected bus stops on two bus routes in Adelaide.
 - TravelSmart program, encouraging households to use alternative form of transport
 - \$2 billion investment program to upgrade Adelaide's public transport system over the next decade
- Queensland
 - Provide access to real time and high quality information on line showing level of service information
 - TravelSmart programs – Communities, Workplaces and Schools – that encourages these users to change the way they travel and to be less reliant on motor vehicle
 - Increase numbers of bus, rolling stock and ferry purchases including large capacity line haul
- New South Wales
 - Network for VMS connection to media in TMC, internet information

- Sydney-Newcastle Incident and Information system – traveller time
- Strategic Bus Corridor network
- Victoria
 - Real time road travel times on website
 - Real time TramTracker arrival data on websites and through mobile phones
 - Improved traveller information in advance of signalised freeway ramps
 - Customer research on travel and traveller information – needs, methods, messages, impacts

Areas of influence for Roads Australia

Roads Australia will seek to influence the stakeholders to adopt the following initiatives:

- To be determined at the forthcoming workshops.

Principle: Co-ordinated long term planning

Priorities

Positioning our cities to better integrate land use and transport planning.

The Roads Australia Summit group work allocated land use planning as a priority but not the same priority for action by Roads Australia.

Although land use planning is a long term solution, work will need to begin on addressing various issues such as desired urban density and transport requirements of new developments. There should also be coordinated efforts to address issues on transport and land use planning along transport corridors including arterial roads.

The right development patterns can help to reduce the need for travel. Consequently, integrated transport planning of major arterials and provision of support for transit oriented developments will help to reduce the dependency on public or private transport to access major services such as health and employment.

Policy areas/ positions – as agreed by the Roads Australia members at the April 2010 Summit

- Increase interconnectivity and integrate land use and transport planning
- Intensify cities and increase transport accessibility – where transport infrastructure is available
- Promote the integration of multi-layers of transport
- Providing a comprehensive network for freight to key destinations
- Provide a Roads Australia input into the National Freight Strategy
- Reduce the intensity on transport driven by growth through:
 - Transit Oriented Developments (TODS)

- Higher urban densities – particularly in transport corridors or areas capable of being serviced by high frequency public transport
- Taking jobs to people

Examples of state initiatives and actions – refer to Appendix A for full details of initiatives and actions (to be updated by each state)

- South Australia
 - Undertaking a major review of the planning system by developing a 30-year plan for the Greater Adelaide area which will include a strategy for denser development along rail corridors and TODs at targeted locations
- Queensland
 - Improving land use planning through South East Queensland Regional Plan 2005-2026, TODs and Urban Land Development Authority
- New South Wales
 - Working with planning agencies
- Victoria
 - Melbourne @ 5 million Strategy
 - Planning for Melbourne Metro, major works to expand the underground rail network

Areas of influence for Roads Australia

Roads Australia will seek to influence the stakeholders to adopt the following initiatives:

- To be determined at the forthcoming workshops.

Principle: Travel demand management and pricing signals

Priorities

Use road pricing options to manage the available capacity (including full and partial systems).

The Roads Australia Summit group work has allocated travel demand management and pricing signals as the next highest priority for future work after maximising efficiency of current assets and providing better information to road users.

While enhancing reliability to minimise variations in travel time, pricing signals help to improve the average travel time through improving the flow on the transport network. Thus, any travel demand measures and pricing signals should be complementary rather than replacing on road measures such as prioritisation of road space and incidence management.

Infrastructure efficiency can be enhanced through appropriate travel demand management and pricing measures. An example of this is encouraging high occupancy private vehicle travel and the use of public transport vehicles in congested areas during peak congestion period through a variety of travel demand management measures and pricing signals. This helps to increase the efficiency of existing

infrastructure and assets by moving more people in the shortest possible time during peak period. Further by encouraging governments to use the revenue generated by road pricing innovatively - it can become available for other transport investment, such as addressing congestion hotspots, critical gaps in the road, road maintenance or public transport system.

Finally, it is worth noting that while most demand management measures are blunt, pricing can raise expectations in relation to journey time reliability.

Policy areas/ positions – as agreed by the Roads Australia members at the April 2010 Summit

- Reduce travel and make congested routes give priority to movement of HOV/public transport and freight - not single occupancy vehicles.
- Influence providers to move to informing users on performance conditions and cost - so they can choose.
- Use space and time aspects of land transport to maximise throughput of people and goods
- Pricing has a role in managing demand to get more from the available capacity
- Increase reliability of travel times between activities
- Ensure community knows and pays the full costs of travel and for disruptions to the road network

Examples of state initiatives and actions – refer to Appendix A for full details of initiatives and actions (to be updated by each state)

- South Australia
 - The State Government has decreed that there will be no road tolls in South Australia for the current terms of Government
- Queensland
 - The State Government has ruled out a state congestion charge or cordon toll
- New South Wales
 - Commissioned time-of-day tolling on Sydney Harbour Bridge and Tunnel in January 2009
- Victoria
 - CBD off-street parking levy and associated public transport improvements

Areas of influence for Roads Australia

Roads Australia will seek to influence the stakeholders to adopt the following initiatives:

- To be determined at the forthcoming workshops.

Principle: Efficient prioritisation of investment in road infrastructure

Priorities

Roads Australia members are conscious that any demands for new capacity to meet the growing population is greater than the available public funds. Accordingly, all urban capacity issues need to be tested against policy solutions before implementation. Investment in additional capacity is a critical component of any integrated congestion management approach. That said it is important to construct already programmed additional infrastructure capacity through motorway and arterial road construction projects and more public transport infrastructure, particularly dedicated non-motorised transport routes.

Investment in capacity should be undertaken in conjunction with travel demand management measures where necessary to address congestion hotspots and alleviate bottlenecks. An example of this is upgrading of motorways and arterial roads where required in addition to “sweating the asset”. Prioritisation of investment in road infrastructure should be made on the basis of increasing travel time reliability, accessibility, road safety and connectivity between modes. Using investment in capacity solely as a measure of congestion management is costly and unsustainable.

Policy areas/ positions – as agreed by the Roads Australia members at the April 2010 Summit

- Promote the institution of connected and managed transport networks in
 - freeways, busways and cycleways
 - rail network
- Promote accessibility and travel time reliability between activities – not parts of the transport system

Examples of state initiatives/actions - refer to Appendix A for full list of initiatives/actions (to be updated by each state)

- South Australia
 - Investigation underway into the feasibility of a multi-modal transport corridor incorporating a new expressway standard road linking the Northern Expressway with the Port River Expressway and the North-South Corridor
- Queensland
 - Completing the strategic road network which includes Airport Link, Port of Brisbane Motorway Upgrade and the Centenary Highway Upgrade and Extensions
 - The completion of the Go Between Bridge (formerly known as Hale St Link), a four-lane tolled bridge, featuring pedestrian and cycle paths, provides a new cross-river connection and better access to some of Brisbane’s most popular education, recreation and cultural precincts
- New South Wales
 - Completion of Sydney Orbital and major road infrastructure upgrades

- Victoria
 - Outer Suburban Arterial Road Program to improve infrastructure capacity and improve safety and to ease congestion on critical parts of the urban road network
 - Delivery of priority projects and programs identified in the Victorian Transport Plan

Areas of influence for Roads Australia

Roads Australia will seek to influence the stakeholders to adopt the following initiatives:

- To be determined at the forthcoming workshops.

Opportunities for Government and Industry

By continuing and building upon the good work already performed by the Roads Australia *Congestion Policy Chapter*, targeted policies can be developed that span the gamut of congestion issues across all states. This is why the structure of this document and explanation of options needs to be well thought out. Further, an industry backed national approach to some of these typically “politically challenging” issues such as pricing provides government with a degree of autonomy to further research, develop and where applicable institute the most appropriate means of managing congestion.

While the big gains will be able to be made through this collaborative approach between industry and government, it is the view of Roads Australia that a national approach to enhance the current information sharing processes that are currently occurring is essential. This should include the sharing of data, measures of success and the provision of assistance in developing performance indicators for each initiative.

How can we improve?

No one initiative can provide a fix to congestion; however as more comprehensive suites of initiatives are developed, positive changes can begin to occur – particularly with regards to the reliability of the network. For the purposes of this document, this has broken this down into two collective groups, local and holistic methodologies.

Finding the right mix of initiatives is not a simple or easy task and the balance will be different in each city depending on a number of factors that are unique to that city. And while it is important to consider initiatives that are relevant to each city’s individual make-up, tailored solutions are commonly the speciality of the roads or transport agency that are implementing them on their networks. An example of this type of initiative is the on road improvements such as bus lay-bys, signal timing improvements, ramp metering and intersection layout improvements. These have proven benefits, but their application needs to be decided locally and any lessons learnt should be exchanged nationally.

Most of these initiatives are network and location specific. They are able to be applied in different cities in different areas, and the results of their implementation will

be different depending on their location. For this reason, a continued focus on local initiatives is not the primary focus of Roads Australia, as Roads Australia's interest in these initiatives includes a learning and information sharing perspective. That said, through improved information sharing, quick wins are made possible.

In contrast to the local initiatives, Roads Australia sees the *Congestion Policy Chapter's* primary role as investigating holistic initiatives. These are initiatives that can be applied across state and territory boundaries and look at the system as whole rather than individual components.

Clearly, funding will be critical to any strategic advances in the Roads Australia agenda. The future of transport funding must use a combination of public and private sources and standard and innovative methods. This is why Roads Australia's *Funding and Financing Chapter* is crucial in moving forward on congestion initiatives, especially considering pricing can influence both maintenance regimes and demand management.

Finally, when discussing possible improvements, timeframes vary depending on the initiative that this being investigated. For example, any significant change to pricing regimes or the introduction of a tax increment financing scheme (a scheme that allows government to tax revenues derived from increases in property values within a prescribed development and use those 'incremental' tax to fund infrastructure that led to the property appreciation¹⁷) requires significant lead time, where as network improvements can be rolled out relatively quickly. For this reason it is important to know what information and data is required to enable short, medium and long term actions, and in doing so, highlight any quick wins that may also be possible.

Analysis of current policy initiatives

This section aims to provide an analysis of the various state actions, however as these were last updated in March of 2009, a review is necessary. The full list is attached as Appendix A. This list will need to be updated to reflect the changes and advancements since that time last year.

Notwithstanding the results of this assessment and gap identification process; Roads Australia sees the opportunity that this *Congestion Policy Chapter* presents as a means to push the difficult and/or challenging aspects of a comprehensive policy agenda. Consequently, the *Congestion Policy Chapter* will investigate the following list of policies in its forward work program.

- Work closely with the *Funding and Financing Policy Chapter* to reflect advances in policy development around funding and financing noting the different needs of pricing.
- Assimilate the framework developed for road user pricing mechanisms, particularly those in heavy vehicle pricing reforms – such as mass, distance location based charging. (Price for elements of the system – pavement damage, emissions and congestion).
- Promote the provision of specific freight routes at specific times.

¹⁷ PriceWaterhouseCoopers, *Tax increment Financing to fund infrastructure in Australia*, Draft Report, Sydney, April 2008.

- Prioritise high occupancy vehicles over single occupancy vehicles during periods of high demand.
- Smart systems/ Ramp metering and other ITS systems.
- Optimise use of capacity – actively manage loss of capacity, ensuring quick clearance of traffic incidents, minimising the impact of road works, and valuing the cost of reduced capacity.
- Provide traveller information – including allocation of bandwidth for in-vehicle communications and provision of roadside technology infrastructure.
- Improve regional transport and land-use planning – to mitigate congestion by constraining urban sprawl to minimise private vehicle use and maximise alternatives, by developing multi-modal corridors, encouraging transit-oriented development, improving accessibility of major services and by improving residential density.
- Manage travel demand – through information and education to encourage travel demand behaviour changes.
- Provide travel choices – including increasing vehicle occupancy, encouraging public transport, walking & cycling and other sustainable modes and reducing the need for travel.

Next steps

We encourage all Roads Australia members to read this paper and provide feedback. Your feedback will inform the final Road Australia’s policy on congestion management.

All feedback regarding this paper should be sent to Mark Bowmer, Media and Policy Director of Roads Australia, at mark@roads.org.au.

After initial assessment on feedback received is completed, Roads Australia will conduct workshops in major cities around Australia to help to identify and determine the areas of influence that Roads Australia will pursue in the future.

In addition the Roads Australia *Congestion Policy Chapter* will keep abreast of the developments in the other policy chapters, particularly the *Financing and Funding Policy Chapter* for developments on funding innovations.

The Policy chapter will also:

- Improve the knowledge and information sharing to and amongst members.
- Fully consider the governments’ agendas on congestion and identify how Roads Australia can positively contribute.

Through this arrangement the *Congestion Policy Chapter* will develop a forward work plan that will build on the government and industry relationship to begin to investigate some of the more difficult policy issues.