



Inland Queensland Roads Action Plan

*Driving Productivity
in Australia's Transport Network*

Inland Queensland Roads Action Plan

30 March 2016



Regional
Development
Australia

TOWNSVILLE AND NORTH WEST QLD

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Inland Queensland Roads Action Plan

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Foreword

Regional Queensland is a powerhouse in the Australian economy. 52%, that is, \$140 billion of Queensland's annual Gross State Product (GSP)¹ is generated outside Brisbane. Industries such as mining and energy, agriculture, tourism and construction contribute significantly in terms of their share of GSP and in terms of direct and indirect employment. For example:

- » The total economic impact of the minerals and energy sector taking into account direct and indirect benefits in 2014/15 was \$64.8 billion, contributing 21.9% of Gross State Product and employing 365,866 people accounting for 15.7% of Queensland's employment. Approximately 40% of this industry activity is based outside South East Queensland. In regions like North West Queensland, the mining sector accounts for 56.2% of direct and indirect regional employment.²
- » The agricultural industry contributes \$13.7 billion and 5% of Gross State Product (GSP) and employs 323,800 people accounting for 14% of Queensland's employment.³ Approximately 88% of these jobs are regionally-based.⁴ Significant new agricultural expansion is already planned in much of Queensland based on water resources associated with major catchments.
- » The tourism industry contributes \$23 billion and 7.6% of Gross State Product and employs 131,000 people accounting for 5.6% of Queensland's employment. The sector contributes \$5.8 billion to export earnings and is the second largest export earner in Queensland after coal. Approximately 40% of this tourism industry activity is based outside South East Queensland.⁵ The international and domestic touring markets now account for 1.3 million visitors to Queensland with annual expenditure of \$1.9 billion.⁶
- » The construction industry contributes \$14.4 billion and 7.7% of Gross State Product and employs 149,400 people accounting for 8.4% of Queensland's employment. Approximately 47% of this industry activity is based outside South East Queensland.⁷

Regional Queensland is also a significant contributor to Australia's exports. 7 of Queensland's ports – Abbot Point, Gladstone, Hay Point, Karumba, Mackay, Rockhampton and Townsville are vitally linked to the inland Queensland Road network, while other ports in South East Queensland also rely on the regional road network to deliver freight to markets. Queensland exports \$49.5 billion of goods overseas each year. The major exports include; food and live animals worth \$7.6 billion, mineral fuels \$19.84 billion and non-ferrous metals \$4.25 billion. A number of export industries have shown considerable growth in value over the past decade – agricultural exports have grown by 104% from 2004/5 to 2014/15 and coal and metal ore exports have increased by 93%.⁸

The scope of the Inland Queensland Roads Action Plan covers 33 local governments and 1.4 million km², which equates to 82% of Queensland and 18.5% of Australia. The area is more than 20 times the size of Tasmania. While the region is large in scale and highly productive, there are opportunities to enhance productivity and road safety outcomes as



Cr Rick Britton
Chair, IQ-RAP Working Group
and Mayor Boulia Shire

1 Queensland Treasury and Trade; 2013

2 Queensland Resource Council; Economic Impact of the Minerals and Energy Sector on the Queensland Economy, 2014/15

3 Department of Agriculture, Fisheries and Forestry; AgTrends, 2013

4 Australian Bureau of Statistics; 2011 Census of population and housing, working population profile

5 Tourism and Events Queensland; Tourism Facts and Figures, September, 2015

6 Tourism and Events Queensland; Understanding Queensland's Touring Market, 2000–2010

7 Australian Bureau of Statistics; 2011 Census of population and housing, working population profile

8 Queensland Government Statistician's Office; Overseas exports of goods by industry, value 2004/5–2014/15, 2015

well as regional economic development outcomes to ensure the long term sustainability and resilience of the region's communities.

The population outside South East Queensland is estimated to reach 1.6 million by 2036.⁹ This is more than three times the population of Tasmania. The purpose of the Inland Queensland Roads Action Plan (IQ-RAP) is to achieve more strategic, long term planning and funding for inland roads to form a stronger network, better safety outcomes, more efficient supply chains, greater resilience to cope with weather events and to sustain regional communities and industries.

Inland routes primarily pass through smaller population centres traditionally welcoming of road transport and benefit significantly from transport-related industries. The vast majority of inland roads are designated road train routes which allow for higher freight productivity and fewer heavy/light vehicle interactions. Efficient and effective inland routes reduce congestion on the populous coastal strip served by the Bruce Highway where coastal terrain, major rivers and more extreme climatic events require significantly higher levels of road infrastructure funding to achieve similar levels of operational efficiency.

This plan provides stakeholders with a high level assessment of the current road infrastructure in the region, a clear understanding of the future road transport priorities for inland Queensland, and a sensible and staged approach to funding the required improvements. To ensure a whole of network approach was taken, the Working Group decided to review the inland Queensland road network of some 16,000 km rather than just take a piecemeal approach through selecting only 1 or 2 types of roads for consideration. The IQ-RAP network consists of the National Road Network for inland Queensland together with Other State Controlled Roads (OSCR) and Local Roads of Regional Significance (LRRS). In total, this network represents the core road network of inland Queensland.

An implementation plan is proposed to convert this understanding into an agreed and funded plan, and to prepare road authorities for the planning, design and construction activities necessary to undertake projects when funds become available.

Achievement of a realistic program of works based on this plan will both improve transport links within inland Queensland and links to the rest of Australia, it will also reduce traffic pressures on Queensland's populous coastal strip.

I encourage you to consider the opportunities this plan presents and the recommendations that can take Queensland and Australia into the next century of prosperity. For more details on the full plan, please visit www.rdanwq.org.au

In closing I would like to thank all 47 funding partners for their vision and unity of purpose in such a unique project, the Department of Transport and Main Roads for the provision of valuable data and information and the IQ-RAP Working Group, Project Team and Secretariat for their commitment to delivering the IQ-RAP.

Cr Rick Britton
Chair, IQ-RAP Working Group and Mayor Boulia Shire

⁹ Queensland Government Statistician's Office; Queensland Government Population Projection, 2013

Acknowledgements

The Inland Queensland Roads Action Plan (IQ-RAP) has been developed by the collaborative partnership of 47 organisations across regional Queensland.

The following partners in the IQ-RAP's development provided their financial support, information, insights and advice to ensure a robust plan that can be used as a planning tool by all levels of government.

- » Balonne Shire Council
- » Banana Shire Council
- » Barcaldine Regional Council
- » Barcoo Shire Council
- » Blackall-Tambo Regional Council
- » Boulia Shire Council
- » Bowen Basin Regional Roads and Transport Group
- » Bulloo Shire Council
- » Burke Shire Council
- » Carpentaria Shire Council
- » Central Highlands Regional Council
- » Charters Towers Regional Council
- » Cloncurry Shire Council
- » Croydon Shire Council
- » Diamantina Shire Council
- » Etheridge Shire Council
- » Far North Queensland Regional Roads and Transport Group
- » Flinders Shire Council
- » Gladstone Regional Council
- » Gladstone Regional Roads and Transport Group
- » Isaac Regional Council
- » Longreach Regional Council
- » Mackay Regional Council
- » Maranoa Regional Council
- » Mareeba Shire Council
- » McKinlay Shire Council
- » Mount Isa City Council
- » Murweh Shire Council
- » Northern Queensland Regional Development Australia Alliance
- » North West Queensland Regional Roads and Transport Group
- » Outback Regional Roads and Transport Group
- » Paroo Shire Council
- » Quilpie Shire Council
- » RACQ
- » Regional Development Australia Far North Queensland and Torres Strait
- » Regional Development Australia Darling Downs South West
- » Regional Development Australia Mackay-Isaac-Whitsunday
- » Regional Development Australia Townsville and North West Queensland
- » Richmond Shire Council
- » Rockhampton Regional Council
- » Rockhampton Regional Roads and Transport Group
- » South West Queensland Regional Roads and Transport Group
- » Tablelands Regional Council
- » Townsville City Council
- » Whitsunday Regional Council
- » Whitsunday Regional Roads and Transport Group
- » Winton Shire Council

The Queensland Government Department of Transport and Main Roads also provided in-kind support through the provision of data and information.

Executive Summary

The vision for the Inland Queensland Roads Action Plan (IQ-RAP) is to increase the quality and accessibility of the road network to maximise the economic prosperity of inland Queensland, thereby contributing to Australia's productivity, quality of life, safety and equity outcomes.

Queensland is a highly decentralised state with its wealth producing centres scattered widely along the coastal strip but more importantly throughout the interior – from major ports and airports through agriculture and mining, to tourism and services. Queensland is also a critical supplier of food, goods and materials to the major population centres in the south of our continent.

Historically, road transport and subsequent investment has focussed on the Bruce Highway as a single coastal link with east-west 'ribs' serving the hinterlands. This approach has produced significant congestion on the coastal network which is also subject to extremes of climatic impact and the pressure of growing population. The coastal network is also neither designed nor appropriate for the operation of Freight Efficient Vehicles (FEV) which maximise productivity of the freight task.

The goals of improving productivity and safety on the inland Queensland road network, along with sustaining regional local governments and communities, brought together 33 local governments, 8 Regional Roads and Transport Groups (RRTGs), Regional Development Australia (RDA) committees and RACQ as a working group to develop a bi-partisan approach to road network planning. This strategic alliance has developed the plan to identify the network and prioritise a program of works over 15 years and beyond. Each of these partners has contributed financially to the project.

The IQ-RAP aims to strengthen the transport 'backbone' in the eastern zone of Queensland by providing a quality inland link connecting northern Australia to Sydney, Melbourne and Adelaide. For the western zone, IQ-RAP aims to prioritise improvement of 'ribs' servicing the west's industry and communities by improving access to the 'backbone'.

THE IQ-RAP NETWORK

The proposed network is based on previous work of the Department of Transport and Main Roads (TMR), recent studies and knowledge from local governments. It was chosen for connectivity to all major communities, wealth generating regions and tourism destinations to the west of the Bruce Highway and outside South East Queensland.

Prioritised investment in the IQ-RAP network is necessary to enhance connectivity between communities in western and northern Queensland and address a range of challenges associated with the current condition and the changing demands on the network. It will also deliver benefit to industry and support Australian Government

strategies to enhance the productivity of northern Australia, contributing to the Australian economy through providing improved and more direct connectivity to southern markets. For example, the beef industry is highly dependent on the transport network for the timely and efficient movement of stock; delays at times of climatic extremes directly impact productivity.

METHODOLOGY

The IQ-RAP marks the first time a strategic level analysis and prioritisation has been undertaken on a network of around 16,000km of rural roads, and provides a methodology that can continue to be used to monitor the infrastructure gap and review priorities. It analyses existing data on road and bridge conditions against established TMR intervention and vision standards, and prioritises investment based on the following values:

- » Economic value - Supports economic activity across all industries, and is able to carry heavy freight efficiently in most weather conditions with enhanced safety levels for all users;
- » Strategic intent - Provides stimulus to future economic development;
- » Safety - Carries traffic safely;
- » Access - Ensures roads within the network are of a consistent and adequate quality with predictable travel conditions; and
- » Social value - Connects communities for education, health, employment, business and recreation.

The needs and aspirations of road users were considered in the identification and prioritisation of works, which called for:

- » A robust network of inland roads connecting to and providing viable alternative routes to the Bruce Highway, as well as servicing those seeking an inland route to southern states;
- » Roads to be built and maintained to 'fit for purpose' standards; and
- » A prioritised program of works resulting in timely improvements, to meet industry development and operational needs, and continuity of work for dedicated local workforces.

This plan provides stakeholders with a high level assessment of the current road infrastructure in the region, a clear understanding of the future road transport priorities for inland Queensland, and a sensible and staged approach to funding the required improvements.

An implementation plan is proposed to convert this understanding into an agreed and funded plan, and to prepare road authorities for the planning, design and construction activities necessary to undertake projects when funds become available.

Achievement of a realistic program of works based on this plan will both improve transport links within inland Queensland and links to the rest of Australia, it will also reduce traffic pressures on Queensland's populous coastal strip.

The IQ-RAP is not intended to be a static plan, but rather an ongoing initiative that will monitor progress and respond to economic and community needs. Future reviews of the IQ-RAP will see the network refined to ensure links essential to community connectivity and economic development are included as further planning and updated data is considered. Updates will also highlight the achievements of IQ-RAP in attracting funding and the projects delivered.

IQ-RAP PROPOSED PROGRAM OF INVESTMENT

Prioritisation of investment into 5, 10 and 15 year program horizons is demonstrated in Table 1.

The proposed program is necessarily unconstrained in its funding implications. It provides a quantitative basis for funding submissions to realise essential improvements to the inland Queensland road network.

MAKING IT HAPPEN

This plan is intended to provide stakeholders with a high level understanding of the current road infrastructure in the region and a clear understanding of the future road transport priorities for inland Queensland. An implementation plan is proposed to convert this understanding into an agreed and funded plan, and to prepare road authorities for the planning, design and construction activities necessary to undertake projects when funds become available.

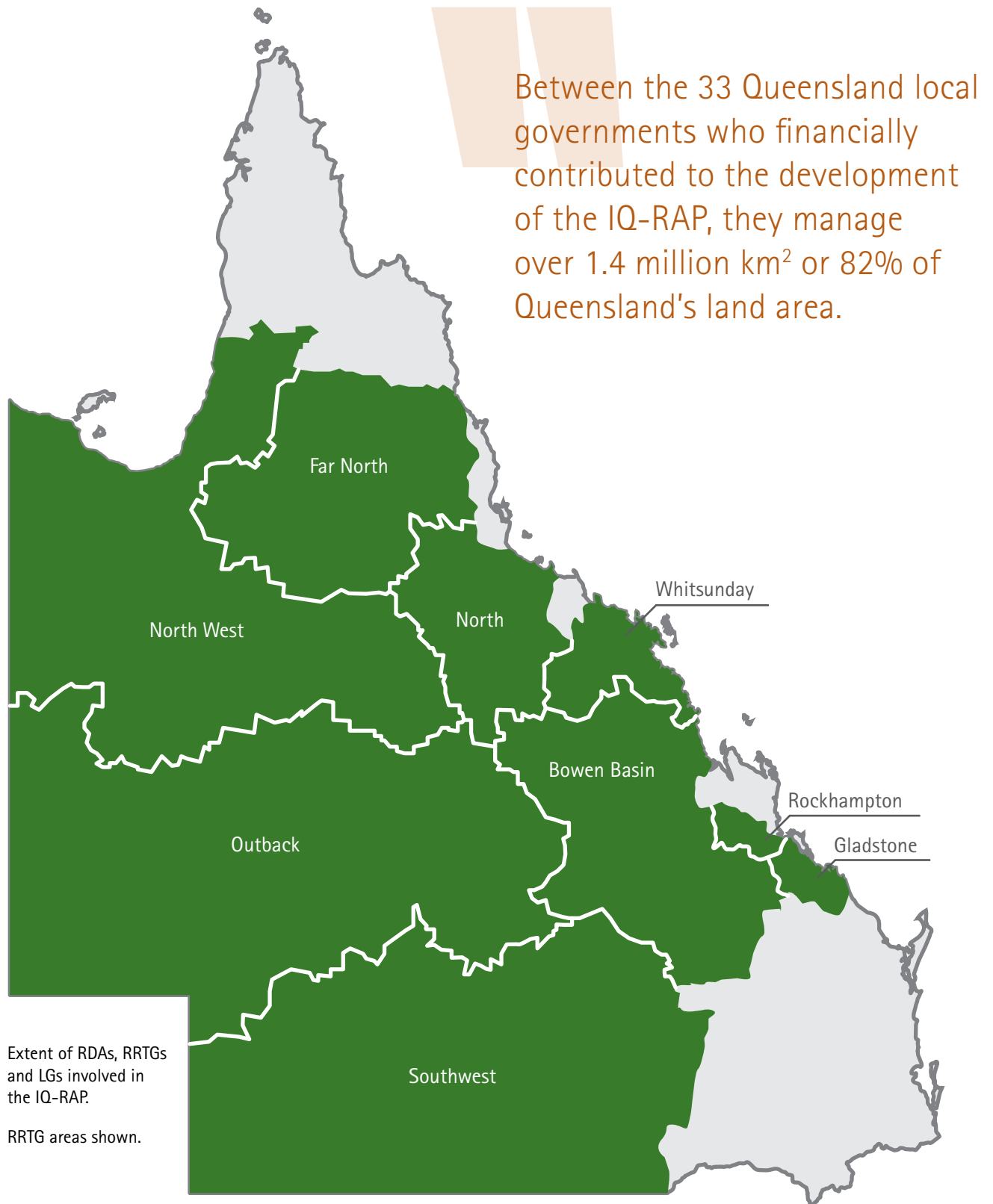
Achievement of a realistic program based on this work will prove the maxim that 'What's good for inland Queensland is good for Australia'.

Table 1: Summary of proposed future IQ-RAP investment

RRTG	Strategic estimate ¹⁰ \$m	Future investment \$m			
		1-5yr	6-10yr	11-15yr	15+ yrs
South West	694	86	343	265	
Outback	903	106	337	410	50
North West	1,222	176	305	307	434
Bowen Basin, Rockhampton, Gladstone	964	220	424	320	
Whitsunday	417	92	126	81	118
North Queensland	491	170	132	189	
Far North Queensland	321	72	146	103	
TOTAL	5,012	922	1,813	1,675	602

¹ Strategic Estimate in \$ 2015, subject to planning and design considerations.

Figure 1: Extent of area covered by the 33 local governments involved in IQ-RAP with RRTGs shown¹



¹ Data used in this figure sourced from Queensland Government Statisticians' Office 2015

1. Introduction

The Harrison Infrastructure Group (HIG) has been engaged by the Regional Development Australia Townville and North West Queensland (RDA TNWQ) committee on behalf of the IQ-RAP Working Group to prepare the IQ-RAP.

The goals of improving productivity and safety on the inland Queensland road network, along with sustaining regional local governments and communities, has led to the formation of a strong strategic alliance of 33 local governments, 8 RRTGs, RDA Committees and RACQ. This strategic alliance has developed a plan to identify the network and prioritise a program of works over 15 years and beyond. Each of these partners has contributed financially to the project. Figure 1 demonstrates the geographic area covered by contributing local governments and the associated RRTGs.

The development of the plan has been undertaken with in-kind cooperation from TMR, which has provided data and existing planning.

The IQ-RAP has seen inland Queensland local governments join together to prioritise investment in projects on key transport routes that will improve productivity and safety for inland Queensland, and identify the required funds to undertake the works.

2. Background and context

1. THE INITIATION OF THE IQ-RAP

RDA TNWQ first considered the concept of developing a Roads Action Plan for the inland Queensland region shortly after the success of the Bruce Highway Action Plan (BHAP) in securing long term funding commitments from the Australian and Queensland Governments.

RDA TNWQ believed there was an opportunity for better outcomes on inland Queensland roads through greater cross-regional collaboration, long term planning and increased long term funding. This would ensure greater certainty for budgeting and execution of works, sustaining the regional work force and equipment needed to maintain and upgrade roads in inland Queensland.

RDA TNWQ engaged with four other RDAs (Far North Queensland and Torres Strait, Mackay-Isaac-Whitsunday, Fitzroy Central West and Darling Downs South West) to convene a forum to discuss the opportunity. Meetings were convened with more than 50 stakeholders in Longreach in December 2013 and in Mount Isa in August 2014 to discuss common issues and objectives and how, through collaboration, a stronger case for investment in regional road infrastructure could be developed to achieve more reliable and consistent funding over a longer period.

At the Longreach meeting, an Interim Working Group was formed and chaired by RDA TNWQ Member and Boulia Mayor, Cr Rick Britton. RDA TNWQ acted as Secretariat in taking the project forward.

At the Mount Isa meeting, the RRTGs committed to contributing financially to the Secretariat. This was further supported by the Northern Queensland Strategy Alliance (includes the four northern Queensland RDA Committees from Far North Queensland and Torres Strait, Townsville and North West Queensland, Mackay-Isaac-Whitsunday and Fitzroy Central West).

In October 2014, an ongoing Working Group was formed with an agreed Terms of Reference and election of the Working Group Chair, Cr Butch Lenton, Mayor of Winton Shire Council, and appointment of representatives from the eight participating RRTGs, four RDA partners and RACQ. The Working Group and their delegates have been the steering committee for the development of the IQ-RAP.

During November 2014 to July 2015, the tender process was undertaken and project funding raised to engage consultants to prepare the plan. The Harrison Infrastructure Group was engaged in late August 2015.

In November 2015 Mr Peter Maguire, Mayor of Central Highlands Regional Council succeeded Cr Butch Lenton as Chair of the Working Group and Project Team.

2. THE ROLE OF THIS PLAN

With cooperation between regional Queensland RDAs, RRTGs, local governments and RACQ, this plan represents a key milestone in forming a joint vision for the inland Queensland road network.

In commissioning this plan, the IQ-RAP Working Group has sought to quantify the problem with Queensland's inland road network through determining:

- » The extent and condition of the elements of an agreed network of local, regional and main roads;
- » The deficiencies in that network compared with desirable minimum standards;
- » The cost of upgrading the network to remove the deficiencies; and
- » A prioritised program of work recognising developmental pressures, community expectations, and workforce needs.

This plan not only provides a prioritised program of work, but a methodology for continuing to understand the problem, evaluate priorities and review the program. It includes an analytical tool and describes a planning process which can evolve, and continue to provide credible analysis and results on which to base road network prioritisation in inland Queensland.

The IQ-RAP is an ongoing initiative that will monitor progress and respond to economic and community needs. Future reviews of the IQ-RAP will likely see the network refined to contain further links essential to community connectivity and economic development as further planning and updated data is considered. Updates will also highlight the achievements of IQ-RAP in attracting funding and the projects delivered.

The IQ-RAP methodology has the potential to be used by other regions and jurisdictions to achieve improved understanding of the infrastructure gap and inform prioritisation of investment.

It can deliver benefit to industries and support Australian Government strategies to enhance the productivity of northern Australia, contributing to the Australian economy through providing improved and more direct connectivity to southern markets. For example, the beef industry is highly dependent on the transport network for the timely and efficient movement of stock; delays at times of climatic extremes directly impact productivity.

3. PRACTICAL LIMITATIONS

A whole of network approach to needs-assessment, in a relatively short study time frame, necessarily involves:

- » A desktop review of significant volumes of existing available data, some of which was dated and limited in detail;
- » Where detailed information was not available, adoption of average costs for upgrading treatments (which cannot easily take account of local factors); and
- » Brief consultation with local governments, RRTGs and TMR on standards, deficiencies, priorities, planned projects and costs.

While assessment has been undertaken at a strategic level, there is no indication that priorities identified would be different if a more detailed assessment was undertaken across the IQ-RAP network.

4. INLAND QUEENSLAND ROAD NETWORK CHALLENGES AND OPPORTUNITIES

QUEENSLAND'S SIZE AND DISPERSED COMMUNITIES AND ECONOMIC RESOURCES

Regional, rural and remote roads throughout inland Queensland carry a significant portion of the export and domestic freight task, as well as supporting the tourism market and connecting communities for emergency and day to day requirements.

52% of \$140 billion value of Queensland's Gross State Product is generated outside of Brisbane.²

In the past 10 years, Queensland's agricultural industry has increased exports by 104% and the coal and metal ore exports have increased by 93%. In the same period the 7 Queensland ports (Abbot Point, Gladstone, Hay Point, Karumba, Mackay, Rockhampton and Townsville) that are vital to the IQ-RAP area increased their export volume by 47.5% to 222 million tonnes per annum (excluding sugar and aluminium ores which are not included in ABS data). In 2015, approximately 68% of Queensland exports were exported through these ports (\$33.5 billion of Queensland's \$49.5 billion in exports)³.

Safe and reliable access is essential to sustaining growth and to the health of regional and rural communities and economies, contributing significantly to the state and national economy.

ROAD NETWORK CONDITIONS LAGGING BEHIND COMMUNITY AND INDUSTRY EXPECTATIONS

Rapid changes in communication technology are having enormous impacts on the well-being of rural communities – audio and video communication, business transactions, household purchasing and financial dealings, health and education, and farm and business management.

² Queensland Treasury and Trade, 2013, Experimental Estimates of Gross Regional Product, 2011 figures used

³ Queensland Statistician's Office (2015) Overseas exports of goods by industry, value, Queensland 2004–5 to 2014–15

However, there have not been similar 'giant leaps forward' in the transport network. While excellent progress has been made in the completion of sealing and upgrading of major highways, investment in inland road networks has fallen well behind community expectations.

These expectations relate to connectivity and reliability - safe driving conditions on links between towns and the predictability of being able to undertake a journey even in wet weather.

SAFETY

The inland Queensland road network experiences a range of safety problems including a lack of overtaking opportunities, particularly on unsealed and single lane sealed roads. It also has narrow road sections and bridges with width and strength limitations that constrain safe access for Freight Efficient Vehicles (FEV). FEV provide efficiencies in the movement of freight by having greater payload being hauled by one driver and can include 'type one' and 'type two' road trains.⁴

CHANGING PRESSURES ON EXISTING ROAD NETWORK

At the same time, there have been major developments in rural Australia impacting the condition and adequacy of the transport network including:

- » Coal and gas exploration and facility development;
- » Growth in road based tourism;
- » Demand for more reliable accessibility for cattle transport to domestic and live-export centres;
- » Reduction in reliability and use of rail in some areas;
- » General mining development and utilisation of larger and more freight efficient vehicle combinations;
- » Sugar industry expansion increasing use of road transport for sugar cane to mills; and
- » Increasing reliance on roads for bulk movement of grain direct to ports, bypassing local bulk grain storage facilities.

CLIMATIC PRESSURES

Variability in climate such as long periods of drought, major storms and flooding also impact the road network, particularly unsealed roads, by:

- » Disrupting access and reliability;
- » Increasing the movement of livestock to agistment; and
- » Reducing allowable loadings on wet roads.

PRESSURES ON LOCAL GOVERNMENT

Local governments have traditionally undertaken a vital third tier role in the building and management of roads throughout Australia, and particularly in rural areas. In Queensland this amounts to 152,827 km of road that is the responsibility of local government⁵.

4 TMR Guideline for Multi-combinational vehicles: "Type 1" uses either a rigid truck hauling unit towing one trailer with a combination length of no longer than 31.5m or a prime mover hauling unit towing two trailers with a combination length no longer than 36.5m or B-triple and AB-triple combinations up to 36.5m. "Type 2" uses either a rigid truck hauling unit towing two trailers with a combination length no longer than 47.5m or a prime mover hauling unit towing three or four trailers with a combination length no longer than 53.5m or AB-triple combinations longer than 36.5m and up to a length of 44.0m.

5 http://regional.gov.au/local/publications/reports/2013_2014/INFRA2466_LGNNR_2013-14.pdf

Limited revenue raising capacity, coupled with uncertainty on the availability of funding from year to year from other levels of government, can create the following difficulties:

- » Maintaining a stable workforce - this is essential for maintaining capabilities and knowledge in building roads in remote areas, as well as supporting the viability of struggling rural centres;
- » Local Governments are often limited to projects that are urgent and reactive, rather than a program of strategic road projects; and
- » The interconnectedness of local government networks to the networks of neighbouring local government is reliant on cross boundary consistency and investment.

FOCUS ON THE DEVELOPMENT OF NORTHERN AUSTRALIA

The Australian Government has assigned a high priority to the development of northern Australia and has announced funding initiatives designed to assist the region in harnessing its potential. These initiatives offer an opportunity for the implementation of the IQ-RAP in northern Queensland and include the following.

- » The Northern Australia Infrastructure Audit⁶ assessed critical economic infrastructure to identify gaps to meet projected northern Australia population and economic growth through to financial year 2031. The audit only included National Network roads, much of which form part of the IQ-RAP network. The audit identified a range of improvements required to address capacity, safety and reliability issues.

"Over half of the North Queensland network exceeds the theoretical design life and an increasing proportion, currently one third, of network seals are older than the target optimum."⁷

- » \$100 million Northern Australia Beef Roads Fund available for targeted upgrades to key roads necessary for transporting cattle.
- » \$5 billion Northern Australia Infrastructure Facility (NAIF) will provide concessional loans for major infrastructure in northern Australia. The loans are provided to build the economic capacity and to create longer term expansion of industry and population in northern Australia.
- » \$600 million Northern Australia Roads Program available between 2015-16 and 2019-20 will provide 80% of project costs with private sector, state or local government providing the remainder. The program will consider private sector opportunities that will leverage Australian and state or territory investment in the road network. For example:

"If an upgraded road can deliver faster or more reliable transport times, commercial users of that road may be interested in contributing to the cost of the upgrade - through an upfront co-contribution to the capital cost of the upgrade or through paying a user charge or in some other way."⁸

6 http://infrastructureaustralia.gov.au/policy-publications/publications/files/IA_Northern_Australia_Audit.pdf

7 http://regional.gov.au/local/publications/reports/2013_2014/INFRA2466_LGMR_2013-14.pdf

8 http://minister.infrastructure.gov.au/pf/releases/2015/November/pf021_2015.aspx

5. REPORTS AND INITIATIVES

REGIONAL DEVELOPMENT AUSTRALIA

Regional Development Australia (RDA) is a national network of 55 regionally based committees made up of local leaders who work with all levels of government, business and community groups to support the sustainable economic development of their regions.

The RDA Townsville and North West Queensland Committee (TNWQ), with the support of 4 other Queensland RDA committees, has been instrumental in the initiation of the IQ-RAP.

REGIONAL ROADS AND TRANSPORT GROUPS

Local governments are working collectively as RRTGs in overcoming an insular approach based on boundaries and jurisdictions, and to promote the need for a better, smarter and more sustainable approach to the management of Queensland's inland road network. Established in 2002, the Roads and Transport Alliance (RTA) is a partnership which seeks cooperative governance arrangements between TMR, the Local Government Association of Queensland (LGAQ) and local governments to plan, invest in and regionally manage the Queensland transport network.

EXISTING REPORTS

There is considerable background information available through recent reports prepared by industry transport groups, government departments and economic development groups. These provide significant insights into drivers for system upgrading, the deficiencies that exist and their impacts, the structural challenges of managing such a significant asset across various jurisdictions and the needs of a range of stakeholder groups. These reports have informed sections 3 and 4 of this plan.

Figure 2: Recent resealing of Boulia-Tobermorey Road



3. The Inland Queensland Roads Action Plan network

The IQ-RAP network was identified to consider and develop a pathway forward for future funding of roads west of the Bruce Highway and outside the South-East Queensland corner.

With inputs from RRTGs and the Working Group, HIG has identified the key network of existing roads for inclusion in the IQ-RAP network. The network is based on previous work of TMR, other studies and local knowledge from local governments. A network was chosen that connects all of the major communities, wealth generating regions and tourism destinations to the west of the Bruce Highway. These are shown on a map in Figure 3 and listed in Appendix A.

A number of other studies have examined these roads, including the Queensland Logistics Council (QTLIC) Inland Highway Strategy. However, these studies have been limited to either a particular section of the network or a specific strategic intent (e.g. freight, tourism or mining alone). The IQ-RAP network included in this plan is based on information currently available and may be refined in the future as updated data is available and further planning occurs.

The IQ-RAP marks the first time a strategic level analysis and prioritisation has been taken on the inland network spanning nearly 16,000 km of rural roads.

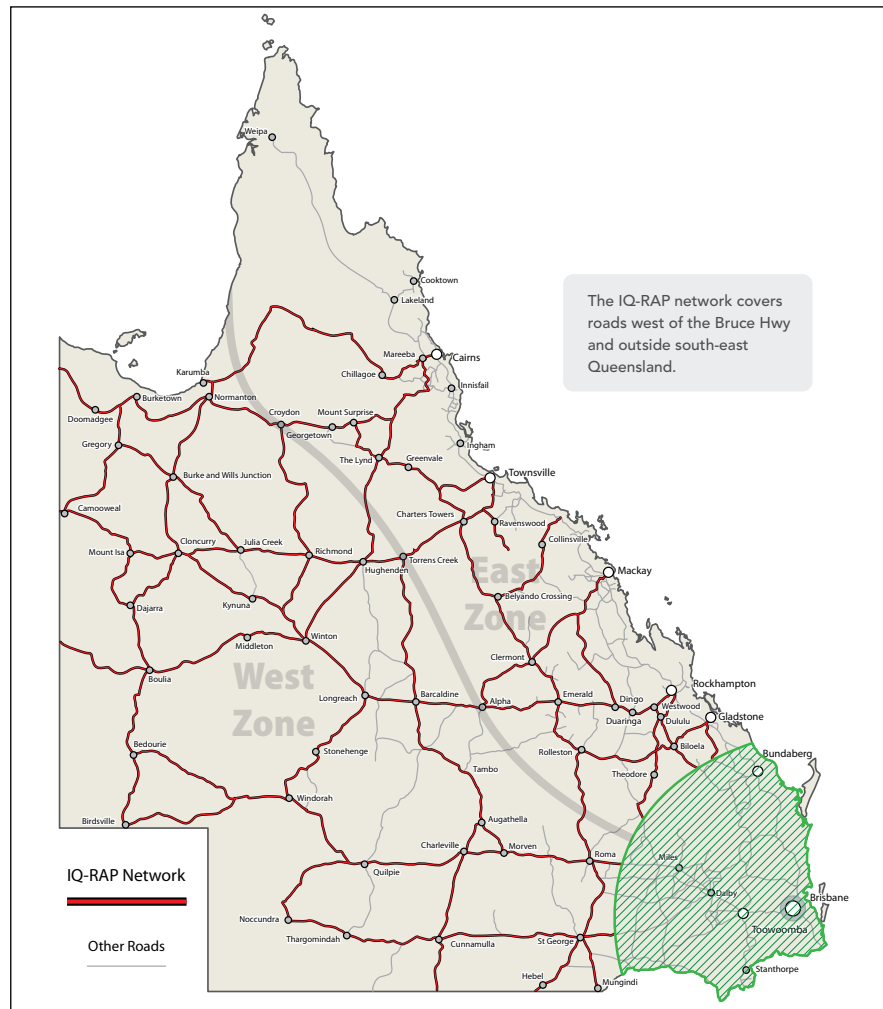
The network and subsequent program has been divided into an eastern and western zone as shown in the list of roads in Appendix A.

In the eastern zone traffic volumes are driven by the inter-relationship between the more populated eastern regional areas of Queensland. The eastern zone includes Far North Queensland, Bowen Basin, Rockhampton, Whitsunday and Gladstone RRTGs and Northern RRTG members of Charters Towers Regional Council and Townsville City Council. The north-south links of this network aim to provide a 'backbone' in the east that is a quality link connecting northern Australia to Sydney, Melbourne and Adelaide.

The western zone reflects the rural and outback economies and includes the areas covered by the North West Queensland, Outback and South West Queensland RRTGs. Investment in the western zone provides the 'ribs' that connect to the 'backbone' to the east, and supports industry, development and access for western communities and economic centres.

The Working Group believes these two areas should be considered separately to ensure that – instead of simply allocating funds based on traffic volumes – equitable investment occurs to support the growth in western Queensland communities, facilitate equitable access to critical services as well as distribute consistent funding for employment in these western communities.

Figure 3: Inland Queensland Roads Action Plan Network Map



The patchwork quality of this road network has been addressed by the IQ-RAP. Missing links have been identified and a prioritised program developed to fill these gaps.

The IQ-RAP network consists of the National Road Network for inland Queensland together with Other State Controlled Roads (OSCR) and Local Roads of Regional Significance (LRRS). In total, this network represents the core road network of inland Queensland.

1. NETWORK NEEDS

The IQ-RAP network has a number of issues relating to the current standard of the roads. These issues limit the network's effectiveness in meeting community and industry needs. These include:

- » Existing road condition and configuration with deficiencies such as road roughness, sharp corners and crests and narrow seals and pavements that reduce travel speed and increase vehicle operating costs. These factors increase the potential for vehicle damage and more frequent and severe road crashes;
- » Roads not sufficiently wide for the safe operation of Freight Efficient Vehicles (FEV) carrying freight; and
- » Lack of an all-weather surface, with approximately 2,100 km of the network currently unsealed, or low level culverts/bridges causing unpredictable travel times – with the road frequently inaccessible or closed due to flooding and/or wet conditions or damage resulting from flooding. In the north, unsealed sections of road are found mostly on north south links impacting community connectivity and the economy.

The impacts from closed and flooded networks include delayed deliveries, reduced business and tourism, ruined fresh produce and an inability to attend jobs.¹⁰

2. STAKEHOLDER NEEDS

A review of a number of reports published in the past five years has been undertaken to inform the development of a vision for the IQ-RAP and capture the perspectives of the transport industry, agricultural sector, local governments and other government authorities.

TRANSPORT INDUSTRY NEEDS

It is well documented that the current inland Queensland road network presents a range of issues to the transport industry that, unless addressed, will continue to impact economic development and productivity. These issues build the case for the implementation of the IQ-RAP.

A report from the Mount Isa to Townsville Economic Zone (MITEZ) identifies the example of the Flinders Highway and in doing so describes the poor road conditions experienced on many key rural routes.

Speed restrictions due to poor ride quality, lack of passing lanes, no shoulders for emergency stops, narrow bridges, and reduction in allowable axle loads during the wet season all impact transport operations.

MITEZ identifies permitted access to roads by 'much higher productivity road freight vehicles' with corresponding upgrading of roads and bridges as needed for inland Queensland.⁹

⁹ Mount Isa to Townsville Economic Development Zone and AMSTEC Design 2010

The Queensland Transport and Logistics Council¹⁰ sees the upgrade of a Queensland inland highway as an important initiative to provide an alternative to the Bruce Highway. There are capacity issues on the Bruce Highway and heavy vehicles from coastal Queensland to Melbourne/Adelaide and points in between would find an inland highway an attractive alternative as it offers considerable distance savings.

One improvement to a candidate route raised by the RDA in its report¹¹ is the extension of the triple road train route from Clermont to Emerald. This implies a through-route approach to road upgrading in terms of standards and priorities.

The Transport and Infrastructure Council also supports the "establishment of a national rural and remote arterial road network development plan that focuses on key regional strategic secondary roads".¹²

AGRICULTURE SECTOR NEEDS

85% of land in Queensland is used for agriculture and grazing. Queensland is Australia's largest beef producing state or territory, representing almost 50% of Australia's total gross value of production each year (worth \$3.259 billion in 2013-14).¹³ For 2015, the industry contributed \$13.7 billion (5% of the Gross State Product) and employed 14% of Queensland's workers.¹⁴ The Department of Agriculture, Fisheries and Forestry (DAFF) Strategic Plan for 2014-2018 indicates that the Queensland Government's goal is to double agricultural production by 2040.¹⁵

DAFF's stated strategies for building agricultural sector capacity and industry resilience include influencing transport infrastructure development and logistics planning and developing supply chain efficiency by improving timing and economies of scale in commodity movement.

*"Road reliability is of paramount importance to the agricultural industry... the ability to access markets when the price is right and the produce is ready is essential for financial success."*¹⁶

Figure 4: Cattle loading at Cloncurry cattle yards



¹⁰ Queensland Transport and Logistics Council 2015

¹¹ Northern Queensland Strategy (Northern Queensland RDA Alliance) Business Cases, Cummings Economics, 2014

¹² Transport and Infrastructure Council 2015

¹³ Queensland Department of Agriculture and Fisheries 2014

¹⁴ Department of Agriculture, Fisheries and Forestry 2013

¹⁵ Department of Agriculture, Fisheries and Forestry 2014

¹⁶ Infrastructure Australia 2015

Moving cattle in the north involves some of the longest land transport distances of any Australian commodity.¹⁷ The long distances raise costs (35% of livestock cost is contributed by its transport) and increase risks – road closures due to climatic conditions can isolate producers from markets for extended periods of time.

The importance of the transport network to the beef industry is also acknowledged by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), recognising the potential of improved profitability in the beef and cattle industry by allocating road funding “to better reflect where road use and road damage occur”.¹⁸ Their report recommends the development of a user-pays model, supported by analysis of road use and maintenance costs.

MINING AND ENERGY SECTOR NEEDS

Queensland has a world-class resource industry. The industry, (and more importantly the wide range of industries that service both resource industry and resource communities), cannot operate without an efficient road network. While the bulk movement of coal and minerals is primarily by rail; mining and port developments place local demands on road infrastructure to facilitate access to sites. Similarly, while export LNG is transported by pipeline, the development of wells and compressor stations requires widespread access to a quality road network. During the project development stage, the resource industry relies on heavy plant and equipment to be transported to the sites by road, usually by over-dimensional vehicles.

In 2014-15, resources industry directly and indirectly generated one in five dollars in the Queensland economy and one in six jobs. The industry directly supported 24,400 Queensland businesses with the purchase of goods and services. In Gross State Product terms, the total direct and indirect economic impact of the sector in 2014/15 was \$64.8 billion. (add footnote)

While the industry is currently facing soft commodity prices on global markets, the long-term fundamentals for Queensland resources are very positive. China has committed to doubling per capita income between 2010 and 2020. Much of that economic growth is fueled by Queensland resources. While the rate of growth for China has recently “slowed down” to 6-7 percent annual rate of growth, our neighbours in India and South East Asia are just stepping on the growth accelerator.

The International Energy Agency (IEA) released their most recent forecasts in the World Energy Outlook for 2015 predicated on all countries delivering against all their emission reduction pledges made in Paris. Even in this context, the IEA still forecast that by 2040 coal, gas and uranium will continue to underpin global electricity production.

The resources and energy sector will continue to be a major contributor to the Queensland economy well into the future, including through the development of renewable energy. A productive and safe road network will be vital for this industry's growth.

TOURISM SECTOR NEEDS

The tourism industry contributes \$23 billion and 7.6% of Gross State Product and employs 131,000 people accounting for 5.6% of the Queensland's employment.

The Queensland Government's Queensland Drive Tourism Strategy identifies benefit in

¹⁷ http://minister.infrastructure.gov.au/wt/releases/2015/September/wt286_2015.aspx

¹⁸ Australian Government Department of Agriculture and Water Resources 2015

"investment in roads and maintenance; providing frequent and safe overtaking lanes on major highways and ensuring road networks are less vulnerable to major floods...

"¹⁹ and the Queensland Tourism and Transport Strategy: Discussion Paper 2015 states that "through the collaboration of state and local governments in planning, designing and managing transport infrastructure and public spaces, we can enhance the visitor experience and the appeal of destinations."²⁰ The sector contributes \$5.8 billion to export earnings, with 40% occurring outside of south east Queensland, and is the second largest export earner in Queensland after coal.²¹

LOCAL GOVERNMENT NEEDS

Although much of the IQ-RAP network is made up of State Controlled Roads (SCR), 6.5% (by length) are local government roads.

Local governments in rural areas have a low rate base with little scope for revenue raising through licensing and fines, and are often reliant on grants from other levels of government to manage their road network. An upgrade in one local government area delivers few benefits unless the neighbouring local government delivers improvements on their section of the link.

Structural change to how this nationally significant asset group (rural local roads) is planned, managed and funded²² has been identified as a key reform. A MITEZ report suggests that:

"With long lengths of deficient road, increasing community expectations and limited funds, it is imperative that identification, planning and prioritisation of road improvements is done in a fully cooperative manner involving government, industry and the community. This is even more critical in major transport corridors... in order to create... a transparent hierarchy of timely, efficient and sustainable plans and investments..."²³

A number of reports have identified the need for a strategic road network upgrade program. The Outback RRTG²⁴ identifies the need for a program of work on a priority road network and this road network would include links that are critical for tourism, livestock, mining and community access.

The North West Queensland RRTG highlights the importance of a funding boost to deliver such a program to "facilitate vital capital roadwork programs... to drive the economy of the region, stop migration out of communities... and respond to natural disasters"²⁵.

A funded strategic road network upgrade program would be a key enabler in the retention of skilled regional road workforces by local governments to deliver road projects, efficiently respond to natural disasters and contribute socially and economically to these communities.²⁶ This is especially relevant as many local government workforces deliver works on OSCR in addition to their own local

¹⁹ Department of Tourism, Major Events, Small Business and the Commonwealth Games 2012

²⁰ Tourism, Major Events, Small Business and the Commonwealth Games and the Department of Transport and Main Roads 2015

²¹ Tourism and Events Queensland September 2015

²² Australian Rural Road Group 2010

²³ Mount Isa to Townsville Economic Development Zone and AMSTEC Design 2010

²⁴ Outback Regional Road and Transport Group 2010 and 2015

²⁵ North Western Queensland Regional Road and Transport Group 2014

²⁶ Outback Regional Roads and Transport Group 2013, North West Queensland Regional Roads and Transport Group 2014

government program. A funded forward program provides the certainty for local governments to retain a critical skills set in regional Queensland. Such ongoing programs of work in rural areas by the local workforce can often provide a more cost effective and higher quality outcome, compared to undertaking a more 'bulked up' program of works when large funding allocations are made to address natural disasters and contract resources are brought in from outside the local area.

An ongoing investment in upgrading the regional road network will improve the resilience of the road network against major climatic events and thus minimise the exposure of both levels of government, Australian and Queensland, to the cost of major adverse weather events.

Improving connectivity for local governments and their economies and communities is a key outcome of a funded strategic program. An example would be the completion of sealing of the Hann Highway between The Lynd and Hughenden as part of an important north-south transcontinental route (i.e. the Cairns to Melbourne/Adelaide route).²⁷

OTHER GOVERNMENT AUTHORITIES

A range of government agencies have expressed an interest in the improvements needed by the inland Queensland road network and the potential benefits from investment, including the following examples:

1. The Australian Government has a significant military presence in regional Queensland with Australia's largest army base in Townsville and a navy presence in Cairns. Defence exercises are held across regional Queensland, requiring the movement of specialist vehicles and equipment.
2. Infrastructure Australia identifies the need to widen narrow seals, renew weak pavements, upgrade bridges, improve horizontal and vertical alignments, improve flood immunity, expand capacity in high traffic areas, and deliver other safety related improvements. This program of work needs to be supported by a list of critical road projects.²⁸
3. The Northern Queensland RDA Alliance's 2014 Northern Queensland Strategy identifies the need to:
*"Improve the NQ road system to reduce travel times, vehicle operating costs and wet weather susceptibility, improve safety and connectivity to support major new developments. In particular, extend the triple road train route from Clermont to Emerald and complete sealing the Aramac-Torrens Creek Road and the Hann Section of the Kennedy Developmental Road."*²⁹

The report highly recommends the development of a Queensland Western Roads Action Plan which became known as the Inland Queensland Roads Action Plan (IQ-RAP).

Often the local government transport network provides a crucial role in connecting industrial areas to strategic state and national freight networks.³⁰ Therefore it is critical to ensure that not only the main transport spines are developed but also that the connecting links are of an adequate standard to provide access to the priority routes.

²⁷ Etheridge Shire Council, Flinders Shire Council and Cummings Economics 2008

²⁸ Infrastructure Australia, Price Waterhouse Coopers and GHD 2015

²⁹ Northern Queensland Strategy (Northern Queensland RDA Alliance) Business Cases, Cummings Economics, 2014

³⁰ TMR 2013

4. The case for investment west of the Bruce Highway

Queensland is a highly decentralised state and so requires a well-developed transport network, including a hierarchy of roads that serve major centres and facilitate connectivity to remote areas.

1. ROLE AND DEVELOPMENT OF THE BRUCE HIGHWAY

The Bruce Highway is the arterial route connecting the coastal cities and towns of Queensland. It is located at the eastern margin of the state, and services a relatively narrow coastal strip, particularly in the north.

The Bruce Highway is subject to long periods of wet weather disruption. "It carries high volumes of truck traffic, which together with local traffic, seasonal tourist and local sugar cane traffic, is experiencing capacity and safety problems.

In 2011 the North Queensland Roads Alliance, made up of northern Queensland Mayors and RACQ commissioned the AEC Group to assess the "Economic Impacts for North Queensland of Closures of the Bruce Highway"³¹. Its findings were that a 24 hours loss of trade on the Bruce Highway resulted in negative economic impacts in both North Queensland and South East Queensland of:

- » Direct Impacts of \$3.3 million in Output; \$1.6 million in Gross Value Added; \$0.9 million in Income and 21 Full Time Equivalent employment (FTE) positions
- » Indirect Impacts of \$2.1 million in Output; \$0.9 million in Gross Value Added; \$0.5 million in Income and 8 FTEs.

In the same report, there was a noted correlation between weather events and business confidence, seasonal spikes in unemployment and tourism visitation. There were noted to be 400 closures of the Bruce Highway due to flooding between 2010 and 2012.

Assessments were also undertaken of the impact of delays on commercial and private vehicles from flood closures at some sample points. For example, at Sandy Gully in the Whitsunday Regional Council area, the road was closed by an average of 210 hours per season with a total negative economic impact of \$60.8 million.

Upgrading to address these issues is continuing, supported by the 2012 report 'Bruce Highway Action Plan – Out of the Crisis'³²

*"While the 10 year upgrade program to the Bruce Highway will overcome current deficiencies, upgrades will not necessarily provide for a longer term solution to cater for substantial (forecast) growth."*³³

³¹ AEC Group, North Queensland Roads Alliance, 2012

³² TMR 2012

³³ Queensland Transport and Logistics Council 2015

2. COMPLEMENTARY ROLE OF THE INLAND NETWORK

The inland network offers a range of advantages and has an important role in complementing the Bruce Highway.

The eastern section of the IQ-RAP network provides a number of diversion routes to the Bruce Highway if it was to be closed to traffic due to flooding or an incident. This provides for increased resilience in the network to enable the continued supply of goods to communities and decreasing potential economic impacts in times of natural disaster.

The inland road network also provides an alternative route to avoid and subsequently decrease congestion on the Bruce Highway as well as provide distance and time savings across a range of routes between regional centres, agriculture and mining centres and interstate cities such as Sydney and Melbourne.³³

Depending on the inland route taken, a trip between Cairns and Melbourne is up to 505 km shorter than if the trip goes via the Bruce Highway, from Mount Isa to Melbourne the inland route provides a saving up to 1170 km. ³⁴

With 52% or \$140 billion value of Queensland's Gross State Product (GSP) generated outside Brisbane³⁴, such a route would offer considerable economic benefit as well as safety and distance benefits during normal conditions, increasing in times of natural disaster.

3. ADEQUACY OF THE INLAND NETWORK

The inland network is largely in place.

East-west arterial links feed into the port cities of Cairns, Townsville, Mackay, Rockhampton and Gladstone as well as to the Northern Territory and South Australia.

Similarly the north-south links are in place connecting major inland centres to Brisbane and southern states. Together these form an effective grid with the east-west roads. The advantages identified from an appraisal by QTLC of the current roads considered in their report (and making up a component of the IQ-RAP network) include:

- » Lower current freight volumes than the Bruce Highway, with lower traffic volumes;
- » Existing levels of access for high productivity vehicles, with opportunities to increase current access levels;
- » Higher levels of road safety performance;
- » Superior flood resilience across the majority of the inland road network; and
- » Time and distance advantages on a number of routes to Melbourne.

³⁴ Queensland Treasury and Trade, March 2013, Experimental Estimates of Gross Regional Product 2000-01, 2006-07 and 2010-11. (2011 figures used)

Although these advantages are recognised, the potential of the inland Queensland network is affected by the current standard of the network. A range of opportunities and issues in meeting the potential of the IQ-RAP network have been identified through review of existing reports including the following:

- » Productivity in the livestock industry would be enhanced by upgrading of critical links (sealing, improving flood immunity) to improve reliability for transporting animals from remote properties to ports and markets. This in turn will enhance our reputation on world markets.
- » Industry specific upgrading of mine access roads would allow use of the network by much higher productivity road freight vehicles.³⁵
- » Local governments should liaise with tourism authorities to include low cost improvements in road upgrading schemes to benefit the drive-tourism market. These might include safety messages about driving among heavy vehicles and straying animals, and fatigue management through provision of rest areas and scenic stops.
- » Significant improvements to the safety of rural roads can be achieved through removal of isolated hazards. These include sharp curves, hidden dips (particularly subject to ponded water), poor ride quality especially at culverts in black soil country, straying stock, isolated narrow bridges, slow moving heavy vehicles on steep grades, unsealed shoulders making emergency parking off the carriageway dangerous in wet weather, and poorly aligned intersections. Safety on roads with high head-on crash rates can be improved at low cost through use of a wide centreline (Refer to 'Bruce Highway Action Plan' 2012).
- » Liaison with industry and the community can identify short sections of road for initial sealing to overcome dust (school bus routes and near houses), gravel loss, bogging (and formation loss and damage) and other environmental problems.
- » Upgrading of roads will normally be required to support new mining, agricultural and tourist developments, and will be project specific and may be funded from developer contributions.
- » Targeted pavement strengthening and formation raising on priority routes can minimise periods of reduced allowable axle loads and speed limits (in the wet season).
- » Defence bases in Townsville and Far North Queensland may require specific improvement of roads connecting through inland Queensland to Brisbane and interstate.
- » Short term or permanent changes to the mode of transport of bulk commodities (from rail to road on the Mount Isa-Townsville corridor following wet season damage to the rail line) may require appropriate protective measures (short term) or upgrading (long term).
- » The ongoing cost of maintaining the network is an issue, specifically for unsealed and narrow sections. Upgrading these roads to current standards would deliver improvements to the resilience of the road asset and a decrease in frequency and cost of ongoing maintenance.

35 Mount Isa to Townsville Economic Development Zone and AMSTEC Design 2010

4. MANAGEMENT OF THE NETWORK

The IQ-RAP funding partners are looking to “establish a platform for a coordinated stakeholder approach to advocacy efforts relating to funding of Queensland’s Regional Roads.”³⁶

As already highlighted, the complexities associated with the ongoing management of the inland Queensland road network are often associated with funding availability and competing priorities and needs across all levels of government and local government boundaries. The Australian Rural Road Group (ARRG)³⁷ strongly urges genuine reform in the planning, management and funding of the rural local road network across the three levels of government.

A vision or plan for the inland Queensland road network that is agreed with stakeholders will assist with addressing stakeholder needs by providing:

- » A consistent voice to advocate for funding and the strategic benefits of link upgrades;
- » A cross boundary approach to prioritisation and program development on agreed strategic routes; and
- » A consistent approach to intervention triggers and ‘fit for purpose’ vision standards, improving the overall performance of the network.

At a delivery level, the RTA and their RRTGs have contributed to further cross boundary management with the identification of LRRS and prioritisation of TMR’s Transport Infrastructure Development investment for RRTG regions.

5. TOTAL ASSET MANAGEMENT

There is growing pressure to achieve better outcomes from infrastructure investment in a sustainable way.

A key component of managing investment across the IQ-RAP network is to adopt a Total Asset Management approach where rehabilitation of existing pavements, low cost widening on existing formations are utilised before new works are necessarily scheduled. This includes, where appropriate, building in resilience to improve accessibility and reduce ongoing replacement costs.

A Program Management approach is integral to achieving this outcome, and further detail on how this can be implemented is given in Section 8.2.

³⁶ Queensland Western Roads (and subsequently IQ-RAP) Interim Working Group 2014

³⁷ Australian Rural Road Group 2010

Figure 5: 2014 floods affecting Burke Development Road



5. Identifying the infrastructure gap

This section identifies the network vision for the IQ-RAP and how that vision has influenced the process undertaken to:

- » Determine appropriate intervention triggers and vision standards;
- » Undertake an initial gap analysis to identify links that require intervention;
- » Identify the scope of works to meet vision standards; and
- » Review the gap analysis using inputs from other programs, to refine the scope of works and costs.

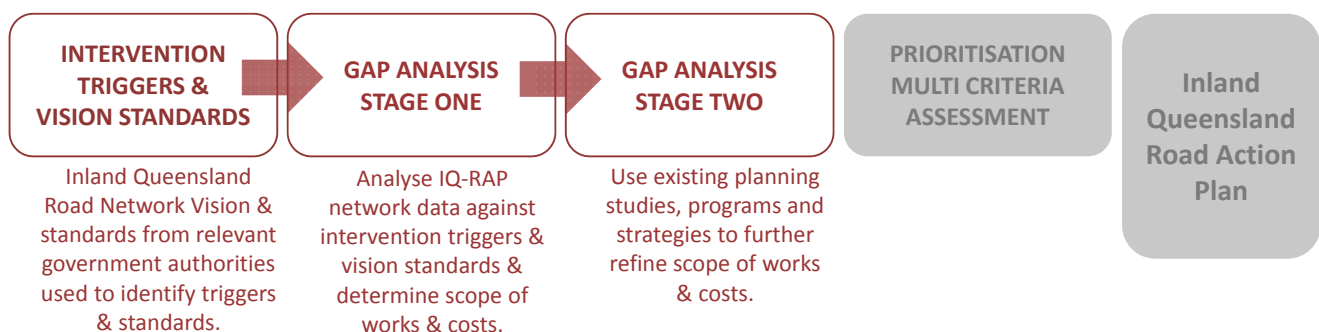
This process is shown graphically in Figure 6

Inland Queensland is faced with specific transport challenges due to its diverse resource, agricultural and tourism base, with a relatively small population separated by vast distances, increasing freight demand and the effect of climatic extremes.

Through continued long term targeted investment the vision for the IQ-RAP is to increase the standard and transport accessibility on this network to maximise economic prosperity of inland Queensland, thus contributing to Australia's productivity, quality of life, safety and equity outcomes.

This vision was based on the prioritisation criteria developed at the stakeholder meeting in Longreach in December 2013. Inland Queensland's regional, rural and remote RDA committees, RRTGs, local governments and other stakeholders workshopped and agreed to a set of criteria suited to inland Queensland needs. The criteria include economic value (including improving productivity and supply chains), safety, strategic intent, access and social value and also form the basis of the prioritisation process highlighted in section 6.

Figure 6: Process for identifying the infrastructure gap



NETWORK OBJECTIVES

The objectives are broadly to:

- » Reduce roughness to improve rideability and reduce travel times;
- » Reduce time of road closure due to flooding;
- » Address safety outcomes including known 'blackspots';
- » Provide bridge widths and structural strength suitable for high productivity vehicles; and
- » Provide adequate rest stops for heavy vehicles and travellers, locals and tourists.

1. INTERVENTION TRIGGERS AND VISION STANDARDS

To assess the network and determine the scope of works required to achieve the network vision, a consistent suite of intervention triggers were required. An intervention trigger relates to the lowest point of condition a road must meet to be identified as not requiring works. For those requiring works, a standard to which intervention works should deliver was also identified.

The intervention and vision standards used in the initial gap analysis are outlined below. The standards adopted were selected to comply with relevant road authority guidelines, particularly the minimum standards for the National Transport Commission's (NTC) Performance Based Standards Scheme Network Classification Guidelines 2007 and TMR's Gap Analysis Guidelines V9 (2009).

Different triggers and standards were adopted across parts of the network to recognise that roads with higher strategic function – either through heavy vehicle volumes or general traffic volumes – require higher standards.

For instance, the highest vision standards achieve a two lane sealed carriageway capable of carrying FEV, while the lowest vision standards provide single lane seal and adequate gravel formation.

WIDTH

NATIONAL NETWORK ROADS

Road width is critical to ensure a road can safely and efficiently carry the required volume and type of traffic. Adequate width provides the ability to pass safely without having to move to the left or leave the gravel surface.

The National Highway Network has higher standards due to the strategic nature of these road links and their requirement to carry long distance freight, thus the width is not necessarily tied to traffic volumes.

Table 2: Intervention and vision seal widths for priority National Network Routes

National Network	intervention seal width (m)	target vision seal width (m) ⁴⁸
Warrego Hwy (Miles to Morven)	9	10
Flinders Hwy (Townsville to Charters Towers)		
Landsborough Hwy	8	9
Barkly Hwy		
Flinders Hwy (Charters Towers to Cloncurry)		

⁴⁸ Subject to meeting TMR's 'Guidelines for Road Design on Brownfield Sites' considering economic, environmental, traffic composition and safety parameters.

Table 2 shows the intervention and vision seal widths adopted for the National Network, which is greater than other links for which the standards are based primarily on traffic volumes.

OTHER ROADS

Table 3 shows the intervention and vision seal width adopted for road links that are not part of the National Network.

Table 3: Intervention and seal widths for other routes

Annual average daily traffic (vehicles per day)	intervention seal width (m)	target vision seal width (m) ³⁹
> 2000	8	9
500 to 2000	8	8
150 to 500	7.0 seal on 8.0 formation	
< 150	4.0 seal on 7.0/8.0 formation	

ROUGHNESS

In addition to road width, the gap analysis also considered road roughness.

Pavement roughness is a measure of the 'bumpiness' of the road surface caused through irregularities in the pavement surface and is assessed through the NAASRA Roughness Meter (NRM). Roughness is important because it affects not only ride quality but also travel times, fuel consumption and maintenance costs. For freight vehicles, roughness can also cause damage to the product being transported.

While it is desirable to intervene at the lower roughness values it is generally not affordable to treat all sections that meet these triggers, particularly where there are isolated sections of rough road.

Table 4 shows the adopted range of roughness values used in the gap analysis.

An initial assessment has been undertaken using the low intervention roughness values. Where these triggers identified isolated sections of road then the higher roughness trigger has been adopted for those sections. If there are long sections of road that meet the lower trigger then that level was retained.

Road widening and bridge upgrades, rather than road roughness improvements, have been found to be the major driver of cost in this gap analysis. Only a small volume of roads meet the roughness trigger without also meeting the width trigger.

Table 4: Adopted roughness triggers

Annual average daily traffic (vehicles per day)	Low (NRM)	High (NRM)
0 to 500	130	160
500 to 1000	110	130
1000 to 10000	95	110

BRIDGES

BRIDGE WIDTH

Bridge width is an important consideration because inadequate width can lower safety levels, increasing the risk of heavy braking, head-on collisions, confusion and

over-reaction. Narrow bridges require drivers to adjust their speed and lateral position in a lane.

The gap analysis used geometric data provided by TMR for the nearly seven hundred bridges across the IQ-RAP network.

Table 5 shows the intervention and vision bridge widths with relation to traffic volumes based on TMR's Strategic Road Network Planning – Gap Analysis Guidelines (June 2009).

Where a bridge on a lower order road is to be replaced it has been assumed that it would be upgraded to a two lane bridge with a minimum width of 8.0m.

Table 5: Bridge widths

Annual average daily traffic (vehicles per day)	intervention width (m)	vision width (m)
< 150	4.0	8.0
150 to 500	7.6	8.0
> 500	8.4	8.6

The National Network has a vision width of 9.2m for bridges.

BRIDGE CAPACITY

Bridge capacity refers to the load a bridge is designed to withstand over the life of the structure. Bridge design standards have been increased over time to reflect the longer and heavier truck and trailer combinations, such as FEV, now used. Use of FEV results in a more productive road transport industry and therefore economy.

TMR provided load rating data for the bridges within the IQ-RAP network for use in the gap analysis.

Any bridge on a link nominated as a priority freight route has been assumed to require upgrading within the 15 year vision period if it does not currently meet the SM1600 standard.

All timber bridges (i.e. pre 1954) or bridges with a HS2016 load rating (i.e. pre 1976 design) have also been assumed to require upgrading within the 15 year implementation timeframe.

Table 6: Bridge capacity

Design class	Date of code	Comment
SM1600	2004 +	Desirable standard on all freight routes
T44	1976 to 2004	Bridges not on freight routes assumed to be able to be strengthened rather than replaced
H20S16	1954 to 1976	All bridges with this loading will have exceeded a 50 year design life by the end of the 15 year IQ-RAP and should be replaced
Timber (Class A & Class B)	1922 to 1954	Timber bridges should be replaced as a priority

TIME OF CLOSURE

TMR has provided time of closure data for more than eight hundred rainfall events between 2012 and 2015. Flooding causes closures through inundation, as well as through damage to roads and bridges including washaways, undermining, rutting and bogging. This data has been used in the prioritisation process (refer to description of multi criteria analysis process in Appendix B) of various links to maximise access as well as deciding whether a bridge requires widening or replacement. Where a link has significant closures around bridge crossings it has been assumed that a bridge will require upgrading and raising to provide improved flood immunity rather than simply widening the structure.

2. GAP ANALYSIS

OVERVIEW

The level of investment required to meet the vision standards across the nearly 16,000km of the IQ-RAP network has been determined using a two stage gap analysis process:

Stage 1 - Identify the road sections and bridges that meet the intervention triggers. Where upgrading works are triggered it has been assumed they will be constructed to the vision standard. Estimated costs of works to address the gap have been calculated using cost per kilometre rates associated with the classification of the road (see section 5.3.2).

Stage 2 - Review prior planning and programs to identify other proposed works (e.g. overtaking lanes, bypasses, intersection upgrades, safety improvements etc.) and more accurate cost estimates based on more detailed investigations carried out by RRTGs or TMR, for example, Queensland Transport and Roads Investment Program (QTRIP).

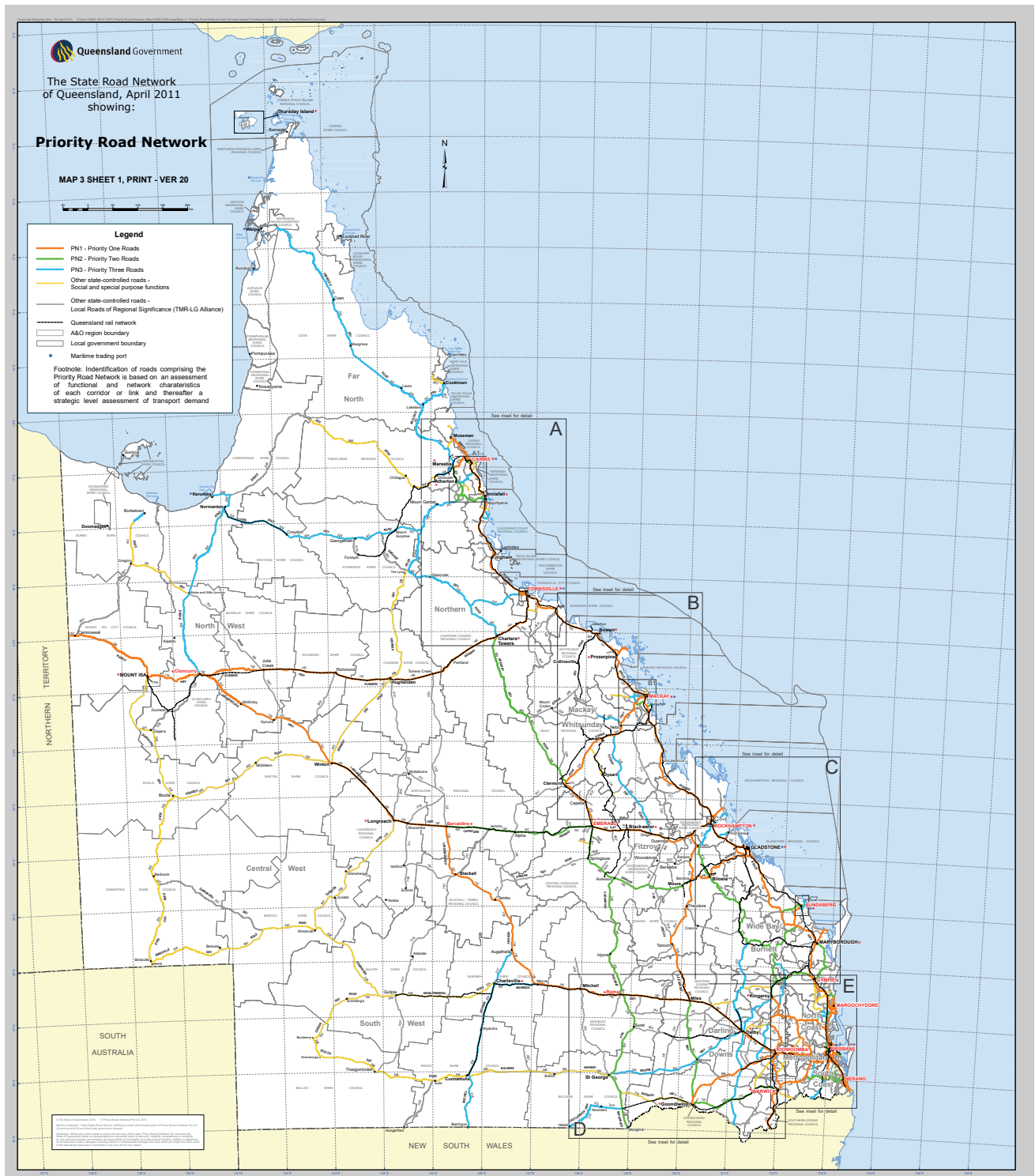
ROAD HIERARCHY AND COSTS

The gap analysis has been reported against the road hierarchy descriptions detailed in Table 7. These are based on the TMR's Priority Road Network (PRN) map as shown in Figure 7. The analysis used an average cost per kilometre across the network differentiated between the National Network (NN) and the Priority Road Network level 1 roads as they have different vision standards and hence different costs to upgrade.

Table 7: Road hierarchy description and upgrade costs

Road hierarchy	Description	\$m/km
NN	National Network	1.5
PRN 1	Priority one roads (other than NN)	1.2
PRN 2	Priority two roads	1.0
PRN 3	Priority three roads	0.9
OSCR	Other state controlled roads	0.8
LRRS	Local Roads of Regional Significance	0.7

Figure 7: TMR Priority Road Network Map (April 2011)



3. STAGE 1 – GAP ANALYSIS RESULTS

ROAD WIDTH AND ROUGHNESS

Table 8 shows the extent of road segments that meet the intervention trigger for width and/or roughness based on the review of TMR's ARMIS data.

A higher proportion of the lower order roads meet the intervention triggers (36% of OSCR and 40% of LRRS) compared to the higher order roads (6% of NN and 8% of PRN 1). To date, that is where the priority for investment has been and underlies the need for the IQ-RAP.

BRIDGES

Table 9 shows the number of bridges that require treatment due to width or capacity issues, and the estimated cost to upgrade.

More than half of the bridges across the network have been identified as requiring upgrading during the 15 year vision period.

A rate of \$9,000/m² has been assumed for widening and \$7,000/m² for a new bridge construction where costs have not been calculated in other documents.

Table 8: Extent triggered by width and roughness on TMR network

PRN	length (km)	\$m/km	intervention (km)	% intervention	cost (\$m)
NN	2,450	1.5	148	6%	222
PRN 1	1,236	1.2	95	8%	114
PRN 2	1,895	1.0	283	15%	283
PRN 3	2,842	0.9	189	7%	170
OSCR	4,446	0.8	1,589	36%	1,271
LRRS	2,012	0.7	806	40%	564
All	14,881		3110	21%	2,624

Table 9: Bridges identified due to width and/or capacity on TMR network

PRN	total #	# require upgrading	% require upgrading	cost (\$m)	cost (\$m)
NN	145	42	29%	172	222
PRN 1	131	49	37%	103	114
PRN 2	122	77	63%	110	283
PRN 3	122	82	67%	267	170
OSCR	69	39	57%	100	1,271
LRRS	63	42	67%	189	564
All	652	331	51%	941	2,624

Where the vision width is more than 30% greater than the existing bridge width or the bridge experiences long times of closure due to flooding it has been assumed that the bridge will be replaced, otherwise it has been assumed that the bridge will be widened.

Where a bridge is replaced an increase in bridge length of 30% has been allowed to improve flood immunity. A small allowance has been included for minimal works on the approach to the bridge.

SUMMARY OF STAGE 1 GAP ANALYSIS

Table 10 summarises the costs to upgrade roads and bridges to achieve the vision standard across the IQ-RAP network using the gap analysis process and generalised unit rates for road widening and bridge widening and replacement.

Over 3,000 km of road and more than 300 bridges require improvement to bring the network up to the vision standard.

Table 10: Summary of road and bridge costs

PRN	road (\$m)	bridge (\$m)	total cost (\$m)	cost (\$m)	cost (\$m)
NN	222	172	394	172	222
PRN 1	114	103	217	103	114
PRN 2	283	110	393	110	283
PRN 3	170	267	437	267	170
OSCR	1,271	100	1,371	100	1,271
LRRS	564	189	753	189	564
All	2,624	941	3,565	941	2,624

Figure 8: Recent resealing works on Gulf Development Road



4. STAGE 2 – REFINEMENT OF GAP ANALYSIS USING AVAILABLE DATA

The costing in the initial gap analysis has been refined by reviewing available planning and program information such as TMR's QTRIP and RRTG reports.

A key input has been the recent strategic review of the principal freight route by TMR that identifies a suite of investments to improve the western Queensland road network to provide a robust freight network. This network covers approximately half of the IQ-RAP network and provides more rigorous investigation for these higher order links. The review included requirements for specific bridges as well as identifying rehabilitation, realignments, intersections, culverts and bypasses – all of which are relevant to achieving the vision standard for the IQ-RAP network.

Costing data available from other planning sources has been adopted in lieu of the gap analysis generic rates.

Table 11 shows the refined cost to upgrade the network using such information. These updated values have been used in the prioritisation of the network upgrades.

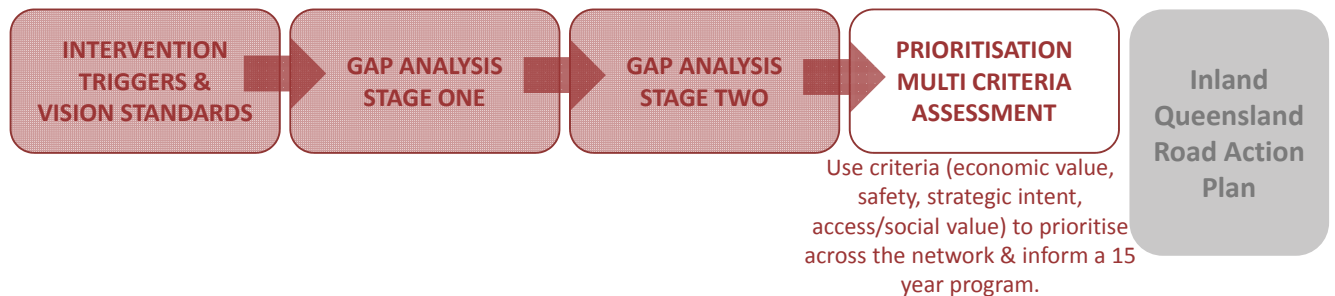
Inclusion of the costings from the rest of the program increases the value of the required investment across the IQ-RAP network by more than a billion dollars, indicating that the values assumed on the remainder of the network are unlikely to be over conservative.

Table 11: Cost to upgrade network including costs in existing plans and programs

PRN	road (\$m)	bridge (\$m)	other (\$m)	total cost (\$m)	cost (\$m)
NN	432	189	159	780	222
PRN 1	243	95	375	713	114
PRN 2	464	113	139	716	283
PRN 3	298	292	22	612	170
OSCR	1,105	145	17	1,267	1,271
LRRS	703	219	2	924	564
All	3,245	1,053	714	5,012	2,624

6. Prioritising the response

Figure 9: Multi criteria assessment step in development of the IQ-RAP



The gap analysis has identified a large investment required to address the gap between existing road conditions and what could be considered a relatively modest overall vision for the IQ-RAP network.

At approximately \$5 billion, the cost of this vision exceeds historical funding levels but highlights the shortfall that needs to be made available, over the proposed 15+ year period, to bring the IQ-RAP network up to even a modest standard.

Practical considerations such as potential future funding and workforce availability mean that it is necessary and beneficial to prioritise works into 0-5, 6-10 and 11-15 year program horizons and beyond.

The standard process for prioritising potential investments is to identify and evaluate the benefits and costs of competing investments, and compare summary measures of net benefits. For government, the measure can be more complicated because these investments usually have multiple objectives.

This section discusses a multi criteria assessment (MCA) process that incorporates the desired objectives of IQ-RAP partners into an investment prioritisation framework that is transparent, rational, justifiable and evidence-based.

1. VALUES, GOALS, OBJECTIVES, OUTCOMES, IMPACTS, EVALUATION CRITERIA AND MEASUREMENTS

The terms 'values, goals, objectives, outcomes, impacts, evaluation criteria and measurements' all refer to the means by which road investments are evaluated. We want to know how a road investment performs and how it delivers what is valued compared to the cost of that investment, and how that would compare to alternative investments.

The gap analysis has identified required investments that are typically formation widening, pavement rehabilitation, and/or sealed width improvements and bridge upgrades. These proposed works improve ride quality, safety and vehicle operating

costs and to a lesser degree travel time. Investments in bridge structures to improve safety reduce average times of closure due to flooding and allow access by FEV.

While the gap analysis process does not specifically target upgrades to improve blackspot safety issues, it is expected that the identified road investments – in terms of formation widening/sealing and bridge structures – would deliver significant road safety improvements.

2. MULTI CRITERIA ANALYSIS

An MCA is a quantitative tool that aids in short listing multiple investment options based on a consistent range of criteria. A key objective of the IQ-RAP is to develop a methodology for prioritisation of road network investments for the western and eastern inland zones that focuses on the five criteria identified at the Longreach forum. These are:

1. Economic value (including improving productivity and supply chains);
2. Safety;
3. Strategic intent;
4. Access; and
5. Social value

ECONOMIC VALUE

The primary reason for road investments is to deliver tangible benefits – many of the desired outcomes are in the category of economic value.

The lack of historic investment to meet these criteria has restrained economic development opportunities in inland Queensland. Carefully planned investment could unlock significant untapped potential for economic growth, as well as opportunities to address wider safety, social and environmental concerns.

For the economic criteria, the overall benefit from each dollar invested to bring the link up to vision standard is calculated. This allows investments to be ranked by the economic benefit derived compared to the costs.

SAFETY

The Australian Road Assessment Program (AusRAP) measures the inherent safety of a road's infrastructure – that is, the degree to which it includes built in safety features that prevent crashes from occurring and reduce the severity of those crashes which do occur.

Without the benefit of the AusRAP star ratings for the entire IQ-RAP network, the safety score is based on a lagging indicator of crash rates for each link of the IQ-RAP network. Existing crash costs are calculated and links with the highest crash costs score highest for the safety criteria.

It is intended that in future reviews of IQ-RAP, the Safe System Principles of the Queensland Road Safety Strategy (2015-2021) will be adopted and where available, AusRAP data will be used, to inform network safety priorities.

STRATEGIC INTENT

This criteria is about future catalytic economic and community development opportunities – such as investment attraction into new industries to support economic diversification and creation of jobs.

To assess contribution to strategic intent, the following were considered:

- » Tourism routes noted on RACQ's Key Tourism Roads map (see Figure 10);
- » Overall road hierarchy from National Highways, followed by PRN1, PRN2, PRN3, OSCR and LRRS roads; and
- » TMR's strategic investment strategies and assessment of principal freight routes.

Figure 10: RACQ Key Tourism Roads Map



ACCESS AND SOCIAL VALUE

A number of the IQ-RAP stakeholders have questioned the difference between access and social value in the proposed criteria developed in Longreach and hence these have been rolled into one category, particularly given the difficulty in assessing specific improvement in this category.

There is currently no identified way to assess access and social value. As representative of an access/social value criteria, the MCA has used the improvement in bridge structures that result in a reduction in average time of closure, together with the sealing of roads to an 'all weather' standard.

DATA USED TO EVALUATE AGAINST THE PROPOSED CRITERIA

It is critical for multi criteria analysis that data used in the evaluation is available for all links evaluated. Table 12: Available data for assessment against Longreach criteria identifies the data available and its relevance in the assessment of links against the proposed criteria.

The measures of achievement are broadly consistent with the approach that might be taken if a rapid benefit cost ratio (BCR) was applied to the road network. This recognises that the estimates of benefits and costs are at a very early stage of development, with limited planning and limited available data. It is acknowledged that there is some overlap between the criteria with some data used to inform measurement of multiple criteria.

Table 12: Available data for assessment against proposed criteria

Measurement data	Economic Value	Safety	Strategic Intent	Access / Social Value
Traffic volume (PCU)	•	•		•
Growth rate (% p.a.)	•		•	•
Link length (km)	•	•		
Principal freight routes			•	
Road hierarchy			•	
Tourism route			•	
Carriageway Width	•	•		
Riding Comfort (Roughness)	•	•		
Time of closure	•			•
Crash cost		•		

3. MCA PROCESS

A detailed explanation of the methodology employed for the MCA process is included in Appendix B. It includes development of criteria, assessing available data against criteria, and testing various scenarios by varying criteria weightings.

Figure 11: Sealing of Richmond-Croydon Road in 2015



The MCA process used the gap analysis and the IQ-RAP evaluation criteria to prioritise the benefits derived from achieving the vision standard on each link, compared to the cost.

While the gap analysis identified costs to achieve the vision standard, the IQ-RAP evaluation criteria of economic value, safety, strategic intent, access and social value were then used to calculate overall benefits from the investment. Those links scoring highest were evaluated as having the highest priority.

MCA results are presented in Figure 11 which identifies the boundary between the eastern and western zone and shows the prioritisation of links. The MCA rated links into 3 categories:

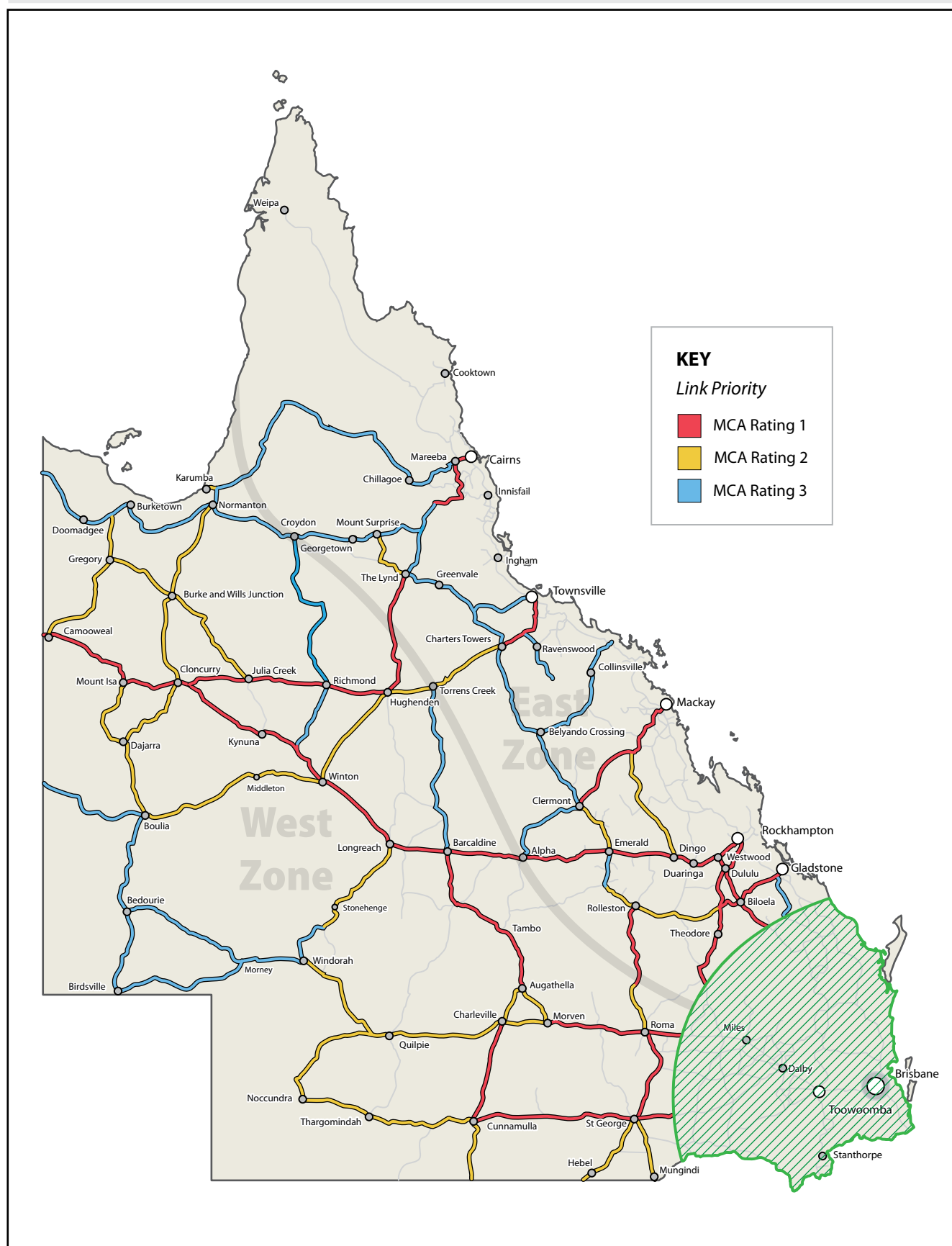
- » MCA rating 1- highest priority for delivery in 0-5 year timeframe
- » MCA rating 2- priority for delivery in 6-10 year timeframe
- » MCA rating 3- priority for delivery in 11-15 year timeframe

Figure 12 demonstrates how the network would be progressively rolled out across the state and highlights the key east – west and north – south routes.

In the western zone, investment in key east – west as well as north – south routes provides high benefits relative to the costs to achieve the vision standard.

For the eastern zone, some key routes were identified as priorities for investment, such as linking Rockhampton and Gladstone to the south as well as strengthening the link between Townsville and Cairns.

Figure 12: MCA prioritisation of IQ-RAP network



7. "The Plan" – a program for investment

Figure 13 shows the proposed cumulative expenditure, assuming that all sections of the network that meet the intervention standards are upgraded to meet the vision standard within the 15 year vision period. The total spend is a straight line with an expenditure of \$310 million per year. There is a similar total expenditure between the east and west; however the total expenditure in the west lags behind the east if the straight MCA process is adopted.

Although the eastern network indicated earlier investment, going forward it is proposed that a similar rate of yearly investment be applied to both the eastern and the western network. This will ensure that the principles of equity and access are upheld.

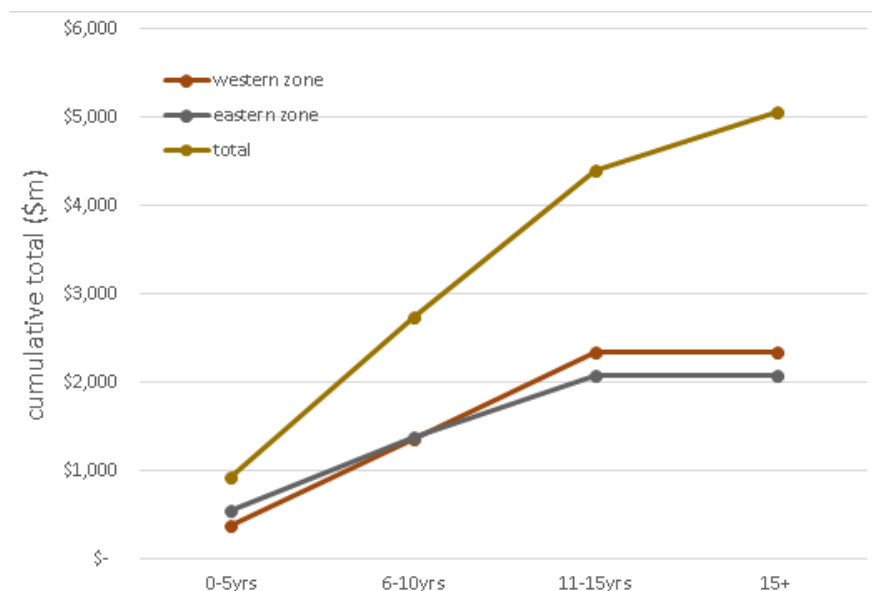


Figure 13: Proposed cumulative expenditure

1. PROGRAM DEVELOPMENT

The proposed program of investment has been developed using a staged approach and has considered:

- » Scheduling investment to align with road priority;
- » Sustainability of rural and remote communities;
- » Maintaining workforce capability; and
- » Projects that can be delivered with an early timeframe.

At the time of writing a number of unknowns still exist including:

- » The amount of available funding;
- » The extent to which the program will need to be tied into other investments (e.g. QTRIP); and
- » The distribution of funding across districts in the state.

The intention is that once funding is confirmed a more detailed program be developed for each link, with greater emphasis on developing a funding stream (e.g. planning, detailed design, construction over a period etc.) for each of the priority links. Further consideration will also need to be given to the availability of labour in the area and the preferred rate of delivery of the works to maximise value for money.

2. IQ-RAP PROPOSED PROGRAM OF INVESTMENT - WESTERN ZONE

Table 13: Summary of proposed future investment - Western IQ-RAP zone provides a summary of proposed future investment for the IQ-RAP western zone.

Further detail of the program is provided for each RRTG region in the western zone below.

Table 13: Summary of proposed future investment - Western IQ-RAP zone

RRTG	Strategic estimate \$m ⁴⁹	Future investment \$m			
		1-5yr	6-10yr	11-15yr	15+ yrs
South West	694	86	343	265	
Outback	903	106	337	410	50
North West	1,222	176	305	307	434
TOTAL	2,819	368	985	982	484

³⁹ Strategic Estimate in \$2015, subject to planning and design considerations.



SOUTH WEST RRTG

Table 14: South West RRTG: Projects yet to commence as per 2015-16 to 2018-19 QTRIP

Link	Local government	Network	Work type	Project number	Indicative cost \$m
Warrego Hwy (Miles - Morven)	Western Downs/ Maranoa/ Murweh	NN	Safety Enhancements		0.2
Various roads	Various	S	Safety Enhancements		3.4
Bulloo Dev Rd (Cunnamulla - Thargomindah)	Bulloo	S	Widen pavement	210/94A/1	2.0
Diamantina Dev Rd (Charleville - Quilpie)	Murweh	S	Widen pavement	247/93A/1	4.0
Balonne Hwy (Bollon - Cunnamulla)	Paroo	S	Widen pavement	253/36B/1	3.0
Mitchell Hwy (Barrigun - Cunnamulla)	Paroo	S	Widen pavement	253/23A/1	1.6
Diamantina Dev Rd (Charleville - Quilpie)	Quilpie	S	Widen pavement	255/93A/1	2.0
Diamantina Dev Rd (Quilpie-Windorah)	Quilpie	S	Widen pavement	255/93B/5	2.0
Total					18.2

Table 15: South West RRTG: Projects proposed for future investment

Link	MCA link priority in zone	Local government	Network	Work type	Strategic estimate \$m ⁵⁰	Future investment \$m			
						1-5 yrs	6-10 yrs	11-15 yrs	15+ yrs
Landsborough Hwy (Morven - Augathella) (13A)	33	Murweh / Blackall-Tambo	NN	Road widening and bridge upgrades	15	2	13		
Landsborough Hwy (Augathella - Tambo) (13B)	18	Murweh / Blackall-Tambo	NN	Widen and rehab	36	6	20	10	
Warrego Hwy (Miles - Roma) (18D)	2	Maranoa	NN	Widen and rehab narrow sections; widen Blythe Ck bridge	69	2	30	37	
Warrego Hwy (Roma - Mitchell) (18E)	3	Maranoa	NN	Widening remaining narrow section	6		6		
Warrego Hwy (Mitchell - Morven) (18F)	8	Maranoa / Murweh	NN	Pavement strengthening & widening	26	2	15	9	
Warrego Hwy (Morven - Charleville) (18G)	20	Murweh	S	Widening narrow seal	35	2	18	15	
Mitchell Hwy (Barrigun - Cunnamulla) (23A)	35	Paroo	S	Widening	2		2		
Mitchell Hwy (Cunnamulla - Charleville) (23B)	22	Paroo / Murweh	S	Widening narrow seal	5		5		
Mitchell Hwy (Charleville - Augathella) (23C)	32	Murweh	S	Widening	2		2		
Carnarvon Hwy (Mungindi - St. George) (24A)	21	Balonne	S	Road widening and bridge upgrades	55	2	30	23	

40 Strategic Estimate in \$2015, subject to planning and design considerations.

Table 15 Continued: South West RRTG: Projects proposed for future investment

Link	MCA link priority in zone	Local government	Network	Work type	Strategic estimate \$m ⁵¹	Future investment \$m			
						1-5 yrs	6-10 yrs	11-15 yrs	15+ yrs
Carnarvon Hwy (St. George - Surat) (24B)	12	Balonne / Maranoa	S	Pave & seal shoulders on narrow sections; 63kms	15	15			
Carnarvon Hwy (St. George - Surat) (24B)	12	Balonne/ Maranoa	S	Road widening and bridge upgrades	31	5	15	11	
Carnarvon Hwy (Surat - Roma) (24C)	15	Maranoa	S	Road widening and bridge upgrades	67	2	20	45	
Carnarvon Hwy (Roma - Injune) (24D)	17	Maranoa	S	Road widening and bridge upgrades	38	1	20	17	
Carnarvon Hwy (Injune - Rolleston) (24E)	4	Maranoa / Central Highlands	S	Road widening and bridge upgrades	75	20	30	25	
Moonie Hwy (Moonie - St George) (35A)	31	Balonne	S	Road widening and rehab	5			5	
Balonne Hwy (St George - Bollon) (36A)	27	Balonne	S	Road widening and bridge upgrades	25		12	13	
Balonne Hwy (Bollon - Cunnamulla) (36B)	23	Balonne / Paroo	S	Widening narrow seal	13		5	8	
Castlereagh Hwy (Noondoo - Hebel) (37A)	39	Balonne	S	Widening narrow seal	21	1	15	5	
St George - Dirranbandi (EB35)	46	Balonne	S		-				
Diamantina Dev Rd (Charleville - Quilpie) (93A)	43	Murweh / Quilpie	S	Road widening and bridge upgrades	9		7	2	
Diamantina Dev Rd (Quilpie - Windorah) (93B)	36	Quilpie / Barcoo	S	Widening narrow seal, bridge upgrades and reconstruct floodways	54	10	20	24	
Cooper Dev Rd (Quilpie - Bundeena) (79A)	38	Quilpie / Bulloo	S	Widening narrow seal	14		5	9	
Bulloo Dev Rd (Cunnamulla - Thargomindah) (94A)	34	Paroo / Bulloo	S	Widening narrow seal and upgrading Paroo and Bulloo River crossings	37	5	32		
Bulloo Dev Rd (Thargomindah - Bundeena) (94B)	40	Bulloo	S	Widening narrow seal and upgrading Wilson River crossing	17	3	14		
Various				Package of road safety enhancements and mass action program	15	5	5	5	
Various				Improve tourism signage and provision of new/upgraded scenic stopping places	7	3	2	2	
Total					694	86	343	265	0

41 Strategic Estimate in \$2015, subject to planning and design considerations.

OUTBACK RRTG

Table 16: Outback RRTG: Projects yet to commence as per 2015-16 to 2018-19 QTRIP

Link	Local government	Network	Work type	Project number	Indicative cost \$m
Landsborough Hwy (Blackall - Barcaldine)	Barcaldine	NN	Road widening and rehab 86.20 - 104.80km	205/13D/1	12.5
Landsborough Hwy	Various	NN	Minor safety enhancements		0.8
Diamantina Dev Rd (Bedourie - Boulia)	Boulia	S	Pave & seal (120.71 - 130.51km)	209/93D/4	5.0
Eyre Dev Rd (Bedourie - Birdsville)	Diamantina	S	Pave & seal	223/81A/6	2.0
Diamantina Dev Rd (Windorah - Bedourie)	Diamantina	S	Pave & seal (347.50 - 350.50km)	223/93C/1	1.2
Kennedy Dev Rd (Winton - Boulia)	Winton	S	Road widening and rehab (94.20 - 98.70km)	270/99D/7	2.0
Minor Safety Enhancements	Various	S	Minor safety enhancements		2.4
Boulia - Tobermorey Rd	Boulia	LRRS	Pave and seal sections incl 60.5 - 70.2km		2.5
Total					28.4

Table 17: Outback RRTG: Projects proposed for future investment

Link	MCA link priority in zone	Local government	Network	Work type	Strategic estimate \$m ⁴²	Future investment \$m			
						1-5 yrs	6-10 yrs	11-15 yrs	15+ yrs
Landsborough Hwy (Barcaldine - Kynuna)	5/6	Barc/Long/Winton	NN	Rest area & stopping bay upgrade package	5	5			
Landsborough Hwy (Augathella - Barcaldine) (13C/13D)	18/26	Blackall - Tambo	NN	Road widening and rehab in sections	81	10	30	41	
Landsborough Hwy (Barcaldine - Longreach) (13E)	5	Barcaldine / Longreach	NN	Road widening and rehab (21km)	21	5	16		
Landsborough Hwy (Longreach - Winton) (13F)	6	Longreach / Winton	NN	Road widening, pavement strengthening and drainage structures	30	5	20	5	
Landsborough Hwy (Winton - Kynuna) (13G)	28	Winton	NN	Rehabilitation	11		11		
Capricorn Hwy (Emerald - Alpha) (16C)	16	Barcaldine	S	Construct new bridge & approaches (Belyando River)	30		2	28	
Capricorn Hwy (Alpha - Barcaldine) (16D)	16	Barcaldine	S	HV rest area and breakdown facility (east of Barcaldine)	2	2			
Capricorn Hwy (Alpha - Barcaldine) (16D)	16	Barcaldine	S	Road widening and bridge upgrades	20		20		
Birdsville Dev Rd (Morney - Birdsville) (80A)	57	Diamantina/Barcoo	S	Pave & seal and provide 6 x overtaking relief opportunities	9	2	7		
Birdsville Dev Rd (Morney - Birdsville) (80A)	57	Diamantina	S	Pave & seal	173	3	20	150	
Eyre Dev Rd (Bedourie - Birdsville) (81A)	58	Diamantina	S	Pave & seal	49	3	10	16	20
Diamantina Dev Rd (Quilpie-Windorah) (93B)	36	Quilpie / Barcoo	S	Progressive widening narrow seal, bridge upgrades and reconstruct floodways	28	8	15	5	
Diamantina Dev Rd (Quilpie - Windorah) (93B)	36	Barcoo	S	Reconstruct floodways at selected locations to improve trafficability	5	2	3		
Diamantina Dev Rd (Windorah - Morney) (93C)	47	Barcoo	S	Widen single lane	46	6	20	20	

42 Strategic Estimate in \$2015, subject to planning and design considerations.

Table 17 Continued: Outback RRTG: Projects proposed for future investment

Link	MCA link priority in zone	Local government	Network	Work type	Strategic estimate \$m ⁵³	Future investment \$m			
						1-5 yrs	6-10 yrs	11-15 yrs	15+ yrs
Diamantina Dev Rd (Bedourie - Boulia) (93D)	50	Diamantina / Boulia	S	Widen single lane seal (0 - 2.6km from Boulia), HV rest area (116km)	7	3	4		
Diamantina Dev Rd (Boulia - Dajarra) (93E)	53	Boulia	S	Widen single lane seal (7.5 - 14.5 & 49 - 55km)	9	1	4	4	
Diamantina Dev Rd (Boulia - Dajarra) (93E)	53	Boulia	S	Widen single lane seal (7.5 - 14.5 & 49 - 55km) HV stopping bays (25 & 89km)	11	6	5		
Diamantina Dev Rd (Boulia - Dajarra) (93E)	53	Boulia	S	Widen single lane and bridge upgrades	6			6	
Diamantina Dev Rd (Dajarra - Mt. Isa) (93F)	54	Boulia	S	Widen single lane seals (21km), HV stopping bays (60 - 120km)	12		12		
Diamantina Dev Rd (Dajarra - Mt. Isa) (93F)	54	Boulia	S	Widen single lane and bridge upgrades	26	3	15	8	
Thompson Dev Rd (Windorah - Jundah) (95A)	37	Barcoo	S	Widen single lane and bridge upgrades	36		18	18	
Thompson Dev Rd (Jundah - Longreach) (95B)	37	Barcoo / Longreach	S	Widen single lane and bridge upgrades	36		18	18	
Kennedy Dev Rd (Hughenden - Winton) (99C)	45	Winton	S	Pavement rehabilitation	14	4	10		
Kennedy Dev Rd (Hughenden - Winton) (99C)	45	Winton	S	Provide 2 HV stopping bays (120 & 190km)	1	1			
Kennedy Dev Rd (Winton - Boulia) (99D)	42	Winton	S	Widen single lane: 213.7 - 218.2km; 2 HV stopping bays; widen for O/T at 143,261,331km	7	7			
Kennedy Dev Rd (Winton - Boulia) (99D)	42	Winton / Boulia	S	Road widening, rehab and bridge upgrades	75	5	25	45	
Barcaldine - Aramac Rd (573)	55	Barcaldine	LRRS	Widen narrow seal	5		5		
Muttaburra - Aramac Rd (572)	41	Barcaldine	LRRS	Widen narrow seal	3		3		
Aramac - Torrens Ck Rd (5703)	56	Barcaldine / Flinders	LRRS	Widen narrow seal	9		9		
Richmond to Winton Rd (5803)	49	Winton	LRRS	Progressive sealing	12	3	6	3	
Boulia - Tobermorey Rd		Boulia	LRRS	Progressive forming, drainage, paving and sealing	36	2	10	24	
Various				Package of road safety enhancements /mass action program	15	5	5	5	
Various				Improve tourism signage/ provision of new/upgraded scenic stopping places	7	3	2	2	
Total					903	106	337	410	50

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NORTH WEST RRTG

Table 18: North West RRTG: Projects yet to commence as per 2015-16 to 2018-19 QTRIP

Link	Local government	Network	Work type	Project number	Indicative cost \$m
Flinders Hwy (Hughenden - Richmond)	Flinders	NN	Rehab & overlay (80.90 - 87.80km)	227/14C/802	7.1
Flinders Hwy (Richmond - Julia Creek)	McKinlay	NN	Rehab & overlay (95.95 - 103.08km)	244/14D/800	7.3
Flinders Hwy (Julia Creek - Cloncurry)	McKinlay	NN	Rehab & overlay (44.31 - 50.18km)	244/14E/800	6.0
Flinders Hwy (Richmond - Julia Creek)	Richmond	NN	Rehab & overlay (0.00 - 3.30km)	257/14D/800	3.4
Flinders Hwy		NN	Other Works - minor safety enhancements		1.1
Wills Dev Rd (Julia Creek - Burketown)	Burke	S	Road widening and rehab (316.00 - 357.00km)	213/78A/3	2.0
Burke Dev Rd (Cloncurry - Normanton)	Carpentaria	S	Road widening and rehab various locations	215/89A/4	4.0
Cloncurry - Dajarra Rd	Cloncurry	LRRS	Seal in various locations	219/7708/4	5.0
Wills Dev Rd (Julia Creek - Burketown)	McKinlay	LRRS	Road widening and rehab various locations	244/78A/2	1.2
Richmond - Winton Rd	Richmond	LRRS	Seal in various locations	257/5803/1	1.2
Normanton - Burketown - Doomadgee Rd	Burke / Carpentaria	LRRS	Sealing to two lanes and floodways		1.6
Richmond - Croydon Rd	Richmond/ Croydon	LRRS	Pave & seal and floodways/culverts		0.8
Total					40.7

Table 19: North West RRTG: Project proposed for future investment

Link	MCA link priority in zone	Local government	Network	Work type	Strategic estimate \$m ⁵⁴	Future investment \$m			
						1-5 yrs	6-10 yrs	11-15 yrs	15+ yrs
Landsborough Hwy (Kynuna - Cloncurry) (13H)	29	Cloncurry / McKinlay	NN	Widen & rehabilitation, incl McKinlay River floodway upgrade	55	25	30		
Landsborough Hwy (Kynuna - Cloncurry) (13H)	29	Cloncurry / McKinlay	NN	Widen & flood immunity improvements	12	12			
Flinders Hwy (Hughenden - Richmond)(14C)	10	Flinders	NN	Widen and rehabilitation	25	10	15		
Flinders Hwy (Hughenden - Cloncurry) (14C/14D/14E)	7	Flinders / Richmond / McKinlay	NN	Planning study to determine flood immunity strategy, Regional Boundary to Cloncurry	2	2			
Flinders Hwy (Richmond - Julia Creek) (14D)	13	Richmond	NN	Widen and rehab	17	9	8		
Flinders Hwy (Julia Creek - Cloncurry) (14E)	7	McKinlay	NN	Widen and rehab	21	10	11		
Barkly Hwy (Cloncurry - Mt. Isa) (15A)	1	Mt. Isa	NN	Improve intersections: Falcon St / Abel Smith Parade	4	4			
Barkly Hwy (Cloncurry - Mt Isa) (15A)	1	Cloncurry / Mt. Isa	NN	Widen narrow sections and construct overtaking lanes	28	18	10		

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Table 19 Continued: North West RRTG: Project proposed for future investment⁴⁵

Link	MCA link priority in zone	Local government	Network	Work type	Strategic estimate \$m ⁵⁵	Future investment \$m			
						1-5 yrs	6-10 yrs	11-15 yrs	15+ yrs
Barkly Hwy (Camooweal - NT) (15C)	11	Mt Isa	NN	Widening	2	2			
Wills Dev Rd (Julia Creek - Burketown) (78A)	24	McKinlay / Burke	LRRS/S	Road widening & rehab, widen/replace bridges including Beames Brook	122	20	27	75	
Burke Dev Rd (Cloncurry - Normanton) (89A)	19	Cloncurry / Carpentaria	S	Road widening & rehab, widen/replace bridges	70		20	50	
Burke Dev. Rd (Normanton - Dimbulah) (89B)	51	Carpentaria / Mareeba	LRRS	Formation & surface drainage improvement in sections	402	8	20	54	320
Burke Dev. Rd (Normanton - Dimbulah) (89B)	51	Carpentaria / Mareeba	LRRS	Raise approaches to Norman River	3	3			
Diamantina Dev Rd (Dajarra - Mt Isa) (93F)	54	Mt Isa	S	Widening and widen/replace bridges	38	3	5	30	
Kennedy Dev. Rd (The Lynd - Hughenden) (99B)	9	Flinders	S	Hann Hwy: Road widening, realignment and major drainage structures	21	7	14		
Kennedy Dev. Rd (The Lynd - Hughenden) (99B)	9	Flinders	S	Construct 27km of existing unsealed road to sealed standard	32	10	22		
Kennedy Dev. Rd (The Lynd - Hughenden) (99B)	9	Flinders / Etheridge	S	Construct remaining 39km of unsealed road to sealed standard	37	10	27		
Kennedy Dev. Rd (Hughenden - Winton) (99C)	45	Flinders	S	Pavement rehabilitation	15		5	10	
Richmond - Winton Rd (5803)	49	Richmond/ Winton	LRRS	Progressive sealing of 49km unsealed road	24		6	6	12
Gregory Downs - Camooweal (6801)	48	Mt Isa	LRRS	Progressive sealing of unsealed road	27		7	20	
Cloncurry - Dajarra Rd (7708)	30	Cloncurry	LRRS	Progressive sealing of unsealed road	26		6	20	
Savannah Way: Normanton - Burketown		Carpentaria/ Burke	LRRS	Progressive forming, drainage, paving and sealing	100	6	12	12	70
Savannah Way: Burketown - Doomadgee - NT		Burke	LRRS	Progressive forming, drainage, paving and sealing	52	4	8	8	32
Croydon - Richmond		Richmond	LRRS	Pave & seal and floodways/culverts	30	5	10	15	
Various				Package of road safety enhancements and mass action program	15	5	5	5	
Various				Improve tourism signage and provision of new/upgraded scenic stopping places	7	3	2	2	
Total					1,222	176	305	307	434

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3. IQ-RAP PROPOSED PROGRAM OF INVESTMENT – EASTERN ZONE

Below is an overview of proposed investment in the IQ-RAP eastern zone by RRTG.

Table 20: Summary of proposed future investment- Easter IQ-RAP zone

RRTG	Strategic estimate ⁵⁶ \$m	Future investment \$m			
		1-5yr	6-10yr	11-15yr	Beyond
Bowen Basin, Rockhampton, Gladstone	964	220	424	320	
Whitsunday	417	92	126	81	118
North Queensland	491	170	132	189	
Far North Queensland	321	72	146	103	
Total	2,193	554	828	693	118

Further detail of the program is provided for each RRTG region in the eastern zone below.

BOWEN BASIN ROCKHAMPTON GLADSTONE RRTGS

Table 21: Bowen Basin Rockhampton Gladstone RRTGs: Projects yet to commence as per 2015-16 to 2018-19 QTRIP

Link	Local government	Network	Work type	Project number	Indicative cost \$m
Gregory Hwy (Emerald - Clermont)	Central Highlands	S	Montrose Rd, Cotherstone Rd Et Retro Corry Rd intersections Et miscellaneous works	225/27B/5,6	9.4
Gregory Hwy (Emerald - Clermont)	Central Highlands	S	Miscellaneous works: 6.00-38.47km	225/27B/7	9.2
Gregory Hwy (Emerald - Clermont)	Central Highlands	S	Miscellaneous works: 72.05-73.05km; 57.9 59.6km	225/27B/8,9	1.3
Various	Fitzroy District	S	Construction works		3.8
Various	Fitzroy District	S	Minor safety enhancements		4.2
Total					27.9

Table 22: Bowen Basin Rockhampton Gladstone RRTGs: Projects proposed for future investment

Link	MCA link priority in zone	Local government	Network	Work type	Strategic estimate ⁵⁷ \$m	1-5 yrs	6-10 yrs	11-15 yrs
Capricorn Hwy (Rockhampton - Duaringa) (16A)	7	Rockhampton	S	Widening and seal formation, bridge upgrades	84	25	40	19
Capricorn Hwy (Rockhampton - Duaringa)(16A)	7	Rockhampton / Central Highlands	S	Upgrade Gracemere Saleyards intersection to cater for FEV	3	3		
Capricorn Hwy (Duaringa - Emerald) (16B)	9	Central Highlands	S	Widen remaining narrow sections and bridge upgrades	102	30	40	32
Capricorn Hwy (Emerald - Alpha)(16C)	13	Central Highlands	S	Widen 27km of narrow formation and bridge upgrades	61	10	21	30
Leichhardt Hwy (Westwood - Taroom)(26A)	8	Banana	S	Widen 23km of narrow formation and bridge upgrades	82	27	30	25
Leichhardt Hwy (Taroom - Miles)(26B)	2	Banana	S	Widen remaining narrow sections	6		6	

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Table 22: Bowen Basin Rockhampton Gladstone RRTGs: Projects proposed for future investment

Link	MCA link priority in zone	Local government	Network	Work type	Strategic estimate ⁵⁸ \$m	Future investment \$m 1-5 yrs	6-10 yrs	11-15 yrs
Gregory Hwy (Springsure - Emerald)(27A)	37	Central Highlands	S	Widen remaining narrow sections and rehab	27	3	12	12
Gregory Hwy (Emerald - Clermont)(27B)	15	Central Highlands	S	Widen formation and bridge upgrades	29	10	19	
Peak Downs Hwy (Clermont - Nebo)(33A)	3	Isaac	S	Widen 32km of narrow seals; bridge upgrading	45	8	37	
Burnett Hwy (Monto - Biloela)(41D)	4	Banana	S	Replacement of timber bridges and widening 10km of narrow pavement	76			
Burnett Hwy (Biloela - Dululu)(41E)	14	Banana	S	Widen and rehab 38km of narrow road; bridge upgrades	65	5	25	35
Burnett Hwy (Dululu - Rockhampton)(41F)		Banana / Rockhampton	S	Widening narrow formation	9		9	
Dawson Hwy (Gladstone - Biloela) (46A)	5	Gladstone / Banana	S	Widen 3km of narrow formation and bridge upgrades	65	10	25	30
Dawson Hwy (Biloela - Banana) (46B)	12	Banana	S	Widen narrow sections and Kroombit Ck upgrade	10	5	5	
Dawson Hwy (Banana - Rolleston) (46C)	18	Banana / Central Highlands	S	Widen remaining narrow sections and bridge upgrades	41	11	20	10
Dawson Hwy (Rolleston - Springsure) (46D)	23	Central Highlands	S	Widen remaining narrow sections and bridge upgrades	29	9	20	
Fitzroy Dev Rd (Dingo - Mt Flora) (85C)	22	Central Highlands / Isaac	S	Widen remaining narrow sections and bridge upgrades	64	4	30	30
Fitzroy Dev Rd (Dingo - Mt Flora) (85C)	22	Central Highlands	S	Strengthen and widen 12 Mile Creek; and HV rest area	3	3		
Fitzroy Dev Rd (Dingo - Mt Flora) (85C)	22	Central Highlands / Isaac	S	Construct new concrete bridge over Springton, Charlevue, Duckworth Creeks	13	13		
Gregory Dev Rd (Clermont - Belyando Crossing) (98A)	25	Isaac	S	Road widening, pavement rehab and bridge upgrades	31	3	18	10
Gladstone - Monto Rd (471)	31	Gladstone	LRRS	Widen remaining narrow sections and bridge upgrades	45		15	30
Clermont - Alpha Rd (552)	34	Isaac / Barcaldine	LRRS	Improve alignment, sealing sections and drainage/ bridge upgrades	55	30	10	15
Various				Package of road safety enhancements and mass action program	12	2	5	5
Various				Improve tourism signage and provision of new/upgraded scenic stopping places	7	3	2	2
Total					964	220	424	320

Please note: Suttor Road details were not included in the first stage of the IQ-RAP but will be considered for future updates

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WHITSUNDAY RRTG

Table 23: Whitsunday RRTG: Projects yet to commence as per 2015-16 to 2018-19 QTRIP

Link	Local government	Network	Work type	Project number	Indicative cost \$m
Peak Downs Hwy (Nebo - Mackay)	Mackay / Isaac	S	Replace timber bridges at Fiery, Lonely, Boundary & Cut Creeks on new alignment	236/33B/6	70.0
Peak Downs Hwy (Nebo - Mackay)	Mackay	S	Realign 51.40 - 52.90km: Eton Range	242/33B/8	189.2
Other Works - Minor Safety Enhancements			Other Works - Minor Safety Enhancements		2.3
Total					261.5

Table 24: Whitsunday RRTG: Projects proposed for future investment

Link	MCA link priority in zone	Local government	Network	Work type	Strategic estimate ⁵⁹ \$m	Future investment \$m			
						1-5 yrs	6-10 yrs	11-15 yrs	15+ yrs
Peak Downs Hwy (Nebo - Mackay) (33B)	10	Mackay / Isaac	S	Road widening and bridge upgrades including Bowen Basin Service Link	186	80	80	26	
Bowen Dev Rd (Bowen - Collinsville) (88A)	29	Whitsunday	LRRS	Road widening and bridge upgrades	57		17	40	
Bowen Dev Rd (Collinsville - Belyando Crossing)(88B)	36	Whitsunday	LRRS	Seal unsealed section west of Collinsville, Mt Coolon & provision for HV	17	7	10		
Bowen Dev Rd (Collinsville - Belyando Crossing)(88B)	36	Whitsunday	LRRS	59km initial sealing; and bridge upgrades	142		12	12	118
Various				Package of road safety enhancements and mass action program	10	3	5	2	
Various				Improve tourism signage, provision of new/upgraded scenic stopping places	5	2	2	1	
Total					417	92	126	81	118

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NORTH QUEENSLAND RRTG

Table 25: North Queensland RRTG: Projects yet to commence as per 2015-16 to 2018-19 QTRIP

Link	Local government	Network	Work type	Project number	Indicative cost \$m
Gregory Dev Rd (Charters Towers - The Lynd)	Charters Towers	S	Rehab & widen: various locations	217/98C/4	1.4
Total					1.4

Table 26: North Queensland RRTG: Projects proposed for future investment

Link	MCA link priority in zone	Local government	Network	Work type	Strategic estimate ⁶⁰ \$m	Future investment \$m 1-5 yrs	6-10 yrs	11-15 yrs
Flinders Hwy (Townsville - Charters Towers) (14A)	6	Townsville / Charters Towers	S	Widening / rehab of 23km and bridge upgrades	45		25	20
Flinders Hwy (Townsville - Charters Towers) (14A)	6	Townsville / Charters Towers	S	Construct overtaking lanes and provision for HV rest areas	22	22		
Flinders Hwy (Townsville - Charters Towers) (14A)	6	Charters Towers	S	Pavement widening and strengthening: 30km in sections	19	19		
Flinders Hwy (Charters Towers - Hughenden) (14B)	17	Charters Towers / Flinders	S	Road widening, pavement rehab and bridge upgrades	204	24	70	110
Hervey's Range Dev Rd (83A)	26	Townsville / Charters Towers	S	Road widening, pavement rehab and bridge upgrades	81	5	20	56
Gregory Dev Rd (Belyando Crossing - Charters Towers) (98B)	21	Charters Towers	S	Widening narrow sections and pavement rehab	16	8	8	
Gregory Dev Rd (Belyando Crossing - Charters Towers) (98B)	21	Charters Towers	S	Construct new bridge and approaches (Cape River)	37	37		
Gregory Dev Rd (Charters Towers - The Lynd) (98C)	27	Charters Towers	S	Widen 40km of existing single lane and narrow seal	50	50		
Burdekin Falls Dam Rd (5407)	35	Charters Towers	LRRS	Widening narrow seal	2		2	
Various				Package of road safety enhancements and mass action program	10	3	5	2
Various				Improve tourism signage and provision of new/upgraded scenic stopping places	5	2	2	1
Total					491	170	132	189

⁵⁰ Strategic Estimate in \$2015, subject to planning and design considerations

FAR NORTH QUEENSLAND RRTG

Table 27: Far North Queensland RRTG: Projects yet to commence as per 2015-16 to 2018-19 QTRIP

Link	Local government	Network	Work type	Project number	Indicative cost \$m
Gulf Dev Rd (Croydon - Georgetown)	Etheridge	S	Widen & seal: various locations	226/92B/1	5.0
Kennedy Hwy (Cairns - Mareeba)	Mareeba	S	Overtaking lane/s: 35.71 - 37.14km	277/32A/201	1.7
Various		S	Other Works - construction works		3.7
Various		S	Other Works - minor safety enhancements		1.1
Croydon - Richmond Rd	Croydon	LRRS	Construct section of two lane seal		0.3
Total					11.8

Figure 14: Dirt to sealed road on Kennedy Development Road (Hann Highway)



Table 28: Far North Queensland RRTG: Projects proposed for future investment

Link	MCA link priority in zone	Local government	Network	Work type	Strategic estimate ⁶¹ \$m	Future investment \$m 1-5 yrs	6-10 yrs	11-15 yrs
Kennedy Hwy (Cairns - Mareeba) (32A)	11	Mareeba	S	Widen narrow sections and provision of overtaking lanes	9	9		
Kennedy Hwy (Mareeba - Ravenshoe) (32B)	16	Mareeba / Tablelands	S	Widen narrow sections and bridge upgrades	62	6	26	30
Kennedy Hwy/ Dimbulah Rd (32A)	16	Mareeba	S	Construct section of Mareeba Bypass	20			20
Kennedy Hwy (Ravenshoe - Mt. Garnet) (32C)	19	Tablelands	S	Widen and overlay and bridge upgrades	11		11	
Kennedy Hwy (Mt. Garnet - The Lynd) (32D)	28	Tablelands	S	Widen / replace bridges	20		10	10
Gulf Dev Rd (Normanton - Croydon) (92A)	33	Croydon	S	Widen and realignment at Croydon	4	4		
Gulf Dev Rd (Croydon - Georgetown) (92B)	20	Etheridge	S	Widen existing single lane seal (93.3 - 111.5km)	12	12		
Gulf Dev Rd (Croydon - Georgetown) (92B)	20	Etheridge	S	Widen existing single lane seal (120.2 - 146.2km)	15		15	
Gulf Dev Rd (Croydon - Georgetown) (92B)	20	Etheridge	S	Construct new bridge & approaches Gilbert River	15	2	13	
Gulf Dev Rd (Georgetown - Mt Garnet) (92C)	32	Etheridge	S	Widen existing single lane seal (3.3 - 15.1km)	5	5		
Gulf Dev Rd (Georgetown - Mt Garnet) (92C)	32	Etheridge	S	Widen existing single lane seal (41.9 - 55.2km)	8		8	
Gulf Dev Rd (Georgetown - Mt Garnet) (92C)	32	Etheridge	S	Widen existing single lane seal (57.2 - 68.7km)	6			6
Kennedy Dev Rd (Mt. Garnet - The Lynd) (99A)	30	Etheridge	S	Road widening	7		7	
Kennedy Dev Rd (Mt. Garnet - The Lynd) (99A)	30	Etheridge	S	Widen existing single lane seal (52.2 - 55.3km)	3	3		
Gregory Dev Rd (The Lynd - Quartz Blow Ck) (98D)	24	Etheridge	LRRS	Link Study - feasibility of sealing to road train standard; Kennedy Dev Rd - Gulf Dev Road	1	1		
Kennedy Dev Rd (The Lynd - Hughenden) (99B)	W9	Etheridge	S	Hann Hwy: Seal to 8.5m existing formation (2.2 - 7.9km, 18.3 - 30.3km)	21	7	14	
Kennedy Dev Rd (The Lynd - Hughenden) (99B)	W9	Etheridge	S	Hann Hwy: Seal to 8.5m existing formation (38.5 - 47.7km, 47.8 - 76.9km, 76.9 - 86.8km sections)	48	8	25	15
Croydon-Richmond Rd		Croydon	LRRS	Improve drainage and progressive sealing	35	10	10	15
Various				Package of road safety enhancements and mass action program	12	2	5	5
Various				Improve tourism signage and provision of new/upgraded scenic stopping places				
Total					321	72	146	103

Please note: Ootah Road details were not included in the first stage of the IQ-RAP but will be considered for future updates

51 Strategic Estimate in \$2015, subject to planning and design considerations

8. Making it happen

In addition to a program of priority projects (for 5, 10 and 15 year horizons), the IQ-RAP Working Group's intention is that following publication of the plan stakeholders will have:

"A high level of understanding of the current road infrastructure in the region, and a clear understanding of the future road transport priorities for inland Queensland".

The following implementation program is proposed to convert this understanding into an agreed and funded plan, and to prepare road authorities (local governments and TMR) for the planning, design and construction activities necessary to undertake projects when funds become available.

1. IMPLEMENTATION PLAN (FOR THE FIRST 12 TO 18 MONTHS)

Table 29 outlines the immediate implementation plan for the next 12 to 18 months (January 2016 to June 2017). It addresses responsibilities and timing.

Figure 15: Sealing north of Mount Isa



Table 29: IQ-RAP Implementation plan – January 2016 to June 2017

Action	Description	Responsibility	Timing
FUNDING SUBMISSION			
1.	Advocacy and stakeholder briefings to inform Budget planning; to address high regional unemployment; engage with governments on the framework to collaborate going forward	IQ-RAP Working Group IQ-RAP Secretariat	Feb – Apr 2016
2.	Facilitate a workshop to explain the IQ-RAP, achieve understanding and endorsement of the priorities and programs, develop a program and responsibilities for preparing the Funding Submission, and appoint a Program Coordinator, potentially within TMR.	IQ-RAP Working Group RRTGs TMR	Apr – May 2016 (after local government elections)
3.	Begin initial discussions on opportunities for joint involvement in larger scale projects. Identify the projects, and highlight these initiatives in the Funding Submission.	RRTG, TMR	Input to Funding Submission
4.	Identify possibilities for financial contributions to projects (local government, TMR or developer) and highlight in the Funding Submission	Local governments and TMR	Input to Funding Submission
5.	Prepare Funding Submission in conjunction with TMR, local governments and RDA. Submit to Australian and Queensland governments with copies and briefings to Members of three levels of governments.	Program Coordinator	
PLANNING AND DESIGN			
6.	Appoint a Project Manager for a Queensland inland road network planning study. TMR and local government to agree terms of reference for the study. Commission study.	Program Coordinator	Late 2016
7.	Allocate responsibilities for groups of local governments and TMR to develop lists of projects (with supporting justification) for each road in the study area to address isolated hazards. This will form the basis for works programs to target possible Blackspot Funding which may become available.	Program Coordinator	Late 2016
8.	Determine standards for each link within their area of responsibility (and with adjoining local government along a route), and determine the extent of planning and design required to produce schemes for an early start.	Program Coordinator to initiate/monitor TMR and local governments to provide input	Mid to late 2016
9.	Determine delivery mechanisms for each project – planning, design and construction responsibilities		Late 2016 to Mid 2017

9. Abbreviations

AADT	Annual Average Daily Traffic
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ARMIS	A Road Management Inventory System
ARRG	Australian Rural Roads Group
AusRAP	Australian Road Assessment Program
BHAP	Bruce Highway Action Plan
DAFF	Department of Agriculture, Fisheries and Forestry
FEV	Freight Efficient Vehicles
GSP	Gross State Product
HIG	Harrison Infrastructure Group
IQ-RAP	Inland Queensland Roads Action Plan
LG	Local Government
LGAQ	Local Government Association of Queensland
LRRS	Local Roads of Regional Significance
MCA	Multi Criteria Assessment
MITEZ	Mount Isa to Townsville Economic Development Zone
NAIF	National Australian Infrastructure Facility
NN	National Network
NRM	National Association of Australian State Road Authorities (NAASRA) Roughness Meter
NTC	National Transport Commission
OSCR	Other State Controlled Roads
PRN	Priority Road Network
QTLC	Queensland Transport and Logistics Council
QTRIP	Queensland Transport and Road Investment Program
RDA	Regional Development Australia
RDA TNWQ	Regional Development Australia Townsville and North West Queensland
RRTG	Regional Roads and Transport Groups
RTA	Roads and Transport Alliance
SCR	State Controlled Roads
TMR	Department of Transport and Main Roads
TNRP	Transport Network Reconstruction Program

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12. Appendices

1. APPENDIX A – IQ-RAP ROAD LIST

Road name	TMR road number	zone	Length (km)
Landsborough Hwy (Morven to Augathella)	13A	W	89
Landsborough Hwy (Augathella to Tambo)	13B	W	116
Landsborough Hwy (Tambo to Blackall)	13C	W	102
Landsborough Hwy (Blackall to Barcaldine)	13D	W	106
Landsborough Hwy (Barcaldine to Longreach)	13E	W	107
Landsborough Hwy (Longreach to Winton)	13F	W	177
Landsborough Hwy (Winton to Kynuna)	13G	W	166
Landsborough Hwy (Kynuna to Cloncurry)	13H	W	169
Flinders Hwy (Townsville to Charters Towers)	14A	E	126
Flinders Hwy (Charters Towers to Hughenden)	14B	E	247
Flinders Hwy (Hughenden to Richmond)	14C	W	115
Flinders Hwy (Richmond to Julia Creek)	14D	W	149
Flinders Hwy (Julia Creek to Cloncurry)	14E	W	137
Barkly Hwy (Cloncurry to Mount Isa)	15A	W	121
Barkly Hwy (Mount Isa to Camooweal)	15B	W	189
Barkly Hwy (Camooweal to NT Border)	15C	W	13
Capricorn Hwy (Rockhampton to Duaringa)	16A	E	106
Capricorn Hwy (Duaringa to Emerald)	16B	E	160
Capricorn Hwy (Emerald to Alpha)	16C	E	168
Capricorn Hwy (Alpha to Barcaldine)	16D	W	140
Warrego Hwy (Miles to Roma)	18D	W	141
Warrego Hwy (Roma to Mitchell)	18E	W	87
Warrego Hwy (Mitchell to Morven)	18F	W	93
Warrego Hwy (Morven to Charleville)	18G	W	87
Mitchell Hwy (Barringun to Cunnamulla)	23A	W	118
Mitchell Hwy (Cunnamulla to Charleville)	23B	W	197
Mitchell Hwy (Charleville to Augathella)	23C	W	78
Carnarvon Hwy (Mungindi to St George)	24A	W	118
Carnarvon Hwy (St George to Surat)	24B	W	116
Carnarvon Hwy (Surat to Roma)	24C	W	73
Carnarvon Hwy (Roma to Injune)	24D	W	90
Carnarvon Hwy (Injune to Rolleston)	24E	W	172
Leichhardt Hwy (Westwood to Taroom)	26A	E	257
Leichhardt Hwy (Taroom to Miles)	26B	E	128
Gregory Hwy (Springsure to Emerald)	27A	E	148
Gregory Hwy (Emerald to Clermont)	27B	E	106
Kennedy Hwy (Cairns to Mareeba)	32A	E	68
Kennedy Hwy (Mareeba to Ravenshoe)	32B	E	112
Kennedy Hwy (Ravenshoe to Mt Garnet)	32C	E	45

Road name	TMR road number	zone	Length (km)
Kennedy Hwy (Mt Garnet to The Lynd)	32D	E	71
Peak Downs Hwy (Clermont to Nebo)	33A	E	178
Peak Downs Hwy (Nebo to Mackay)	33B	E	88
Moonie Hwy (Dalby to St George)	35A	W	294
Balonne Hwy (St George to Bollon)	36A	W	113
Balonne Hwy (Bollon to Cunnamulla)	36B	W	176
Castlereagh Hwy (Noondoo to Hebel)	37A	W	90
Burnett Hwy (Monto to Biloela)	41D	E	94
Burnett Hwy (Biloela to Dululu)	41E	E	103
Burnett Hwy (Dululu to Rockhampton)	41F	E	32
Dawson Hwy (Gladstone to Biloela)	46A	E	120
Dawson Hwy (Biloela to Banana)	46B	E	46
Dawson Hwy (Banana to Rolleston)	46C	E	168
Dawson Hwy (Rolleston to Springsure)	46D	E	71
Wills Development Rd (Julia Creek to Burketown)	78A	W	499
Cooper Development Rd (Quilpie to Bundeena)	79A	W	186
Birdsville Development Rd (Morney to Birdsville)	80A	W	266
Eyre Development Rd (Bedourie to Birdsville)	81A	W	163
Hervey's Range Development Rd (Townsville to Battery)	83A	E	125
Karumba Development Rd	84A	W	41
Fitzroy Development Rd (Dingo to Mt Flora)	85C	E	235
Bowen Development Rd (Bowen to Collinsville)	88A	E	81
Bowen Development Rd (Collinsville to Belyando Crossing)	88B	E	178
Burke Developmental Rd (Cloncurry to Normanton)	89A	W	378
Burke Developmental Rd (Normanton to Dimbulah)	89B	W	655
Gulf Development Rd (Normanton to Croydon)	92A	E	148
Gulf Development Rd (Croydon to Georgetown)	92B	E	147
Gulf Development Rd (Georgetown to Mt Garnet)	92C	E	148
Diamantina Development Rd (Charleville to Quilpie)	93A	W	210
Diamantina Development Rd (Quilpie to Windorah)	93B	W	246
Diamantina Development Rd (Windorah to Bedourie)	93C	W	389
Diamantina Development Rd (Bedourie to Boulia)	93D	W	188
Diamantina Development Rd (Boulia to Dajarra)	93E	W	147
Diamantina Development Rd (Dajarra to Mount Isa)	93F	W	153
Bulloo Developmental Rd (Cunnamulla to Thargomindah)	94A	W	198
Bulloo Development Rd (Thargomindah to Bundeena)	94B	W	164
Thomson Developmental Rd (Windorah to Jundah)	95A	W	92
Thomson Developmental Rd (Jundah to Longreach)	95B	W	218
Gregory Development Rd (Clermont to Belyando Crossing)	98A	E	158

Road name	TMR road number	zone	Length (km)
Gregory Development Rd (Belyando Crossing to Charters Towers)	98B	E	193
Gregory Development Rd (Charters Towers to The Lynd)	98C	E	259
Gregory Development Rd (The Lynd to Quartz Blow Creek)	98D	E	120
Kennedy Developmental Rd (Mt Garnet to The Lynd)	99A	E	105
Kennedy Development Rd (The Lynd to Hughenden)	99B	W	255
Kennedy Development Rd (Hughenden to Winton)	99C	W	215
Kennedy Development Rd (Winton to Boulia)	99D	W	355
Gladstone Monto Rd (Gladstone to Monto)	471	E	132
Clermont Alpha Rd (Clermont to Alpha)	552	E	179
Muttaborra - Aramac Rd	572	W	85
Barcaldine - Aramac Rd	573	W	66
Burdekin Falls Dam Rd (Crimea to Burdekin Falls Dam)	5407	E	121
Aramac - Torrens Creek Rd	5703	W	213
Richmond to Winton Rd	5803	W	145
Gregory Downs to Camooweal Rd	6801	W	219
Cloncurry to Dajarra Rd	7708	W	169
St George to Dirranbandi Rd	EB35	W	68
Richmond-Croydon Rd		W	335
Normanton-Burketown-Doomadgee-Northern Territory Rd		W	415
Boulia-Tobermorey Rd		W	214
Total			15,879

2. APPENDIX B – METHODOLOGY FOR MULTI CRITERIA ASSESSMENT

PURPOSE

The multi criteria analysis (MCA) has used available quantitative data to shortlist a wide range of options for more detailed investigation.

The MCA has been undertaken on a link basis rather than a project basis. It is strategically important to complete a link to desired standards, thereby enabling it to be opened to High Mass Limit Vehicles or to provide a safe tourist route. Completing isolated sections of road would not have the same strategic impact.

CRITERIA

The basis for calculation of each of the scores is shown in Table 1, along with a commentary on the relevance of this data to the prioritisation of investment across the network. It is acknowledged that there is some overlap between the criteria with some data used to inform measurement of multiple criteria.

Figure 1 - Normanton Burketown Road - Armstrong causeway



Figure 2 - Keeroongooloo Road, Quilpie Shire



Table 1 - MCA parameters and weightings

Criteria	Comment
Road benefit	<p>In lieu of a full benefit and cost analysis, this criteria quantifies the improvement based on the length of the link that is improved and the number of vehicles that will be using it in the future. This is calculated using the following formula:</p> $\text{road benefit} = \text{intervention length on link (km)} * \text{predicted passenger car units at 2030} / \text{total cost of upgrades on the link where: passenger car units at 2030} = 2015 \text{ AADT} * (1 + 2.5 * \% \text{ HV}) * (1 + \text{five year growth rate} * 15 \text{ years})$
Access benefits	<p>TMR has provided road closure data for the period between 2012 and 2015. Where a link has been closed for significant periods, particularly after major flooding events, it indicates that there is a requirement to improve the flood immunity (i.e. by raising bridge levels or improving drainage) on these links. The access benefit is similar to the road benefit and is calculated using the following formula:</p> $\text{access benefit} = \text{time of closure (2012 to 2015)} * \text{predicted passenger car units at 2025} / \text{total cost of upgrades on the link}$
Freight network score	<p>The freight function is important to support the development of the economy of western Queensland. TMR has provided HIG with draft planning which identifies a potential freight network in western Queensland. Roads identified as priority freight routes have been given a score of 3. Roads identified as freight support routes have been given a score of 2, while roads not part of the freight network have been given a score of 1.</p>
Hierarchy	<p>Road hierarchy is a relevant consideration, though not essential within this analysis. Roads at the upper end of the hierarchy should typically have higher volumes of traffic and will therefore be prioritised by this process. Various considerations within the MCA will ensure that road links that have not received adequate investment to date will be prioritised. A higher weighting has been given to National Highways (score of 6), followed by PRN1 (score of 5), PRN2 (score of 4), PRN3 (score of 3), OSCR (score of 2) then LRRS roads (score of 1).</p>
Crash cost	<p>TMR has provided crash data by DCA code between 2006 and 2014. These values have been converted to a crash cost per kilometre, based on the values provided in the TMR Benefit Cost Analysis Manual. This parameter will help to prioritise road links requiring intervention, where there are current problems that are creating safety issues. The consideration of crash cost is not ideal as it is a 'lagging indicator' (i.e. a crash needs to occur before it is highlighted as an issue), however the MCA has also used width and roughness which are 'leading indicators' and will enable the process to proactively identify safety issues.</p>
Tourism	<p>Tourism is important to the economic development of western Queensland, particularly as the resource boom declines. A higher importance has been given to tourism routes noted on TMR's Key Tourist Roads map.</p>
Width deficiency	<p>A high importance has been given to roads that are significantly narrower than the intervention standard for that link, as the width of the road will have an impact on both the safety and capacity of the route. The width deficiency criteria is calculated by comparing the average width of the link to the intervention width.</p>
Roughness	<p>Roughness data is a key contributor to safety. The ARMIS data has been summarised for each link to determine the average roughness for the link.</p>

3. ANALYSIS

The values for each criteria have been normalised by considering the number of standard deviations that a value is away from the mean, compared to that parameter across other links.

Where the value of the criteria is equivalent to the average of all the various links for that parameter, a score of 0 is given. Where a criteria is two standard deviations from the average, a score of 2 has been given. Where a value is more than three standard deviations from the average, a score of 3 has been given to avoid one criteria overly biasing the analysis.

The scores for each criteria are then multiplied by the weighting for each criteria, then added together to determine a single score for each road link. Roads that rank highly will have positive total scores. Roads that rank poorly will have negative total scores.

Table 4 'MCA prioritisation – 'local' weightings' shows the outcome of the MCA process and the scores that contribute to it. The individual scores for each criteria are provided to enable stakeholders to review the links relevant to them and understand the basis of the ranking for each individual link.

4. SCENARIO TESTING

Table 2 shows three different possible weighting scenarios for the MCA.

1. The 'base' scenario endeavours to balance local and strategic issues.
2. The 'local' scenario places a greater emphasis on local issues such as width, roughness, tourism and safety, irrespective of traffic volumes.
3. The 'strategic' scenario prioritises the criteria more dependent on traffic volumes and the freight function of the roads.

Table 2 MCA weighting scenarios

Criteria	Base	Local	Strategic
Road benefit	25%	10%	25%
Access	10%	10%	20%
Freight	10%	5%	20%
Hierarchy	5%	0%	10%
Safety	15%	25%	10%
Tourism	10%	15%	5%
Width	15%	20%	5%
Roughness	10%	15%	5%
Total	100%	100%	100%

Tables 3, 4 and 5 following show the highest rated links for each scenario. The ranking of individual projects will change depending on the weightings, but reasonable refinements in the MCA rankings will not have a significant overall effect. The priority projects generally involve road links with substantial traffic volumes.

Table 3 - MCA prioritisation – base case

Road name	#	zone	AADT	25%	10%	10%	5%	15%	10%	15%	10%	100%
				road benefit	access	freight	tourism	hierarchy	safety	width	roughness	total
Burnett Hwy (Dululu to Rockhampton)	41F	E	3172	3.00	3.00	-0.5	-0.8	-0.2	1.3	-0.3	0.6	1.07
Leichhardt Hwy (Taroom to Miles)	26B	E	1089	2.56	-0.17	1.3	1.2	0.9	-0.1	-0.3	1.4	1.04
Barkly Hwy (Cloncurry to Mt Isa)	15A	W	1199	1.78	-0.20	1.3	1.2	1.5	0.7	-0.3	0.9	0.95
Burnett Hwy (Monto to Biloela)	41D	E	972	1.80	0.00	1.3	1.2	0.3	-0.3	0.7	1.3	0.91
Peak Downs Hwy (Clermont to Nebo)	33A	E	1905	2.59	-0.18	1.3	-0.8	0.9	0.2	-0.3	0.0	0.82
Warrego Hwy (Miles to Roma)	18D	W	2421	1.41	-0.20	1.3	1.2	1.5	0.5	-0.3	0.5	0.79
Kennedy Hwy (Cairns to Mareeba)	32A	E	1224	0.64	-0.14	-0.5	-0.8	0.9	3.0	1.9	-1.2	0.67
Landsborough Hwy (Bacaldine to Longreach)	13E	W	799	1.90	0.78	-0.5	1.2	1.5	-0.3	-0.3	-0.6	0.66
Landsborough Hwy (Longreach to Winton)	13F	W	590	1.33	-0.14	-0.5	1.2	1.5	-0.2	-0.3	1.5	0.64
Warrego Hwy (Roma to Mitchell)	18E	W	1038	1.47	-0.20	1.3	1.2	1.5	0.0	-0.3	-1.3	0.59
Kennedy Hwy (Mareeba to Ravenshoe)	32B	E	803	0.93	-0.03	-0.5	-0.8	0.3	1.8	2.4	-1.4	0.59
Carnarvon Hwy (Injune to Rolleston)	24E	W	542	1.83	-0.20	1.3	-0.8	0.3	-0.1	-0.3	0.5	0.57
Dawson Hwy (Biloela to Banana)	46B	E	1925	0.55	2.31	1.3	-0.8	0.9	0.2	-0.3	-0.3	0.54
Burnett Hwy (Biloela to Dululu)	41E	E	1142	1.32	0.06	-0.5	1.2	0.3	0.1	-0.3	0.9	0.45
Flinders Hwy (Townsville to Charters Towers)	14A	E	2468	0.95	-0.20	1.3	-0.8	1.5	0.7	-0.3	-1.3	0.42
Dawson Hwy (Gladstone to Biloela)	46A	E	2720	-0.20	0.24	1.3	-0.8	0.9	2.6	-0.3	-0.2	0.40
Kennedy Hwy (Ravenshoe to Mt Garnet)	32C	E	842	1.21	-0.19	-0.5	-0.8	-0.2	0.0	2.6	-1.5	0.40
Flinders Hwy (Julia Creek to Cloncurry)	14E	W	482	-0.41	-0.14	1.3	1.2	1.5	-0.2	-0.3	1.2	0.36
Leichhardt Hwy (Westwood to Taroom)	26A	E	779	0.20	0.07	1.3	1.2	0.9	-0.1	-0.3	0.2	0.36
Capricorn Hwy (Emerald to Alpha)	16C	E	675	0.11	-0.16	1.3	1.2	0.3	0.0	0.2	0.7	0.36
Capricorn Hwy (Duarina to Emerald)	16B	E	2671	-0.16	-0.11	1.3	1.2	0.9	1.0	-0.3	0.0	0.33
Warrego Hwy (Mitchell to Morven)	18F	W	728	-0.19	-0.20	1.3	1.2	1.5	-0.2	-0.3	0.1	0.29
Peak Downs Hwy (Nebo to Mackay)	33B	E	5153	-0.55	-0.18	1.3	-0.8	0.9	3.0	-0.3	-0.4	0.29
Capricorn Hwy (Rockhampton to Duaringa)	16A	E	4019	-0.60	0.27	1.3	1.2	0.9	1.9	-0.3	-0.6	0.29
Flinders Hwy (Hughenden to Richmond)	14C	W	12	-0.60	-0.20	1.3	1.2	1.5	-0.2	-0.3	0.6	0.24
Landsborough Hwy (Augathella to Tambo)	13B	W	467	0.56	-0.19	-0.5	1.2	1.5	-0.3	-0.3	-0.7	0.21
Flinders Hwy (Charters Towers to Hughenden)	14B	E	720	-0.46	-0.19	1.3	1.2	1.5	-0.1	-0.3	-0.2	0.20
Gregory Hwy (Emerald to Clermont)	27B	E	1764	-0.60	-0.19	1.3	1.2	0.9	0.9	-0.3	0.0	0.20
Barkly Hwy (Camooweal to NT Border)	15C	W	280	-0.60	-0.20	1.3	1.2	1.5	0.0	-0.3	-0.1	0.18
Flinders Hwy (Richmond to Julia Creek)	14D	W	385	-0.60	-0.20	1.3	1.2	1.5	-0.3	-0.3	0.2	0.18
Moonie Hwy (Dalby to St George)	35A	W	785	-0.60	0.66	-1.4	-0.8	-0.2	-0.1	2.4	1.5	0.20
Mitchell Hwy (Cunnamulla to Charleville)	23B	W	200	0.09	0.23	-0.5	1.2	-0.2	-0.4	-0.3	2.4	0.17
Carnarvon Hwy (St George to Surat)	24B	W	478	-0.19	-0.20	1.3	1.2	0.3	-0.2	-0.3	0.5	0.15
Gregory Development Rd (The Lynd to Quartz Blow Ck)	98D	E	26	-0.50	-0.19	-0.5	-0.8	-1.4	-0.4	3.0	1.8	0.15
Landsborough Hwy (Blackall to Bacaldine)	13D	W	490	-0.51	-0.20	-0.5	1.2	1.5	-0.3	-0.3	1.1	0.12
Balonne Hwy (St George to Bollon)	36A	W	319	0.48	-0.20	-0.5	-0.8	-0.8	-0.3	-0.3	3.3	0.14
Barkly Hwy (Mt Isa to Camooweal)	15B	W	653	-0.51	-0.18	1.3	1.2	1.5	0.1	-0.3	-1.2	0.11
Landsborough Hwy (Tambo to Blackall)	13C	W	471	-0.60	-0.06	-0.5	1.2	1.5	-0.4	-0.3	1.1	0.10
Carnarvon Hwy (Surat to Roma)	24C	W	541	-0.25	-0.19	1.3	-0.8	0.3	-0.3	0.1	0.4	0.09
Balonne Hwy (Bollon to Cunnamulla)	36B	W	184	1.12	-0.20	-0.5	-0.8	-0.8	-0.4	-0.3	1.4	0.10
Dawson Hwy (Banana to Rolleston)	46C	E	469	-0.42	-0.11	1.3	-0.8	0.3	-0.1	-0.3	0.7	0.04
Landsborough Hwy (Winton to Kynuna)	13G	W	337	-0.60	-0.15	-0.5	1.2	1.5	-0.3	-0.3	0.3	0.02
Capricorn Hwy (Alpha to Bacaldine)	16D	W	376	-0.58	-0.13	1.3	1.2	0.3	-0.2	-0.3	-0.1	0.00
Landsborough Hwy (Kynuna to Cloncurry)	13H	W	318	-0.60	-0.11	-0.5	1.2	1.5	-0.4	-0.3	0.0	-0.01
Kennedy Development Rd (The Lynd to Hughenden)	99B	W	176	-0.60	-0.20	-0.5	-0.8	-0.8	-0.4	3.0	-0.5	-0.02
Dawson Hwy (Rolleston to Springsure)	46D	E	733	0.36	-0.10	-1.4	1.2	0.3	-0.1	-0.3	-0.2	-0.03
Carnarvon Hwy (Mungindi to St George)	24A	W	417	-0.51	-0.18	1.3	-0.8	0.3	-0.3	-0.3	0.4	-0.05
Carnarvon Hwy (Roma to Injune)	24D	W	1149	-0.60	-0.20	1.3	1.2	0.3	0.1	-0.3	-0.9	-0.05
Warrego Hwy (Morven to Charleville)	18G	W	402	-0.60	-0.20	1.3	1.2	-0.2	-0.2	-0.3	0.1	-0.07
Burke Developmental Rd (Cloncurry to Normanton)	89A	W	149	-0.49	-0.19	1.3	1.2	-0.2	-0.4	-0.3	-0.1	-0.08
Landsborough Hwy (Morven to Augathella)	13A	W	664	-0.46	-0.20	-0.5	-0.8	1.5	-0.3	-0.3	-0.3	-0.10
Bowen Development Rd (Bowen to Collinsville)	88A	E	963	0.49	-0.20	-1.4	-0.8	-1.4	0.2	2.1	-1.2	-0.07
Fitzroy Development Rd (Dingo to Mt Flora)	85C	E	830	0.05	-0.15	-0.5	-0.8	-0.2	-0.1	-0.3	0.9	-0.09
Kennedy Hwy (Mt Garnet to The Lynd)	32D	E	879	-0.60	-0.08	-0.5	-0.8	-0.2	-0.1	2.1	-1.2	-0.11
Gregory Development Rd (Belyando Crossing to Charters Towers)	98B	E	408	-0.18	-0.20	-0.5	1.2	0.3	-0.2	-0.3	-0.6	-0.13
Gulf Development Rd (Croydon to Georgetown)	92B	W	218	0.69	-0.19	-0.5	-0.8	-0.2	-0.3	-0.3	-0.9	-0.14
Mitchell Hwy (Charleville to Augathella)	23C	W	190	-0.22	-0.20	-0.5	1.2	-0.2	-0.2	-0.3	0.0	-0.17
Diamantina Development Rd (Quilpie to Windorah)	93B	W	98	-0.33	-0.20	-0.5	-0.8	-0.8	-0.4	-0.3	2.0	-0.21
Gregory Development Rd (Clermont to Belyando Crossing)	98A	E	401	-0.60	-0.20	-0.5	1.2	0.3	-0.3	-0.3	-0.4	-0.22
Bulloo Developmental Rd (Cunnamulla to Thargomindah)	94A	W	148	0.29	-0.18	-0.5	-0.8	-0.8	-0.4	-0.3	0.1	-0.24
Wills Development Rd (Julia Creek to Burkettown)	78A	W	52	-0.26	-0.17	1.3	-0.8	-0.8	-0.4	-0.3	-0.4	-0.24
Mitchell Hwy (Barrington to Cunnamulla)	23A	W	190	-0.60	-0.20	-0.5	1.2	-0.2	-0.4	-0.3	0.3	-0.25
Gregory Development Rd (Charters Towers to The Lynd)	98C	E	264	-0.32	-0.19	-0.5	1.2	-0.2	-0.2	-0.3	-0.9	-0.28
Hervey's Range Development Rd (Townsville to Battery)	83A	E	1222	-0.24	-0.19	-0.5	-0.8	-0.2	0.8	-0.3	-1.1	-0.28
Thomson Developmental Rd (Jundah to Longreach)	95B	W	116	-0.11	-0.18	-0.5	-0.8	-0.8	-0.4	-0.3	0.6	-0.29
Bowen Development Rd (Collinsville to Belyando Crossing)	88B	E	739	0.09	-0.19	-1.4	-0.8	-1.4	-0.2	2.0	-1.9	-0.29
Cooper Development Rd (Quilpie to Bundeena)	79A	W	59	-0.01	-0.19	-0.5	-0.8	-0.8	-0.4	-0.3	0.1	-0.31
Castlereagh Hwy (Noondoo to Hebel)	37A	W	257	-0.60	-0.16	-0.5	-0.8	-0.2	-0.3	-0.3	0.3	-0.34
Gladstone Monto Rd (Gladstone to Monto)	471	E	395	-0.60	0.11	-0.5	-0.8	-1.4	-0.2	-0.3	1.6	-0.35
Muttaborra - Aramac Rd	572	W	113	-0.60	0.04	-0.5	-0.8	-1.4	-0.4	-0.3	1.8	-0.35
Clermont Alpha Rd (Clermont to Alpha)	552	E	66	-0.60	-0.15	-0.5	-0.8	-1.4	-0.4	1.2	-0.2	-0.35
Kennedy Development Rd (Winton to Boulia)	99D	W	62	-0.41	-0.19	-0.5	-0.8	-0.8	-0.4	-0.3	0.7	-0.36
St George to Dirranbandi Rd	EB35	W	927	-0.60	-0.20	-0.5	-0.8	-0.2	-0.5	0.7	-1.4	-0.37
Bulloo Development Rd (Thargomindah to Bundeena)	94B	W	55	-0.21	-0.17	-0.5	-0.8	-0.8	-0.4	-0.3	-0.2	-0.39
Cloncurry to Dajarra Rd	7708	W	46	-0.60	-0.15	1.3	-0.8	-1.4	-0.4	-0.3	-0.1	-0.39
Diamantina Development Rd (Charleville to Quilpie)	93A	W	142	-0.35	-0.20	-0.5	-0.8	-0.8	-0.4	-0.3	0.2	-0.39
Kennedy Developmental Rd (Mt Garnet to The Lynd)	99A	E	201	-0.17	-0.09	-0.5	-0.8	-0.2	-0.3	-0.3	-1.4	-0.40
Diamantina Development Rd (Boulia to Dajarra)	93E	W	90	-0.60	-0.19	-1.4	-0.8	-0.8	-0.4	-0.3	1.6	-0.40
Gregory Downs to Camooweal Rd	6801	W	43	-0.60	-0.14	-0.5	-0.8	-1.4	-0.4	0.1	0.9	-0.40
Gulf Development Rd (Georgetown to Mt Garnet)	92C	E	296	-0.41	-0.20	-0.5	-0.8	-0.2	-0.3	-0.3	-0.9	-0.42
Karumba Development Rd	84A	W	310	-0.60	-0.20	-0.5	-0.8	-0.2	-0.3	-0.3	-0.5	-0.42
Diamantina Development Rd (Dajarra to Mt Isa)	93F	W	297	-0.60	-0.19	-1.4	-0.8	-0.8	-0.3	-0.3	1.3	-0.42
Kennedy Development Rd (Hughenden to Winton)	99C	W	147	-0.59	-0.10	-0.5	-0.8	-0.8	-0.4	-0.3	0.3	-0.42
Burke Developmental Rd (Normanton to Dimbulah)	89B	W	179	-0.10	-0.16	-1.4	1.2	-0.8	-0.4	-0.3	-1.2	-0.45
Diamantina Development Rd (Windorah to Bedourie)	93C	W	35	-0.12	-0.19	-0.5	-0.8	-1.4	-0.4	-0.3	-0.3	-0.47
Richmond to Winton Rd	5803	W	52	-0.60	-0.09	-0.5	-0.8	-1.4	-0.4	-0.1	0.5	-0.47
Savanna Way (NT Border to Burkettown)		W	39	-0.48	-0.20	-1.4	1.2	-0.8	-0.5	-0.3	-0.5	-0.48
Savanna Way (Burkettown to Normanton)		W	39	-0.48	-0.20	-1.4	1.2	-0.8	-0.5	-0.3	-0.5	-0.48
Gregory Hwy (Springsure to Emerald)	27A	E	180	-0.60	-0.19	-1.4	-0.8	0.3	-0.1	-0.3	-1.4	-0.50
Gulf Development Rd (Normanton to Croydon)	92A	W	180	-0.60	-0.04	-0.5	-0.8	-0.2	-0.3	-0.3	-1.4	-0.50
Thomson Developmental Rd (Windorah to Jundah)	95A	W	52	-0.60	-0.20	-0.5	-0.8	-0.8	-0.4	-0.3	-0.5	-0.52
Burdekin Falls Dam Rd (Crimea to Burdekin Falls Dam)	5407	E	118	-0.60	-0.20	-0.5	-0.8	-1.4	-0.3	-0.3	0.3	-0.52
Diamantina Development Rd (Bedourie to Boulia)	93D	W	42	-0.42	-0.14	-0.5	-0.8	-0.8	-0.4	-0.3	-1.2	-0.55
Birdsville Development Rd (Morney to Birdsville)	80A	W	39	-0.50	-0.20	-1.4	-0.8	-0.8	-0.4	-0.3	-0.5	-0.58
Eyre Development Rd (Bedourie to Birdsville)	81A	W	29	-0.52	-0.19	-1.4	-0.8	-0.8	-0.4	-0.3	-0.9	-0.63
Aramac - Torrens Creek Rd	5703	W	180	-0.60	0.45	-1.4	-0.8	-1.4	-0.4	-0.3	-1.2	-0.71
Bacaldine - Aramac Rd	573	W	185	-0.60	-0.10	-0.5	-0.8	-1.4	-0.4	-0.3	-1.6	-0.71
Richmond to Croydon Road (Richmond to Croydon)	LG	W	29	-0.50	-0.20	-1.4	-0.8	-1.4	-0.5	-0.3	-0.9	-0.72
Donohue Hwy (Boulia to Tobermoeve)	LG	W	29	-0.50	-0.20	-1.4	-0.8	-1.4	-0.5	-0.3	-0.9	-0.72

Table 4 - MCA prioritisation - 'local' weightings

Road name	#	zone	AADT	10% road benefit	10% access	5% freight	15% tourism	0% hierarchy	25% safety	20% width	15% roughness	100% total
Kennedy Hwy (Cairns to Mareeba)	32A	E	1224	0.64	-0.14	-0.5	-0.8	0.9	3.0	1.9	-1.2	0.86
Burnett Hwy (Dululu to Rockhampton)	41F	E	3172	3.00	3.00	-0.5	-0.8	-0.2	1.3	-0.3	0.6	0.81
Burnett Hwy (Monto to Biloela)	41D	E	972	1.80	0.00	1.3	1.2	0.3	-0.3	0.7	1.3	0.70
Kennedy Hwy (Mareeba to Ravenshoe)	32B	E	803	0.93	-0.03	-0.5	-0.8	0.3	1.8	2.4	-1.4	0.66
Barkly Hwy (Cloncurry to Mt Isa)	15A	W	1199	1.78	-0.20	1.3	1.2	1.5	0.7	-0.3	0.9	0.64
Leichhardt Hwy (Taroom to Miles)	26B	E	1089	2.56	-0.17	1.3	1.2	0.9	-0.1	-0.3	1.4	0.60
Gregory Development Rd (The Lynd to Quartz Blow Ck)	98D	E	26	-0.50	-0.19	-0.5	-0.8	-1.4	-0.4	3.0	1.8	0.55
Capricorn Hwy (Rockhampton to Duaringa)	16A	E	4019	-0.60	0.27	1.3	1.2	0.9	1.9	-0.3	-0.6	0.53
Dawson Hwy (Gladstone to Biloela)	46A	E	2720	-0.20	0.24	1.3	-0.8	0.9	2.6	-0.3	-0.2	0.51
Peak Downs Hwy (Nebo to Mackay)	33B	E	5153	-0.55	-0.18	1.3	-0.8	0.9	3.0	-0.3	-0.4	0.50
Moonie Hwy (Dalby to St George)	35A	W	785	-0.60	0.66	-1.4	-0.8	-0.2	-0.1	2.4	1.5	0.50
Warrego Hwy (Miles to Roma)	18D	W	2421	1.41	-0.20	1.3	1.2	1.5	0.5	-0.3	0.5	0.49
Capricorn Hwy (Duaringa to Emerald)	16B	E	2671	-0.16	-0.11	1.3	1.2	0.9	1.0	-0.3	0.0	0.40
Capricorn Hwy (Emerald to Alpha)	16C	E	675	0.11	-0.16	1.3	1.2	0.3	0.0	0.2	0.7	0.39
Mitchell Hwy (Cunnamulla to Charleville)	23B	W	200	0.09	0.23	-0.5	1.2	-0.2	-0.4	-0.3	2.4	0.39
Landsborough Hwy (Longreach to Winton)	13F	W	590	1.33	-0.14	-0.5	1.2	1.5	-0.2	-0.3	1.5	0.39
Burnett Hwy (Biloela to Dululu)	41E	E	1142	1.32	0.06	-0.5	1.2	0.3	0.1	-0.3	0.9	0.38
Gregory Hwy (Emerald to Clermont)	27B	E	1764	-0.60	-0.19	1.3	1.2	0.9	0.9	-0.3	0.0	0.33
Flinders Hwy (Julia Creek to Cloncurry)	14E	W	482	-0.41	-0.14	1.3	1.2	1.5	-0.2	-0.3	1.2	0.26
Kennedy Hwy (Ravenshoe to Mt Garnet)	32C	E	842	1.21	-0.19	-0.5	-0.8	-0.2	0.0	2.6	-1.5	0.25
Leichhardt Hwy (Westwood to Taroom)	26A	E	779	0.20	0.07	1.3	1.2	0.9	-0.1	-0.3	0.2	0.23
Balonne Hwy (St George to Bollon)	36A	W	319	0.48	-0.20	-0.5	-0.8	-0.3	-0.3	-0.3	3.3	0.22
Landsborough Hwy (Barcaldine to Longreach)	13E	W	799	1.90	0.78	-0.5	1.2	1.5	-0.3	-0.3	-0.6	0.21
Kennedy Development Rd (The Lynd to Hughenden)	99B	W	176	-0.60	-0.20	-0.5	-0.8	-0.8	-0.4	3.0	-0.5	0.21
Dawson Hwy (Biloela to Banana)	46B	E	1925	0.55	2.31	1.3	-0.8	0.9	0.2	-0.3	-0.3	0.16
Peak Downs Hwy (Clermont to Nebo)	33A	E	1905	2.59	-0.18	1.3	-0.8	0.9	0.2	-0.3	0.0	0.16
Carnarvon Hwy (St George to Surat)	24B	W	478	-0.19	-0.20	1.3	1.2	0.3	-0.2	-0.3	0.5	0.15
Flinders Hwy (Hughenden to Richmond)	14C	W	12	-0.60	-0.20	1.3	1.2	1.5	-0.2	-0.3	0.6	0.14
Bowen Development Rd (Bowen to Collinsville)	88A	E	963	0.49	-0.20	-1.4	-0.8	-1.4	0.2	2.1	-1.2	0.13
Warrego Hwy (Roma to Mitchell)	18E	W	1038	1.47	-0.20	1.3	1.2	1.5	0.0	-0.3	-1.3	0.11
Landsborough Hwy (Blackall to Barcaldine)	13D	W	490	-0.51	-0.20	-0.5	1.2	1.5	-0.3	-0.3	1.1	0.10
Warrego Hwy (Mitchell to Morven)	18F	W	728	-0.19	-0.20	1.3	1.2	1.5	-0.2	-0.3	0.1	0.10
Landsborough Hwy (Tambo to Blackall)	13C	W	471	-0.60	-0.06	-0.5	1.2	1.5	-0.4	-0.3	1.1	0.09
Carnarvon Hwy (Injune to Rolleston)	24E	W	542	1.83	-0.20	1.3	-0.8	0.3	-0.1	-0.3	0.5	0.08
Barkly Hwy (Camooweal to NT Border)	15C	W	280	-0.60	-0.20	1.3	1.2	1.5	0.0	-0.3	-0.1	0.08
Warrego Hwy (Morven to Charleville)	18G	W	402	-0.60	-0.20	1.3	1.2	-0.2	-0.2	-0.3	0.1	0.06
Flinders Hwy (Charters Towers to Hughenden)	14B	E	720	-0.46	-0.19	1.3	1.2	1.5	-0.1	-0.3	-0.2	0.05
Flinders Hwy (Richmond to Julia Creek)	14D	W	385	-0.60	-0.20	1.3	1.2	1.5	-0.3	-0.3	0.2	0.04
Capricorn Hwy (Alpha to Barcaldine)	16D	W	376	-0.58	-0.13	1.3	1.2	0.3	-0.2	-0.3	-0.1	0.04
Burke Developmental Rd (Cloncurry to Normanton)	89A	W	149	-0.49	-0.19	1.3	1.2	-0.2	-0.4	-0.3	-0.1	0.01
Balonne Hwy (Bollon to Cunnamulla)	36B	W	184	1.12	-0.20	-0.5	-0.8	-0.8	-0.4	-0.3	1.4	0.00
Dawson Hwy (Rolleston to Springsure)	46D	E	733	0.36	-0.10	-1.4	1.2	0.3	-0.1	-0.3	-0.2	-0.00
Mitchell Hwy (Charleville to Augathella)	23C	W	190	-0.22	-0.20	-0.5	1.2	-0.2	-0.2	-0.3	0.0	-0.00
Carnarvon Hwy (Roma to Injune)	24D	W	1149	-0.60	-0.20	1.3	1.2	0.3	0.1	-0.3	-0.9	-0.01
Landsborough Hwy (Winton to Kynuna)	13G	W	337	-0.60	-0.15	-0.5	1.2	1.5	-0.3	-0.3	0.3	-0.02
Kennedy Hwy (Mt Garnet to The Lynd)	32D	E	879	-0.60	-0.08	-0.5	-0.8	-0.2	-0.1	2.1	-1.2	-0.02
Barkly Hwy (Mt Isa to Camooweal)	15B	W	653	-0.51	-0.18	1.3	1.2	1.5	0.1	-0.3	-1.2	-0.04
Mitchell Hwy (Barrington to Cunnamulla)	23A	W	190	-0.60	-0.20	-0.5	1.2	-0.2	-0.4	-0.3	0.3	-0.05
Landsborough Hwy (Augathella to Tambo)	13B	W	467	0.56	-0.19	-0.5	1.2	1.5	-0.3	-0.3	-0.7	-0.05
Landsborough Hwy (Kynuna to Cloncurry)	13H	W	318	-0.60	-0.11	-0.5	1.2	1.5	-0.4	-0.3	0.0	-0.07
Gladstone Monto Rd (Gladstone to Monto)	47I	E	395	-0.60	0.11	-0.5	-0.8	-1.4	-0.2	-0.3	1.6	-0.07
Diamantina Development Rd (Quilpie to Windorah)	93B	W	98	-0.33	-0.20	-0.5	-0.8	-0.8	-0.4	-0.3	2.0	-0.08
Flinders Hwy (Townsville to Charters Towers)	14A	E	2468	0.95	-0.20	1.3	-0.8	1.5	0.7	-0.3	-1.3	-0.08
Carnarvon Hwy (Surat to Roma)	24C	W	541	-0.25	-0.19	1.3	-0.8	0.3	-0.3	0.1	0.4	-0.09
Gregory Development Rd (Belyando Crossing to Charters Towers)	98B	E	408	-0.18	-0.20	-0.5	1.2	0.3	-0.2	-0.3	-0.6	-0.09
Muttaborra - Aramac Rd	572	W	113	-0.60	0.04	-0.5	-0.8	-1.4	-0.4	-0.3	1.8	-0.09
Dawson Hwy (Banana to Rolleston)	46C	E	469	-0.42	-0.11	1.3	-0.8	0.3	-0.1	-0.3	0.7	-0.10
Fitzroy Development Rd (Dingo to Mt Flora)	85C	E	830	0.05	-0.15	-0.5	-0.8	-0.2	-0.1	-0.3	0.9	-0.10
Clermont Alpha Rd (Clermont to Alpha)	552	E	66	-0.60	-0.15	-0.5	-0.8	-1.4	-0.4	1.2	-0.2	-0.11
Gregory Development Rd (Clermont to Belyando Crossing)	98A	E	401	-0.60	-0.20	-0.5	1.2	0.3	-0.3	-0.3	-0.4	-0.12
Bowen Development Rd (Collinsville to Belyando Crossing)	88B	E	739	0.09	-0.19	-1.4	-0.8	-1.4	-0.2	2.0	-1.9	-0.13
Gregory Development Rd (Charters Towers to The Lynd)	98C	E	264	-0.32	-0.19	-0.5	1.2	-0.2	-0.2	-0.3	-0.9	-0.14
Gregory Downs to Camooweal Rd	680I	W	43	-0.60	-0.14	-0.5	-0.8	-1.4	-0.4	0.1	0.9	-0.17
Diamantina Development Rd (Boulia to Dajarra)	93E	W	90	-0.60	-0.19	-1.4	-0.8	-0.8	-0.4	-0.3	1.6	-0.19
Savanna Way (NT Border to Burketown)		W	39	-0.48	-0.20	-1.4	1.2	-0.8	-0.5	-0.3	-0.5	-0.21
Savanna Way (Burketown to Normanton)		W	39	-0.48	-0.20	-1.4	1.2	-0.8	-0.5	-0.3	-0.5	-0.21
Hervey's Range Development Rd (Townsville to Battery)	83A	E	1222	-0.24	-0.19	-0.5	-0.8	-0.2	0.8	-0.3	-1.1	-0.21
Carnarvon Hwy (Mungindi to St George)	24A	W	417	-0.51	-0.18	1.3	-0.8	0.3	-0.3	-0.3	0.4	-0.22
Diamantina Development Rd (Dajarra to Mt Isa)	93F	W	297	-0.60	-0.19	-1.4	-0.8	-0.8	-0.3	-0.3	1.3	-0.22
Burke Developmental Rd (Normanton to Dimbulah)	89B	W	179	-0.10	-0.16	-1.4	1.2	-0.8	-0.4	-0.3	-1.2	-0.25
Thomson Developmental Rd (Jundah to Longreach)	95B	W	116	-0.11	-0.18	-0.5	-0.8	-0.8	-0.4	-0.3	0.6	-0.26
Richmond to Winton Rd	5803	W	52	-0.60	-0.09	-0.5	-0.8	-1.4	-0.4	-0.1	0.5	-0.27
Bulloo Developmental Rd (Cunnamulla to Thargomindah)	94A	W	148	0.29	-0.18	-0.5	-0.8	-0.8	-0.4	-0.3	0.1	-0.28
Kennedy Development Rd (Winton to Boulia)	99D	W	62	-0.41	-0.19	-0.5	-0.8	-0.8	-0.4	-0.3	0.7	-0.28
Cooper Development Rd (Quilpie to Bundeena)	79A	W	59	-0.01	-0.19	-0.5	-0.8	-0.8	-0.4	-0.3	0.1	-0.32
Cloncurry to Dajarra Rd	7708	W	46	-0.60	-0.15	1.3	-0.8	-1.4	-0.4	-0.3	-0.1	-0.32
Castlereagh Hwy (Noondoo to Hebel)	37A	W	257	-0.60	-0.16	-0.5	-0.8	-0.2	-0.3	-0.3	0.3	-0.33
Wills Development Rd (Julia Creek to Burketown)	78A	W	52	-0.26	-0.17	1.3	-0.8	-0.8	-0.4	-0.3	-0.4	-0.33
Burdekin Falls Dam Rd (Crimea to Burdekin Falls Dam)	5407	E	118	-0.60	-0.20	-0.5	-0.8	-1.4	-0.3	-0.3	0.3	-0.33
Kennedy Development Rd (Hughenden to Winton)	99C	W	147	-0.59	-0.10	-0.5	-0.8	-0.8	-0.4	-0.3	0.3	-0.33
Diamantina Development Rd (Charleville to Quilpie)	93A	W	142	-0.35	-0.20	-0.5	-0.8	-0.8	-0.4	-0.3	0.2	-0.35
Gulf Development Rd (Croydon to Georgetown)	92B	W	218	0.69	-0.19	-0.5	-0.8	-0.2	-0.3	-0.3	-0.9	-0.37
Bulloo Development Rd (Thargomindah to Bundeena)	94B	W	55	-0.21	-0.17	-0.5	-0.8	-0.8	-0.4	-0.3	-0.2	-0.38
Diamantina Development Rd (Windorah to Bedourie)	93C	W	35	-0.12	-0.19	-0.5	-0.8	-1.4	-0.4	-0.3	-0.3	-0.39
Landsborough Hwy (Morven to Augathella)	13A	W	664	-0.46	-0.20	-0.5	-0.8	1.5	-0.3	-0.3	-0.3	-0.40
St George to Dirranbandi Rd	EB35	W	927	-0.60	-0.20	-0.5	-0.8	-0.2	-0.5	0.7	-1.4	-0.40
Karumba Development Rd	84A	W	310	-0.60	-0.20	-0.5	-0.8	-0.2	-0.3	-0.3	-0.5	-0.44
Thomson Developmental Rd (Windorah to Jundah)	95A	W	52	-0.60	-0.20	-0.5	-0.8	-0.8	-0.4	-0.3	-0.5	-0.47
Gulf Development Rd (Georgetown to Mt Garnet)	92C	E	296	-0.41	-0.20	-0.5	-0.8	-0.2	-0.3	-0.3	-0.9	-0.48
Birdsville Development Rd (Morney to Birdsville)	80A	W	39	-0.50	-0.20	-1.4	-0.8	-0.8	-0.4	-0.3	-0.5	-0.50
Kennedy Developmental Rd (Mt Garnet to The Lynd)	99A	E	201	-0.17	-0.09	-0.5	-0.8	-0.2	-0.3	-0.3	-1.4	-0.53
Aramac - Torrens Creek Rd	5703	W	180	-0.60	0.45	-1.4	-0.8	-1.4	-0.4	-0.3	-1.2	-0.56
Diamantina Development Rd (Bedourie to Boulia)	93D	W	42	-0.42	-0.14	-0.5	-0.8	-0.8	-0.4	-0.3	-1.2	-0.56
Gulf Development Rd (Normanton to Croydon)	92A	W	180	-0.60	-0.04	-0.5	-0.8	-0.2	-0.3	-0.3	-1.4	-0.56
Eyre Development Rd (Bedourie to Birdsville)	81A	W	29	-0.52	-0.19	-1.4	-0.8	-0.8	-0.4	-0.3	-0.9	-0.57
Richmond to Croydon Road (Richmond to Croydon)	LG	W	29	-0.50	-0.20	-1.4	-0.8	-1.4	-0.5	-0.3	-0.9	-0.57
Donohue Hwy (Boulia to Tobermoe)	LG	W	29	-0.50	-0.20	-1.4	-0.8	-1.4	-0.5	-0.3	-0.9	-0.57
Gregory Hwy (Springsure to Emerald)	27A	E	180	-0.60	-0.19	-1.4	-0.8	0.3	-0.1	-0.3	-1.4	-0.58
Barcaldine - Aramac Rd	573	W	185	-0.60	-0.10	-0.5	-0.8	-1.4	-0.4	-0.3	-1.6	-0.63

Table 5 - MCA prioritisation - 'strategic' weightings

Road name	#	zone	AADT	25% road benefit	20% access	20% freight	5% tourism	10% hierarchy	10% safety	5% width	5% roughness	100% total
Burnett Hwy (Dululu to Rockhampton)	41F	E	3172	3.00	3.00	-0.5	-0.8	-0.2	1.3	-0.3	0.6	1.34
Leichhardt Hwy (Taroom to Miles)	26B	E	1089	2.56	-0.17	1.3	1.2	0.9	-0.1	-0.3	1.4	1.07
Barkly Hwy (Cloncurry to Mt Isa)	15A	W	1199	1.78	-0.20	1.3	1.2	1.5	0.7	-0.3	0.9	0.98
Peak Downs Hwy (Clermont to Nebo)	33A	E	1905	2.59	-0.18	1.3	-0.8	0.9	0.2	-0.3	0.0	0.93
Dawson Hwy (Biloela to Banana)	46B	E	1925	0.55	2.31	1.3	-0.8	0.9	0.2	-0.3	-0.3	0.91
Burnett Hwy (Monto to Biloela)	41D	E	972	1.80	0.00	1.3	1.2	0.3	-0.3	0.7	1.3	0.89
Warrego Hwy (Miles to Roma)	18D	W	2421	1.41	-0.20	1.3	1.2	1.5	0.5	-0.3	0.5	0.84
Warrego Hwy (Roma to Mitchell)	18E	W	1038	1.47	-0.20	1.3	1.2	1.5	0.0	-0.3	-1.3	0.72
Landsborough Hwy (Barcaldine to Longreach)	13E	W	799	1.90	0.78	-0.5	1.2	1.5	-0.3	-0.3	-0.6	0.68
Carnarvon Hwy (Injune to Rolleston)	24E	W	542	1.83	-0.20	1.3	-0.8	0.3	-0.1	-0.3	0.5	0.67
Flinders Hwy (Townsville to Charters Towers)	14A	E	2468	0.95	-0.20	1.3	-0.8	1.5	0.7	-0.3	-1.3	0.56
Dawson Hwy (Gladstone to Biloela)	46A	E	2720	-0.20	0.24	1.3	-0.8	0.9	2.6	-0.3	-0.2	0.55
Leichhardt Hwy (Westwood to Taroom)	26A	E	779	0.20	0.07	1.3	1.2	0.9	-0.1	-0.3	0.2	0.47
Capricorn Hwy (Rockhampton to Duarina)	16A	E	4019	-0.60	0.27	1.3	1.2	0.9	1.9	-0.3	-0.6	0.47
Landsborough Hwy (Longreach to Winton)	13F	W	590	1.33	-0.14	-0.5	1.2	1.5	-0.2	-0.3	1.5	0.46
Capricorn Hwy (Duarina to Emerald)	16B	E	2671	-0.16	-0.11	1.3	1.2	0.9	1.0	-0.3	0.0	0.44
Kennedy Hwy (Cairns to Mareeba)	32A	E	1224	0.64	-0.14	-0.5	-0.8	0.9	3.0	1.9	-1.2	0.43
Peak Downs Hwy (Nebo to Mackay)	33B	E	5153	-0.55	-0.18	1.3	-0.8	0.9	3.0	-0.3	-0.4	0.41
Capricorn Hwy (Emerald to Alpha)	16C	E	675	0.11	-0.16	1.3	1.2	0.3	0.0	0.2	0.7	0.40
Burnett Hwy (Biloela to Dululu)	41E	E	1142	1.32	0.06	-0.5	1.2	0.3	0.1	-0.3	0.9	0.38
Flinders Hwy (Julia Creek to Cloncurry)	14E	W	482	-0.41	-0.14	1.3	1.2	1.5	-0.2	-0.3	1.2	0.37
Warrego Hwy (Mitchell to Morven)	18F	W	728	-0.19	-0.20	1.3	1.2	1.5	-0.2	-0.3	0.1	0.36
Kennedy Hwy (Mareeba to Ravenshoe)	32B	E	803	0.93	-0.03	-0.5	-0.8	0.3	1.8	2.4	-1.4	0.35
Gregory Hwy (Emerald to Clermont)	27B	E	1764	-0.60	-0.19	1.3	1.2	0.9	0.9	-0.3	0.0	0.31
Flinders Hwy (Charters Towers to Hughenden)	14B	E	720	-0.46	-0.19	1.3	1.2	1.5	-0.1	-0.3	-0.2	0.28
Flinders Hwy (Hughenden to Richmond)	14C	W	12	-0.60	-0.20	1.3	1.2	1.5	-0.2	-0.3	0.6	0.28
Barkly Hwy (Camooweal to NT Border)	15C	W	280	-0.60	-0.20	1.3	1.2	1.5	0.0	-0.3	-0.1	0.26
Carnarvon Hwy (St George to Surat)	24B	W	478	-0.19	-0.20	1.3	1.2	0.3	-0.2	-0.3	0.5	0.26
Barkly Hwy (Mt Isa to Camooweal)	15B	W	653	-0.51	-0.18	1.3	1.2	1.5	0.1	-0.3	-1.2	0.25
Flinders Hwy (Richmond to Julia Creek)	14D	W	385	-0.60	-0.20	1.3	1.2	1.5	-0.3	-0.3	0.2	0.25
Kennedy Hwy (Ravenshoe to Mt Garnet)	32C	E	842	1.21	-0.19	-0.5	-0.8	-0.2	0.0	2.6	-1.5	0.16
Carnarvon Hwy (Surat to Roma)	24C	W	541	-0.25	-0.19	1.3	-0.8	0.3	-0.3	0.1	0.4	0.16
Capricorn Hwy (Alpha to Barcaldine)	16D	W	376	-0.58	-0.13	1.3	1.2	0.3	-0.2	-0.3	-0.1	0.15
Dawson Hwy (Banana to Rolleston)	46C	E	469	-0.42	-0.11	1.3	-0.8	0.3	-0.1	-0.3	0.7	0.14
Landsborough Hwy (Augathella to Tambo)	13B	W	467	0.56	-0.19	-0.5	1.2	1.5	-0.3	-0.3	-0.7	0.14
Carnarvon Hwy (Roma to Injune)	24D	W	1149	-0.60	-0.20	1.3	1.2	0.3	0.1	-0.3	-0.9	0.12
Burke Developmental Rd (Cloncurry to Normanton)	89A	W	149	-0.49	-0.19	1.3	1.2	-0.2	-0.4	-0.3	-0.1	0.09
Warrego Hwy (Morven to Charleville)	18G	W	402	-0.60	-0.20	1.3	1.2	-0.2	-0.2	-0.3	0.1	0.08
Mitchell Hwy (Cunnamulla to Charleville)	23B	W	200	0.09	0.23	-0.5	1.2	-0.2	-0.4	-0.3	2.4	0.08
Carnarvon Hwy (Mungindi to St George)	24A	W	417	-0.51	-0.18	1.3	-0.8	0.3	-0.3	-0.3	0.4	0.07
Balonne Hwy (Bollon to Cunnamulla)	36B	W	184	1.12	-0.20	-0.5	-0.8	-0.8	-0.4	-0.3	1.4	0.04
Balonne Hwy (St George to Bollon)	36A	W	319	0.48	-0.20	-0.5	-0.8	-0.8	-0.3	-0.3	3.3	-0.02
Wills Development Rd (Julia Creek to Burketown)	78A	W	52	-0.26	-0.17	1.3	-0.8	-0.8	-0.4	-0.3	-0.4	-0.03
Landsborough Hwy (Blackall to Barcaldine)	13D	W	490	-0.51	-0.20	-0.5	1.2	1.5	-0.3	-0.3	1.1	-0.04
Landsborough Hwy (Tambo to Blackall)	13C	W	471	-0.60	-0.06	-0.5	1.2	1.5	-0.4	-0.3	1.1	-0.05
Landsborough Hwy (Winton to Kynuna)	13G	W	337	-0.60	-0.15	-0.5	1.2	1.5	-0.3	-0.3	0.3	-0.10
Landsborough Hwy (Kynuna to Cloncurry)	13H	W	318	-0.60	-0.11	-0.5	1.2	1.5	-0.4	-0.3	0.0	-0.11
Gulf Development Rd (Croydon to Georgetown)	92B	W	218	0.69	-0.19	-0.5	-0.8	-0.2	-0.3	-0.3	-0.9	-0.11
Gregory Development Rd (Belyando Crossing to Charters Towers)	98B	E	408	-0.18	-0.20	-0.5	1.2	0.3	-0.2	-0.3	-0.6	-0.15
Dawson Hwy (Rolleston to Springsure)	46D	E	733	0.36	-0.10	-1.4	1.2	0.3	-0.1	-0.3	-0.2	-0.15
Fitzroy Development Rd (Dingo to Mt Flora)	85C	E	830	0.05	-0.15	-0.5	-0.8	-0.2	-0.1	-0.3	0.9	-0.15
Cloncurry to Dajarra Rd	770B	W	46	-0.60	-0.15	1.3	-0.8	-1.4	-0.4	-0.3	-0.1	-0.16
Moonie Hwy (Dalby to St George)	35A	W	785	-0.60	0.66	-1.4	-0.8	-0.2	-0.1	2.4	1.5	-0.17
Mitchell Hwy (Charleville to Augathella)	23C	W	190	-0.22	-0.20	-0.5	1.2	-0.2	-0.2	-0.3	0.0	-0.19
Landsborough Hwy (Morven to Augathella)	13A	W	664	-0.46	-0.20	-0.5	-0.8	1.5	-0.3	-0.3	-0.3	-0.20
Bulloo Developmental Rd (Cunnamulla to Thargomindah)	94A	W	148	0.29	-0.18	-0.5	-0.8	-0.8	-0.4	-0.3	0.1	-0.23
Gregory Development Rd (The Lynd to Quartz Blow Ck)	98D	E	26	-0.50	-0.19	-0.5	-0.8	-1.4	-0.4	3.0	1.8	-0.24
Hervey's Range Development Rd (Townsville to Battery)	83A	E	1222	-0.24	-0.19	-0.5	-0.8	-0.2	0.8	-0.3	-1.1	-0.24
Gregory Development Rd (Clermont to Belyando Crossing)	98A	E	401	-0.60	-0.20	-0.5	1.2	0.3	-0.3	-0.3	-0.4	-0.25
Gregory Development Rd (Charters Towers to The Lynd)	98C	E	264	-0.32	-0.19	-0.5	1.2	-0.2	-0.2	-0.3	-0.9	-0.25
Mitchell Hwy (Barrington to Cunnamulla)	23A	W	190	-0.60	-0.20	-0.5	1.2	-0.2	-0.4	-0.3	0.3	-0.29
Kennedy Hwy (Mt Garnet to The Lynd)	32D	E	879	-0.60	-0.08	-0.5	-0.8	-0.2	-0.1	2.1	-1.2	-0.30
Diamantina Development Rd (Quilpie to Windorah)	93B	W	98	-0.33	-0.20	-0.5	-0.8	-0.8	-0.4	-0.3	2.0	-0.30
Bowen Development Rd (Bowen to Collinsville)	88A	E	963	0.49	-0.20	-1.4	-0.8	-1.4	0.2	2.1	-1.2	-0.31
Thomson Developmental Rd (Jundah to Longreach)	95B	W	116	-0.11	-0.18	-0.5	-0.8	-0.8	-0.4	-0.3	0.6	-0.31
Cooper Development Rd (Quilpie to Bundeeena)	79A	W	59	-0.01	-0.19	-0.5	-0.8	-0.8	-0.4	-0.3	0.1	-0.31
Kennedy Development Rd (The Lynd to Hughenden)	99B	W	176	-0.60	-0.20	-0.5	-0.8	-0.8	-0.4	3.0	-0.5	-0.32
Kennedy Developmental Rd (Mt Garnet to The Lynd)	99A	E	201	-0.17	-0.09	-0.5	-0.8	-0.2	-0.3	-0.3	-1.4	-0.34
Gladstone Monto Rd (Gladstone to Monto)	471	E	395	-0.60	0.11	-0.5	-0.8	-1.4	-0.2	-0.3	1.6	-0.36
Bulloo Development Rd (Thargomindah to Bundeeena)	94B	W	55	-0.21	-0.17	-0.5	-0.8	-0.8	-0.4	-0.3	-0.2	-0.37
Castlereagh Hwy (Noondoo to Hebel)	37A	W	257	-0.60	-0.16	-0.5	-0.8	-0.2	-0.3	-0.3	0.3	-0.38
Muttaburra - Aramac Rd	572	W	113	-0.60	0.04	-0.5	-0.8	-1.4	-0.4	-0.3	1.8	-0.38
Kennedy Development Rd (Winton to Boulia)	99D	W	62	-0.41	-0.19	-0.5	-0.8	-0.8	-0.4	-0.3	0.7	-0.38
Gulf Development Rd (Georgetown to Mt Garnet)	92C	E	296	-0.41	-0.20	-0.5	-0.8	-0.2	-0.3	-0.3	-0.9	-0.39
Diamantina Development Rd (Charleville to Quilpie)	93A	W	142	-0.35	-0.20	-0.5	-0.8	-0.8	-0.4	-0.3	0.2	-0.39
Diamantina Development Rd (Windorah to Bedourie)	93C	W	35	-0.12	-0.19	-0.5	-0.8	-1.4	-0.4	-0.3	-0.3	-0.41
Karumba Development Rd	84A	W	310	-0.60	-0.20	-0.5	-0.8	-0.2	-0.3	-0.3	-0.5	-0.42
Kennedy Development Rd (Hughenden to Winton)	99C	W	147	-0.59	-0.10	-0.5	-0.8	-0.8	-0.4	-0.3	0.3	-0.42
St George to Dirranbandi Rd	EB35	W	927	-0.60	-0.20	-0.5	-0.8	-0.2	-0.5	0.7	-1.4	-0.42
Gulf Development Rd (Normanton to Croydon)	92A	W	180	-0.60	-0.04	-0.5	-0.8	-0.2	-0.3	-0.3	-1.4	-0.44
Gregory Downs to Camooweal Rd	6801	W	43	-0.60	-0.14	-0.5	-0.8	-1.4	-0.4	0.1	0.9	-0.44
Clermont Alpha Rd (Clermont to Alpha)	552	E	66	-0.60	-0.15	-0.5	-0.8	-1.4	-0.4	1.2	-0.2	-0.44
Richmond to Winton Rd	5803	W	52	-0.60	-0.09	-0.5	-0.8	-1.4	-0.4	-0.1	0.5	-0.47
Burke Developmental Rd (Normanton to Dimbulah)	89B	W	179	-0.10	-0.16	-1.4	1.2	-0.8	-0.4	-0.3	-1.2	-0.47
Diamantina Development Rd (Bedourie to Boulia)	93D	W	42	-0.42	-0.14	-0.5	-0.8	-0.8	-0.4	-0.3	-1.2	-0.47
Bowen Development Rd (Collinsville to Belyando Crossing)	88B	E	739	0.09	-0.19	-1.4	-0.8	-1.4	-0.2	2.0	-1.9	-0.48
Thomson Developmental Rd (Windorah to Jundah)	95A	W	52	-0.60	-0.20	-0.5	-0.8	-0.8	-0.4	-0.3	-0.5	-0.49
Burdekin Falls Dam Rd (Crimea to Burdekin Falls Dam)	5407	E	118	-0.60	-0.20	-0.5	-0.8	-1.4	-0.3	-0.3	0.3	-0.50
Savanna Way (NT Border to Burketown)		W	39	-0.48	-0.20	-1.4	1.2	-0.8	-0.5	-0.3	-0.5	-0.54
Savanna Way (Burketown to Normanton)		W	39	-0.48	-0.20	-1.4	1.2	-0.8	-0.5	-0.3	-0.5	-0.54
Diamantina Development Rd (Boulia to Dajarra)	93E	W	90	-0.60	-0.19	-1.4	-0.8	-0.8	-0.4	-0.3	1.6	-0.56
Gregory Hwy (Springsure to Emerald)	27A	E	180	-0.60	-0.19	-1.4	-0.8	0.3	-0.1	-0.3	-1.4	-0.57
Diamantina Development Rd (Dajarra to Mt Isa)	93F	W	297	-0.60	-0.19	-1.4	-0.8	-0.8	-0.3	-0.3	1.3	-0.57
Barcaldine - Aramac Rd	573	W	185	-0.60	-0.10	-0.5	-0.8	-1.4	-0.4	-0.3	-1.6	-0.58
Aramac - Torrens Creek Rd	5703	W	180	-0.60	0.45	-1.4	-0.8	-1.4	-0.4	-0.3	-1.2	-0.63
Birdsville Development Rd (Morney to Birdsville)	80A	W	39	-0.50	-0.20	-1.4	-0.8	-0.8	-0.4	-0.3	-0.5	-0.64
Eyre Development Rd (Bedourie to Birdsville)	81A	W	29	-0.52	-0.19	-1.4	-0.8	-0.8	-0.4	-0.3	-0.9	-0.67
Richmond to Croydon Road (Richmond to Croydon)	LG	W	29	-0.50	-0.20	-1.4	-0.8	-1.4	-0.5	-0.3	-0.9	-0.72
Donohue Hwy (Boulia to Tobermoe)	LG	W	29	-0.50	-0.20	-1.4	-0.8	-1.4	-0.5	-0.3	-0.9	-0.72





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